



COUNTY **ASSESSMENT**

PHASE THREE

Community Profile





Acknowledgments

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Community Profile

Introduction

The Community Profile identifies specific community needs by developing an accurate, comprehensive picture of the health and well-being status of DuPage County residents. Content areas are focused on the following indicators:

1. Demographics
2. Social Determinants of Health
3. Health Resource Availability
4. Quality of Life
5. Behavioral Risk Factors
6. Environmental Health
7. Mental Health
8. Maternal and Child Health
9. Chronic Conditions
10. Death, Injury and Violence
11. Infectious Diseases

In the fall of 2014, staff from the Impact DuPage Core Team began collecting, analyzing, and summarizing data for each of the sections listed above. Subject matter experts from the DuPage County Health Department (DCHD) provided assistance with collecting and summarizing data for several sections. Each indicator displays the most recent county-level data available. DuPage County data are compared to state and national data, and Healthy People 2020 targets, where possible. Data without Healthy People 2020 targets have been included where appropriate based on public health impact.

Illinois Department of Public Health (IDPH) provides unpublished data on births and deaths of DuPage County residents to the DCHD. These data were analyzed in R to provide information about mortality, maternal health, and disparities. Unless otherwise noted, rates displayed in the Community Profile are crude rates. When rates were calculated for the entire population of DuPage, the population denominator was provided by the Centers for Disease Control and Prevention (CDC) Vintage Bridged-Race Postcensal Population Estimates. Publicly available data from IDPH were also used, as were data from national sources (e.g., CDC) and local sources (e.g., FORWARD).

Between July and November 2014, the Impact DuPage Dashboard committee planned and developed the community dashboard website, a centralized location for community data (www.impactdupage.org). Select indicators from the dashboard were used by the Impact DuPage core team to collect and summarize information for this report. As the community dashboard becomes fully developed, it will be used by Impact DuPage partners to measure and track change across various indicators.

The Impact DuPage Steering Committee reviewed the preliminary Community Profile report in January 2014. This report summarizes the findings of the Community Profile of DuPage County.



Section 1: Demographics and Socioeconomic Characteristics

Demographic characteristics include measures of total population, as well as the percent of total population by age group, gender, race/ethnicity, where these populations are located, and the rate of change in population over time.

Key Findings

- ❖ Between 1990 and 2013, the Hispanic population increased by 275.4 percent and the Black population increased by 175 percent; there was a 124.3 percent increase in the 55 to 59 age group and a 162.4 percent increase in the 85 years and over age group; and, the DuPage portions of Aurora, Bartlett, Wayne, and West Chicago experienced significant increases in population.
- ❖ Between 2000 and 2009, the total number of births decreased by 25 percent, while the DuPage Hispanic birth rates were nearly double the overall birth rates in DuPage.
- ❖ The DuPage County foreign born population increased by 24 percent between 2000 and 2013.
- ❖ Unemployment rates rose to a 10 year high of 8.4 percent in DuPage County in 2009, but have decreased since then and the unemployment rate in 2013 was 7.5 percent.

DuPage County Population

Since 1990, the DuPage County population has increased by 19.2 percent, as seen in Table 1.1. Additionally, the age distribution is significantly different. Between 1990 and 2013, the less than five years of age group decreased by almost 13 percent and the 25 to 34 age group decreased by almost 22 percent. All age groups over 44 years increased significantly, with a 124.3 percent increase in the 55 to 59 age group and a 162.4 percent increase in the 85 years and over age group. The increase in the older population in DuPage County is similar to trends seen in Illinois and nationally (1,2).

DuPage County has also been experiencing major changes in race and ethnicity. Between 1990 and 2013, the Hispanic population increased by 275.4 percent and the black population increased by 175 percent (1,2).

Table 1.1 DuPage County Demographics

Population	1990	2000	Percent of 2000 Population	2010	Percent of 2010 Population	2013	Percent of 2013 Population	Percent Change 1990-2013
Total	781,666	904,161		916,924		932,126		19.2%
Male	385,520	445,731	49.3%	449,351	49.0%	457,399	49.1%	18.6%
Female	396,146	458,430	50.7%	467,573	51.0%	474,727	50.9%	19.8%
Under 5	63,817	65,849	7.3%	56,940	6.2%	55,580	6.0%	-12.9%
5 to 9	58,669	69,061	7.6%	62,430	6.8%	60,147	6.5%	2.5%
10 to 14	52,691	67,632	7.5%	65,875	7.2%	65,596	7.0%	24.5%
15 to 19	50,293	61,139	6.8%	65,319	7.1%	64,780	6.9%	28.8%



Table 1.1 DuPage County Demographics (Continued)

Population	1990	2000	Percent of 2000 Population	2010	Percent of 2010 Population	2013	Percent of 2013 Population	Percent Change 1990-2013
20 to 24	54,809	52,522	5.8%	54,497	5.9%	57,126	6.1%	4.2%
25 to 34	153,296	131,985	14.6%	117,222	12.8%	119,713	12.8%	-21.9%
35 to 44	137,091	161,179	17.8%	125,979	13.7%	122,108	13.1%	-10.9%
45 to 54	86,633	131,418	14.5%	149,142	16.3%	142,399	15.3%	64.4%
55 to 59	30,335	44,103	4.9%	62,885	6.9%	68,046	7.3%	124.3%
60 to 64	28,096	30,479	3.4%	50,237	5.5%	55,734	6.0%	98.4%
65 to 74	40,798	45,558	5.0%	57,640	6.3%	69,483	7.5%	70.3%
75 to 84	20,685	31,621	3.5%	32,885	3.6%	34,353	3.7%	66.1%
85 and over	6,501	11,615	1.3%	15,873	1.7%	17,061	1.8%	162.4%
Median Age	32.3	35.2		38.2		39.0		
White	714,905	759,924	84.0%	714,140	77.9%	746,034	80.0%	4.4%
Black	15,462	27,600	3.1%	42,346	4.6%	42,520	4.6%	175%
Asian/ Pacific Islander	39,634	*		*		*		*
Asian	*	71,252	7.9%	92,304	10.1%	100,226	10.8%	40.7% (since 2000)
Native Hawaiian and Other Pacific Islander	*	217	0.0%	217	0.0%	376	0.0%	73.3% (since 2000)
American Indian	962	*		*		*		*
American Indian and Alaska Native	*	1,520	0.2%	*		1,998	0.2%	31.4% (since 2000)
Some Other Race	*	28,166	3.1%	45,106	4.9%	17,248	1.9%	-38.8% (since 2000)
Two or more races	*	15,482	1.7%	20,396	2.2%	23,724	2.5%	53.2% (since 2000)
Hispanic	34,567	81,366	9.0%	121,506	13.3%	129,775	13.9%	275.4%

*No sample observations of this race in this year or too few observations to compute a margin of error.

Source: U.S. Census Bureau (1,2)

Table 1.2 lists thirty-three DuPage municipalities with population numbers for 1990, 2000, and 2010; estimates for 2008-2012, and percent change between 1990 and 2008-2012. For municipalities not located entirely in DuPage, the population numbers include only the parts within DuPage County. The DuPage portions of Aurora, Bartlett, Wayne, and



West Chicago experienced significant increases in population, while Hanover Park and Oak Brook experienced decreases in population (3,4).

Table 1.2 DuPage County Municipality Populations

Place in DuPage	Estimated % in DuPage	1990 Population	2000 Population	2010 Population	2008-2012 Population	Percent Change since 1990
Addison	100%	32,058	32,914	36,942	36,977	15.3%
Aurora (part)	27%	14,811	38,905	49,433	48,869	230%
Bartlett (part)	67%	12,086	24,508	24,411	24,466	102.4%
Bensenville	100%	17,767	20,703	18,352	18,480	4.0%
Bloomington	100%	16,614	21,675	22,018	22,028	32.6%
Bolingbrook (part)	3%	1,472	1,748	1,571	1,463	-0.6%
Burr Ridge (part)	65%	4,596	6,785	6,719	6,760	47.1%
Carol Stream	100%	31,716	40,438	39,711	39,869	25.7%
Clarendon Hills	100%	6,994	7,610	8,427	8,434	20.6%
Darien	100%	18,341	22,860	22,086	22,163	20.8%
Downers Grove	100%	46,858	48,724	47,833	48,621	3.8%
Elmhurst	100%	42,029	42,762	44,121	44,385	5.6%
Glen Ellyn	100%	24,944	26,999	27,450	27,503	10.3%
Glendale Heights	100%	27,973	31,765	34,208	34,159	22.1%
Hanover Park (part)	46%	14,233	17,523	10,808	10,843	-23.8%
Hinsdale (part)	87%	13,956	15,209	14,589	14,582	4.5%
Itasca	100%	6,947	8,302	8,649	8,494	22.3%
Lisle	100%	19,512	21,182	22,390	22,453	15.1%
Lombard	100%	39,408	43,322	43,395	43,180	9.6%
Naperville (part)	68%	72,931	90,984	94,518	94,652	29.8%
Oak Brook	100%	9,178	8,702	7,883	7,905	-13.9%
Oakbrook Terrace	100%	1,907	2,300	2,134	2,205	15.6%
Roselle		17,499	19,655	22,763	19,108	9.2%
Villa Park	100%	22,253	22,075	21,904	22,212	-0.2%
Warrenville	100%	11,333	13,363	13,191	13,346	17.8%
Wayne (part)	59%	718	1,303	1,570	1,920	167.4%
West Chicago	100%	14,796	23,469	27,086	27,079	83.0%
Westmont	100%	21,228	24,554	24,685	25,101	18.2%
Wheaton	100%	51,464	55,416	52,894	53,155	3.3%
Willowbrook	100%	8,598	8,967	8,540	8,575	-0.3%
Winfield	100%	7,096	8,718	9,080	9,168	29.2%
Wood Dale	100%	12,425	13,535	13,770	13,778	10.9%
Woodridge (part)	99%	26,232	30,939	32,949	32,895	25.4%

Source: U.S. Census Bureau (3,4)



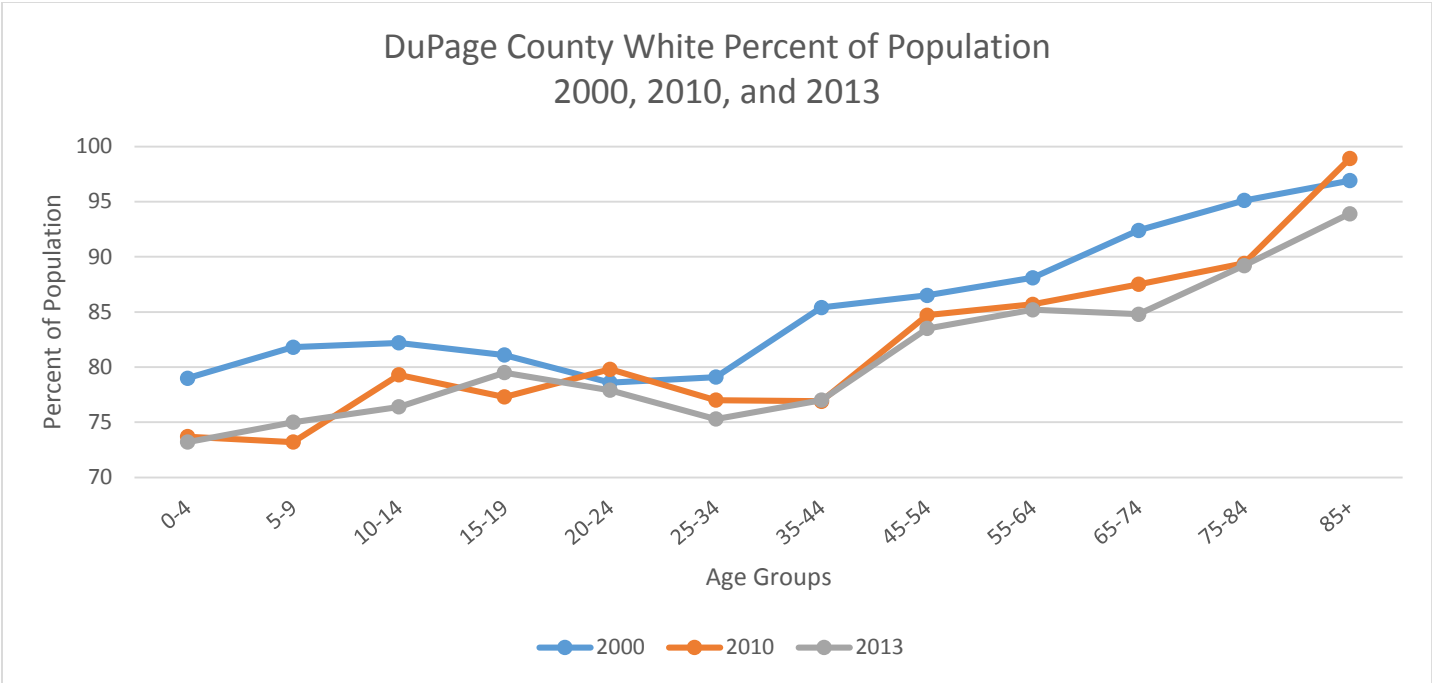
Table 1.3 shows the percent of population by age groups for years 2000, 2010, and 2013 by race and ethnicity. Race and ethnicity are considered separate and distinct identities (6). Race is a social-political construct which is not anthropologically or scientifically based. Ethnicity identifies membership in one of two groups: Hispanic/Latino or Non-Hispanic/Latino. There is overlap between race and ethnicity. For example, a person can define themselves as White Hispanic, Black Hispanic, or Asian Hispanic. Each of these three groups would be defined as Hispanic ethnicity, but of different races. For the purpose of demographic identification and analysis, racial and ethnic categories are examined separately. The table below shows the logical separation between race and ethnicity.

Table 1.3 DuPage County Percent of Population by Age Group and Race and Ethnicity

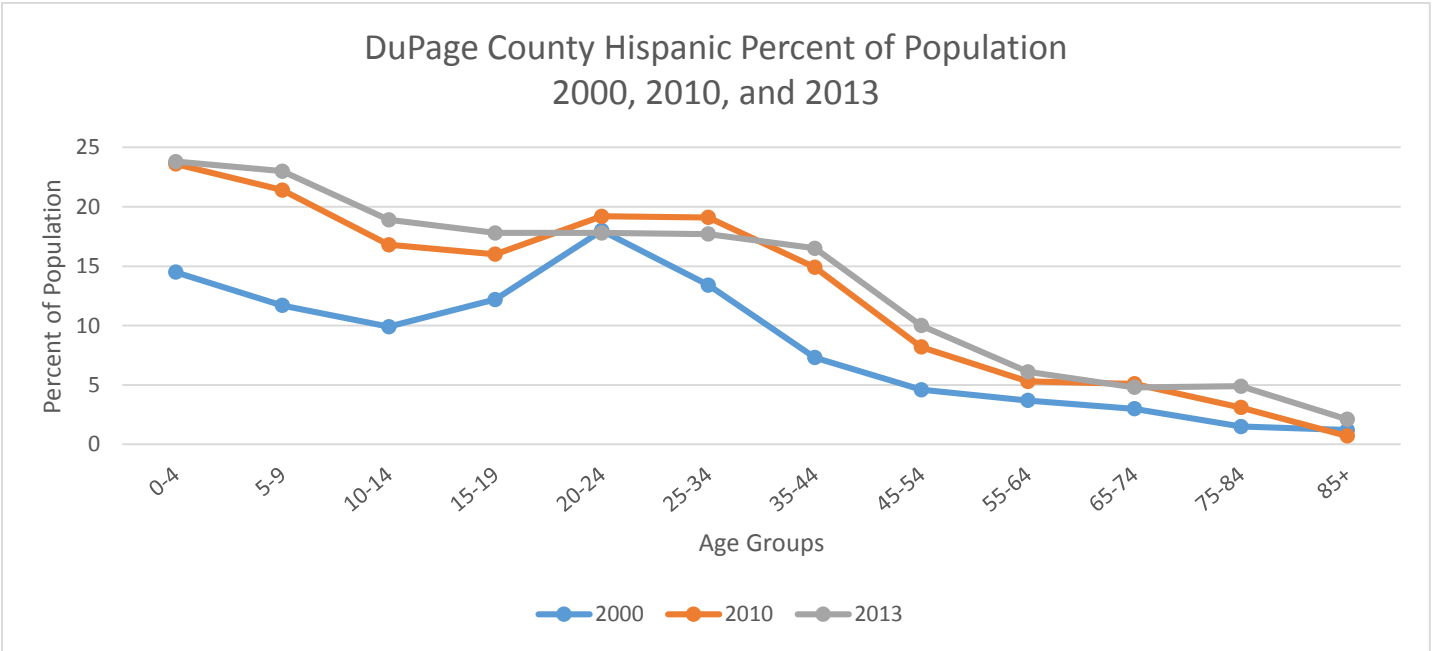
	White			Black			Asian				Hispanic		
Age	2000	2010	2013	2000	2010	2013	2000	2010	2013		2000	2010	2013
0-4	79.0	73.7	73.2	3.6	6.1	5.2	8.5	11.8	11.4		14.5	23.6	23.8
5-9	81.8	73.2	75.0	4.0	6.2	5.9	7.4	9.4	12.1		11.7	21.4	23.0
10-14	82.2	79.3	76.4	3.8	6.5	6.2	7.9	10.5	10.3		9.9	16.8	18.9
15-19	81.1	77.3	79.5	3.6	5.1	4.8	8.3	8.6	10.1		12.2	16.0	17.8
20-24	78.6	79.8	77.9	3.7	6.7	7.6	8.7	9.2	9.4		18.0	19.2	17.8
25-34	79.1	77.0	75.3	4.0	5.6	4.7	9.9	12.2	12.7		13.4	19.1	17.7
35-44	85.4	76.9	77.0	3.2	5.3	5.3	7.5	12.3	13.3		7.3	14.9	16.5
45-54	86.5	84.7	83.5	2.6	3.4	4.1	8.2	8.7	9.7		4.6	8.2	10.0
55-64	88.1	85.7	85.2	1.8	3.6	3.4	8.0	10.0	9.4		3.7	5.3	6.1
65-74	92.4	87.5	84.8	1.0	1.1	2.4	5.1	10.3	11.1		3.0	5.1	4.8
75-84	95.1	89.4	89.2	0.6	0.6	1.6	3.3	5.8	7.5		1.5	3.1	4.9
85+	96.9	98.9	93.9	0.5	0.8	0.6	1.9	3.9	4.6		1.2	0.7	2.1
Total	84.0	77.9	80.0	3.1	4.6	4.6	7.9	10.1	10.8		9.0	13.3	13.9

Source: U.S. Census Bureau (5)

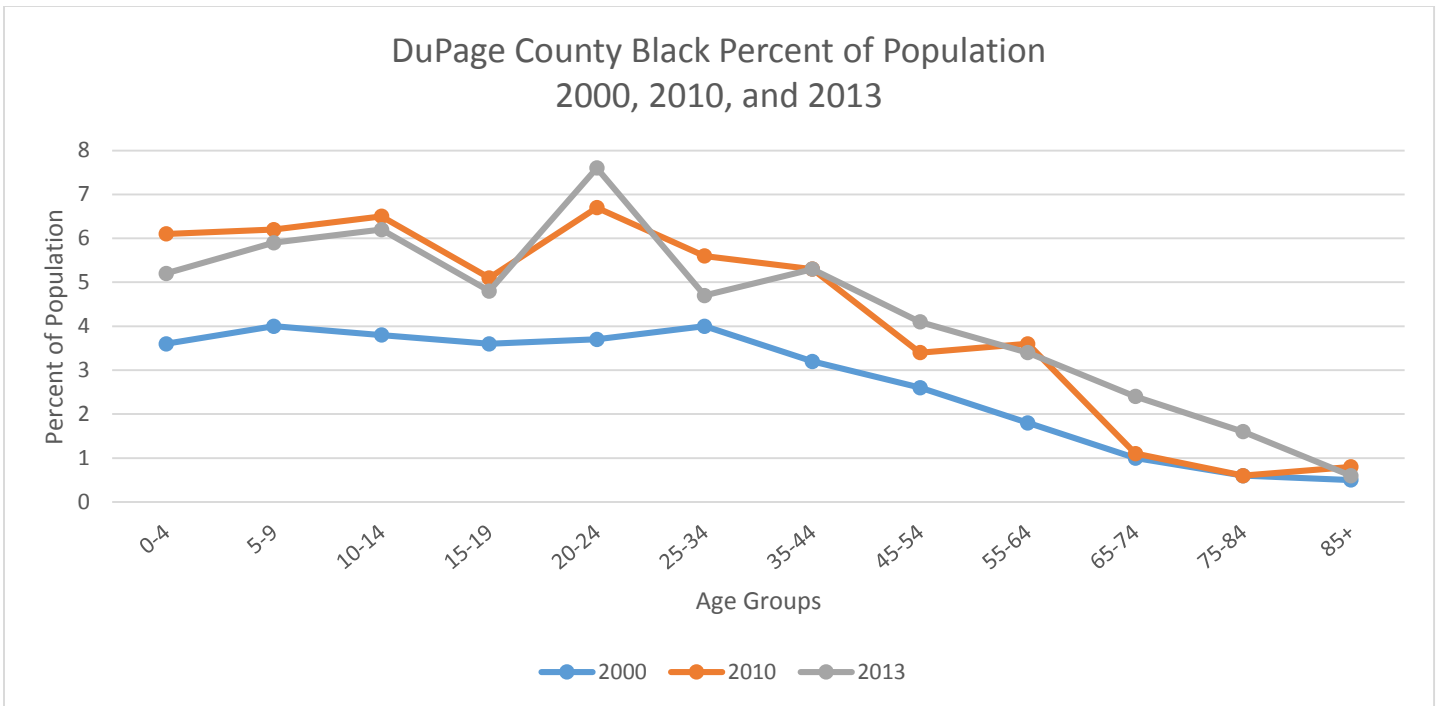
The minority population (Hispanic, Asian, and Black) has increased in nearly every age group between 2000 and 2013, while the white population has decreased in every age group. The greatest percentage of population increase occurred with Hispanic ages 0-9 and 35-44. The Asian population saw the greatest increases in age groups 5-9, 35-44, and 75-84 while the black population experienced slight increases in all age groups. The population trends by age group and race and ethnicity are illustrated in Graphs 1.1 through 1.4 (5).



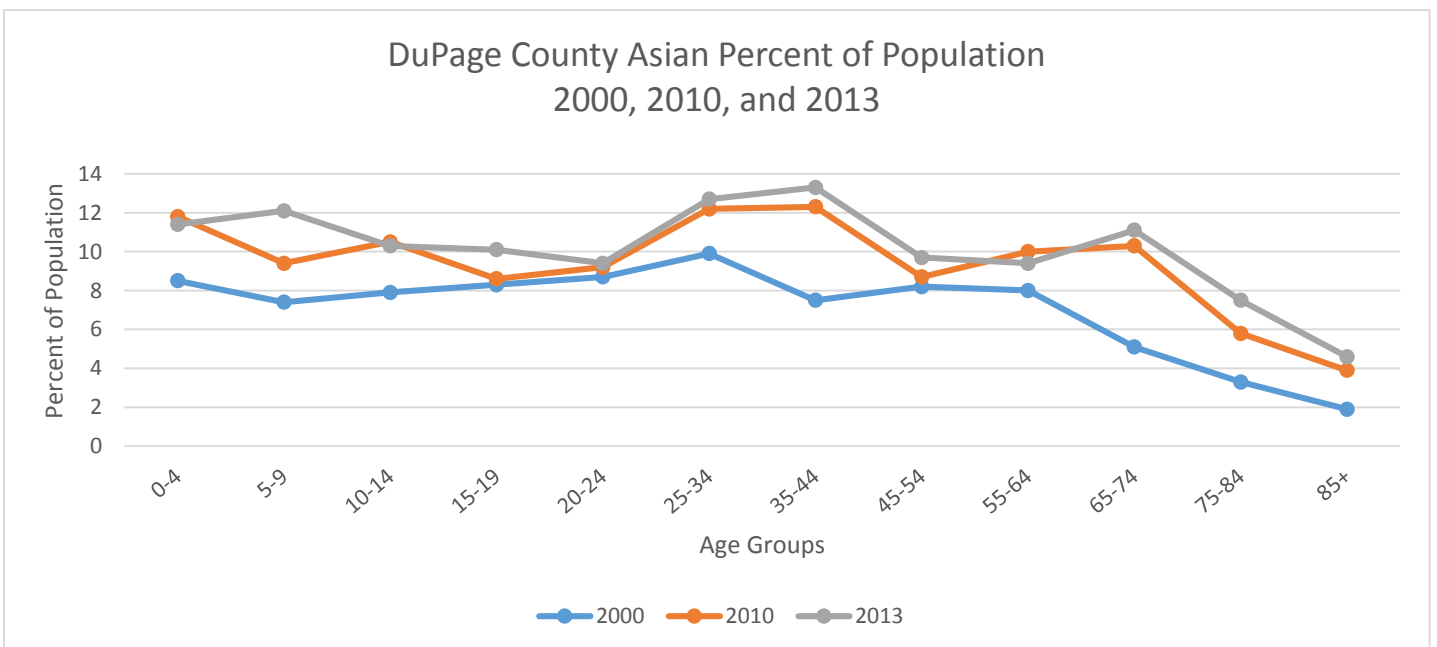
Graph 1.1
Source: U.S. Census Bureau (5)



Graph 1.2
Source: U.S. Census Bureau (5)



Graph 1.3
Source: U.S. Census Bureau (5)



Graph 1.4
Source: U.S. Census Bureau (5)

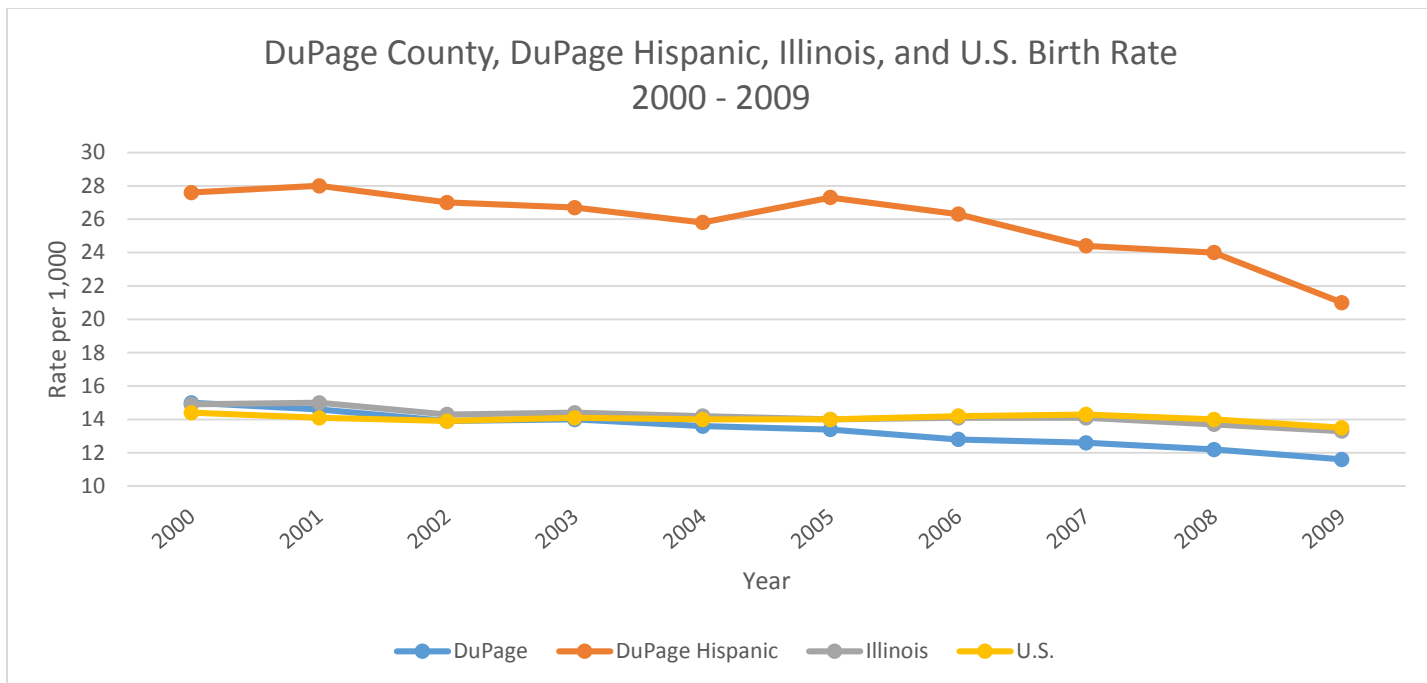


Table 1.4 Birth Statistics, 2000 - 2009

Year	DuPage Births	DuPage Birth Rate (Per 1,000 Population)	DuPage Hispanic Birth Rate (Per 1,000 Population)	Illinois Birth Rate (Per 1,000 Population)	United States Birth Rate (Per 1,000 Population)
2000	13,528	15.0	27.6	14.9	14.4
2001	13,393	14.6	28.0	15.0	14.1
2002	12,811	13.9	27.0	14.3	13.9
2003	12,894	14.0	26.7	14.4	14.1
2004	16,613	13.6	25.8	14.2	14.0
2005	12,376	13.4	27.3	14.0	14.0
2006	11,868	12.8	26.3	14.1	14.2
2007	11,640	12.6	24.4	14.1	14.3
2008	11,312	12.2	24.0	13.7	14.0
2009	10,820	11.6	21.0	13.3	13.5

Source: Illinois Department of Public Health (7)

Since 2000, the birth rate in DuPage County has been consistently decreasing (with the exception of 2003). Between 2000 and 2009, the total number of births decreased by 25.0%. The DuPage Hispanic birth rate was nearly double the overall birth rate in DuPage. Overall, the U.S., Illinois, and DuPage County birth rates continue to decline, although the DuPage County rate has been declining at a faster pace since 2003 (7).



Graph 1.5

Source: Illinois Department of Public Health (7)

Immigrant Population

The DuPage County foreign-born population increased by 24 percent between 2000 and 2013 (Table 1.5). Currently, the foreign-born population constitutes 18.5 percent of the DuPage County population. More than half of the foreign-born population has become a U.S. citizen, which is 11.6 percent greater than the naturalized population in 2000. In 2013, more than 95 percent of the foreign-born population were born in Asia, Europe, and Latin America (8).

Table 1.5 DuPage County Native and Foreign-Born Population and Region of Birth

Citizenship	2000		2010		2013	
	Number	Percent	Number	Percent	Number	Percent
Total Population	904,161		916,924		932,126	
Native	765,824	84.7	747,059	81.5	760,080	81.5
Foreign Born	138,656	15.3	171,705	18.7	172,046	18.5
Naturalized U.S. Citizen	61,601	44.4	82,391	48.0	96,362	56.0
Not U.S. Citizen	77,055	55.6	89,314	52.0	75,684	44.0
Top 3 Regions of Birth of Foreign-Born Population (excluding born at sea)						
Asia	55,937	40.3	70,391	41.0	73,233	42.6
Europe	34,920	25.2	38,110	22.2	41,412	24.1
Latin-America	41,996	30.3	56,873	33.1	51,186	29.8

Source: U.S. Census Bureau (8)



Table 1.6 DuPage County Language Spoken at Home and Ability to Speak (population 5 years and older)

	DuPage Population 2000	DuPage Population 2010	DuPage Population 2013	Foreign- Born Population 2013
English (Speak only English)	79.2%	74.5%	74.1%	12.6%
Language other than English	20.8%	25.5%	25.9%	87.4%
Speak English less than "very well"	8.5%	10.2%	9.3%	41.7%

Source: U.S. Census Bureau (9)

Income

Between 2012 and 2013, median household income did not significantly change nationally for white, black, Asian, and Hispanic populations. In DuPage County, the median household income for Hispanics decreased slightly, while it increased slightly for white, black, and Asian populations (10).

Table 1.7 Median Household Income for DuPage County, Illinois and the United States, 2012 and 2013

	DuPage County			Illinois			United States		
	2012	2013	Percent Change	2012	2013	Percent Change	2012	2013	Percent Change
White	\$80,184	\$80,233	0.1	\$61,578	\$61,637	0.1	\$56,203	\$56,300	0.2
Black	\$51,404	\$52,090	1.3	\$34,735	\$34,210	-1.5	\$35,564	\$35,415	-0.4
Asian	\$91,735	\$93,487	1.9	\$75,230	\$75,533	0.4	\$71,709	\$72,225	0.7
Hispanic	\$58,164	\$56,222	-3.3	\$46,916	\$46,425	-1.0	\$41,994	\$42,042	0.1

Source: U.S. Census Bureau (10)

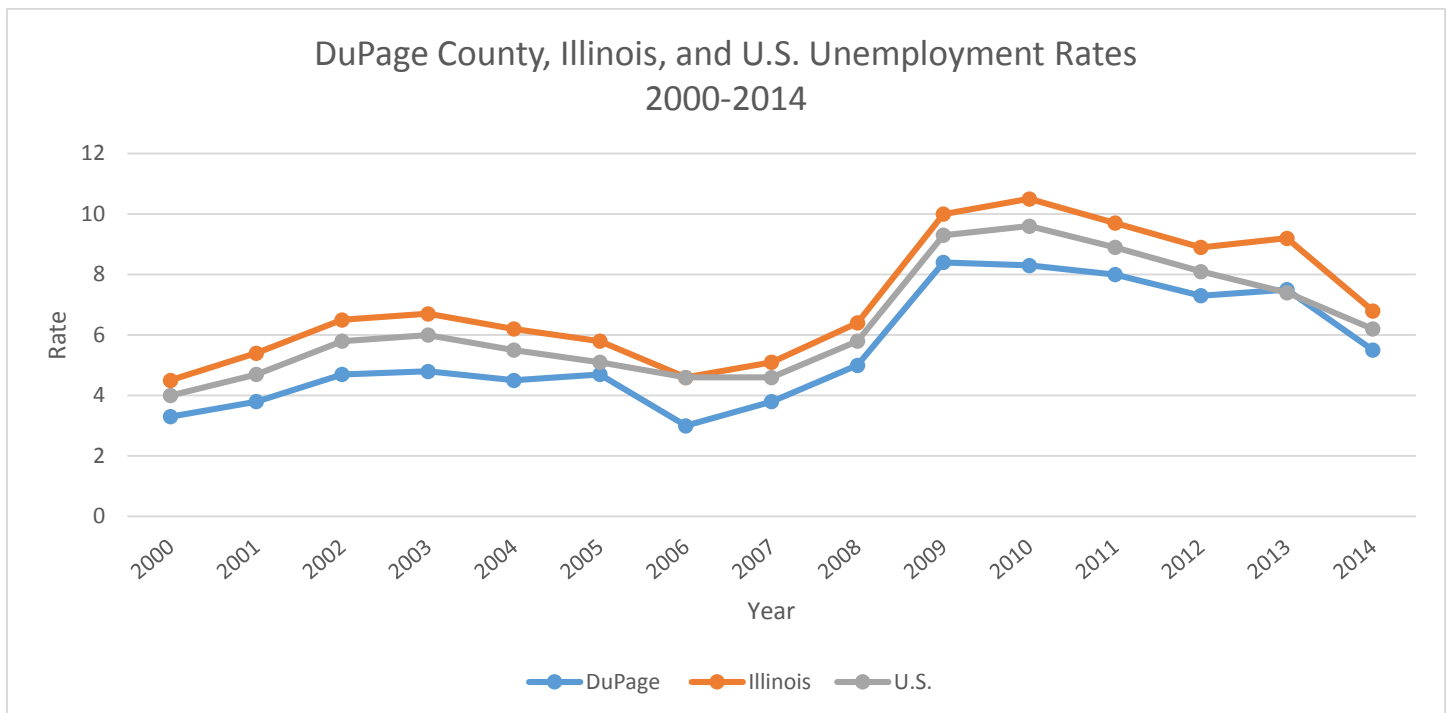
The DuPage County unemployment rate reflects the state of the economy. In 2014, the lowest rate of 5.0 was seen in August and the highest rate of 7.3 was seen in February (12). Only provisional 2014 year end data has been released to date.



Table 1.8 DuPage County, Illinois and U.S. Unemployment Rates, 2000-2014

Year	DuPage County				Illinois	U.S.
	Labor Force	Total Employed	Number Unemployed	Unemployed Rate	Unemployed Rate	Unemployed Rate
2000	529,676	511,994	17,682	3.3	4.5	4.0
2001	526,376	506,572	19,804	3.8	5.4	4.7
2002	513,141	489,026	24,155	4.7	6.5	5.8
2003	515,801	491,265	24,536	4.8	6.7	6.0
2004	516,834	493,349	23,485	4.5	6.2	5.5
2005	517,062	492,808	24,254	4.7	5.8	5.1
2006	534,033	517,965	16,068	3.0	4.6	4.6
2007	538,383	518,110	20,273	3.8	5.1	4.6
2008	534,068	507,368	26,700	5.0	6.4	5.8
2009	523,493	479,539	43,954	8.4	10.0	9.3
2010	524,521	481,005	43,516	8.3	10.5	9.6
2011	517,675	476,382	41,293	8.0	9.7	8.9
2012	527,966	489,309	38,657	7.3	8.9	8.1
2013	530,287	490,623	39,664	7.5	9.2	7.4

Source: Illinois Department of Employment Security (11,12)



Graph 1.6

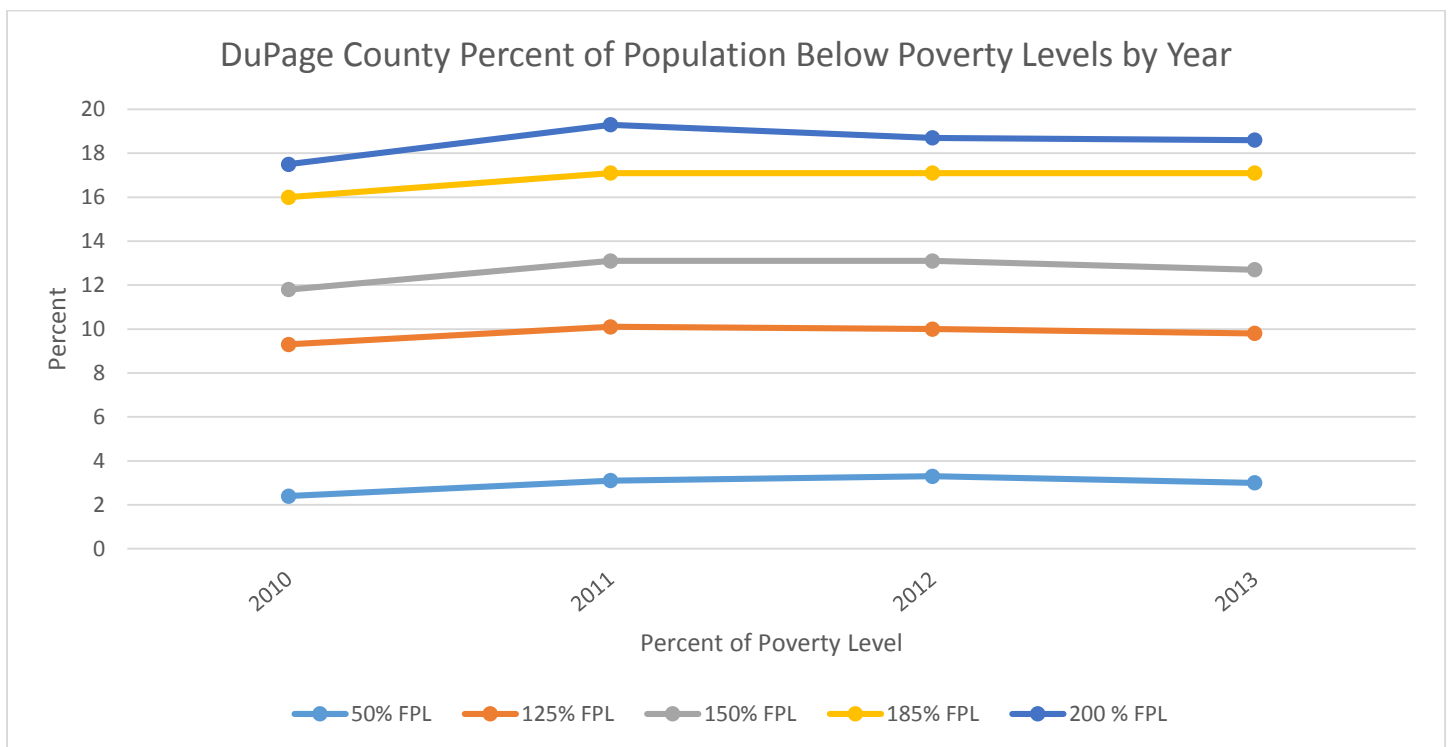
Source: Illinois Department of Employment Security (11,12)



Poverty

Federal poverty thresholds are set every year by the Census Bureau and vary by size of family and ages of family members. A high poverty rate is both a cause and a consequence of poor economic conditions. A high poverty rate indicates that local employment opportunities are not sufficient to provide for the local community. Through decreased buying power and decreased taxes, poverty is associated with lower quality schools and decreased business survival. (13)

Graph 1.7 illustrates that the percent of low income residents has remained nearly the same between 2010 and 2013 (14). Nationally, the poverty rate was 14.5 percent in 2013. Although there was a slight decrease from 15.0 percent in 2012 (the first decrease since 2006), the decrease in 2013 was statistically insignificant (15).



Graph 1.7

Source: U.S. Census Bureau (14)



Table 1.9 Poverty in DuPage County, 2010-2013

Percent of Population Below:	2010	2011	2012	2013
50% of poverty level	2.4%	3.1%	3.3%	3.0%
125% of poverty level	9.3%	10.1%	10.0%	9.8%
150% of poverty level	11.8%	13.1%	13.1%	12.7%
185% of poverty level	16.0%	17.1%	17.1%	17.1%
200% of poverty level	17.5%	19.3%	18.7%	18.6%

Source: U.S. Census Bureau (14)

The well-being of a child can be affected by family income. Compared to their peers, children in poverty are more likely to have physical health problems like low birth weight or lead poisoning, and are also more likely to have behavioral and emotional problems. Children in poverty also tend to exhibit cognitive difficulties, as shown in achievement test scores, and are less likely to complete basic education (16).

According to the Census Bureau, the number of related children under 18 years of age in DuPage County was 222,805 (2010-2012 three-year average estimate). Nearly 10 percent of these children – over 21,000 children – live below the poverty level. More than 51 percent of children in poverty live in single parent households, with the majority of those children (86.55 percent) residing in female headed households (17).

Table 1.10 DuPage County Childhood Poverty, Three-Year Average Estimate, 2010-2012

	Below the Poverty Level		Above the Poverty Level	
	Number	Percent	Number	Percent
Families with income in the past 12 months	21,378	9.59%	201,427	90.41%
In married-couple family	10,293	48.15%	170,189	84.49%
In other family	11,085	51.85%	31,238	15.51%
Male householder, no wife present	1,491	13.45%	9,162	29.33%
Female householder, no husband present	9,594	86.55%	22,076	70.67%

Source: U.S. Census Bureau (17)



Education

Table 1.11 shows that since 1990, the percent of population without a high school degree has decreased, while the percent of population with a college, graduate, or professional degree has increased. The 2013 DuPage foreign born population with less than a high school diploma is more than double the overall percentage for the county (18.4 percent versus 7.5 percent), while the percentages of those with graduate or professional degrees are nearly equal (18).

Table 1.11 DuPage County Educational Attainment (population age 25 years and older)

Educational Attainment	1990	2000	2010	2013	2013 Foreign Born
Less than high school diploma	11.4%	10.0%	8.25%	7.50%	18.40%
High school diploma	23.3%	20.6%	19.80%	19.10%	18.17%
Some college or associate's degree	29.2%	27.8%	26.08%	26.50%	20.05%
College degree	24.0%	26.8%	28.65%	28.68%	24.78%
Graduate or professional degree	12.0%	14.8%	17.22%	18.22%	18.60%

Source: U.S. Census Bureau (18)



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Section 2: Social Determinants of Health

According to Healthy People 2020, there are five key areas comprising social determinants of health. These include: economic stability, education, social and community context, health and health care, and neighborhood and built environment (1). These conditions shape the environment where people live and work, impacting their overall health, and differences in these environments can lead to health inequities. The purpose of this section is to examine health inequities in DuPage County based on race and/or ethnicity and other factors that influence health such as income and education level.

Key Findings

- ❖ The disparities in health outcomes within DuPage County extend across both communicable disease and chronic disease rates when comparing racial and ethnic differences.
- ❖ Residents of DuPage County with lower household incomes were more likely to be uninsured.
- ❖ DuPage County mothers with higher levels of educational attainment had higher percentages of first trimester prenatal care and were more likely to be breastfeeding at discharge after delivery.
- ❖ The percent of births to all teens aged nineteen and younger was 8.78 percent for Hispanic or Latino mothers and 2.05 percent for non-Hispanic or Latino mothers in 2011, a 328 percent difference.

Minority Health Issues

Section 1 examined the demographic and socioeconomic composition of DuPage County. According to the U.S. Census Bureau's American Community Survey, 80.0 percent of DuPage County residents are white (2). Tables 2.1 and 2.2 display estimates of the DuPage County population by race and ethnicity in 2013. The demographics of the county have been changing in recent decades; between 1990 and 2013, there has been a 175 percent increase in black residents and a 275 percent increase in Hispanic residents. Unfortunately, health, income, and education disparities are seen in both of these populations. Black residents have higher rates of very low and moderately low birth weight infants, as well as higher rates of sexually transmitted infections than white residents. Hispanic residents also have higher rates of chlamydia than non-Hispanic residents.

Table 2.1 DuPage County Population by Race, 2013

Race	Estimate	Percent of Total Population
White	746,034	80.0%
Black or African American	42,520	4.6%
American Indian and Alaska Native	1,998	0.2%
Asian	100,226	10.8%
Native Hawaiian and Other Pacific Islander	376	0.0%
Some other race	17,248	1.9%
Two or More Races	23,724	2.5%

Source: U.S. Census Bureau (2)



Table 2.2 DuPage County Population by Ethnicity, 2013

Ethnicity	Estimate	Percent of Total Population
Hispanic or Latino	129,775	13.9%
Not Hispanic or Latino	802,351	86.1%

Source: U.S. Census Bureau (2)

Mortality

Health disparities among different races and ethnicities can be seen by examining causes of death. Table 2.3 shows the top five leading causes of death by race/ethnicity for 2011. There are some differences across these groups; unintentional injuries was the third leading cause of death for both black and Hispanic populations, but it was not in the top five causes for white, Asian, or non-Hispanic residents (3). Perinatal conditions was a leading cause of death for Hispanic residents in 2011 (3).

Table 2.3 Top Five Leading Causes of Death in DuPage County by Race/Ethnicity, 2011

Rank	Asian	Black	White	Hispanic	Non-Hispanic
1	Cancer	Heart Disease	Cancer	Cancer	Cancer
2	Heart Disease	Cancer	Heart Disease	Heart Disease	Heart Disease
3	Cerebrovascular Diseases	Unintentional Injuries	Chronic Lower Respiratory Diseases	Unintentional Injuries	Cerebrovascular Diseases
4	Diabetes Mellitus	Cerebrovascular Diseases	Cerebrovascular Diseases	Perinatal Conditions	Chronic Lower Respiratory Disease
5	Kidney Disease	Kidney Disease	Alzheimer's Disease	Cerebrovascular Diseases	Alzheimer's Disease

Source: Illinois Department of Public Health (3)

Table 2.4 shows the number of deaths by race and ethnicity for DuPage County residents. While 80.0 percent of residents are white, white residents account for 93.2 percent of total deaths (4).

Table 2.4 Number of Deaths in DuPage County by Race and Ethnicity, 2011

Race	Count	Percent of Total Deaths
White	5,567	93.2%
Black	163	2.7%
Other	246	4.1%
Ethnicity	Count	Percent of Total Deaths
Hispanic	223	3.7%

Source: Illinois Department of Public Health (4)



Table 2.5 displays the number of deaths and age-adjusted rate for deaths by disease of the heart. White, non-Hispanic residents have the highest age-adjusted rate per 100,000 population, while white, Hispanic residents have the lowest (5).

Table 2.5 Deaths by Disease of the Heart, 2008

Race/Ethnicity	Count	Age-Adjusted Rate per 100,000 Population
White, Non-Hispanic	1,295	178.5
White, Hispanic	25	57.5
Black, Non-Hispanic	32	141.9

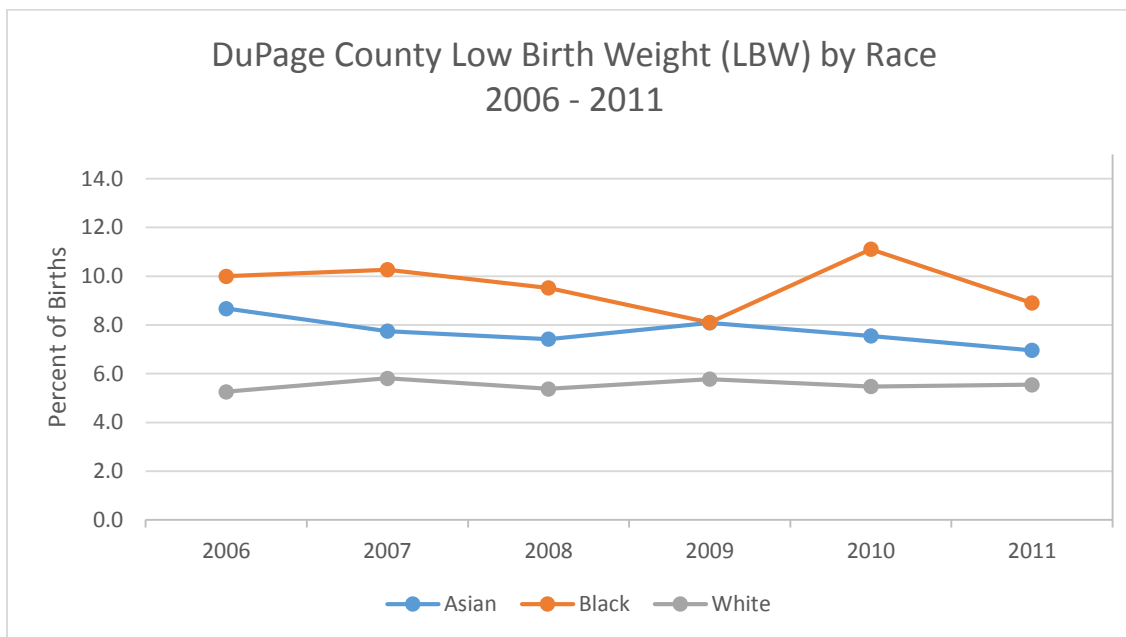
Source: Illinois Department of Public Health (5)

Maternal and Child Health

Low birth weight, births to adolescents, and prenatal care are important indicators of population health and are examined thoroughly in Section 8: Maternal and Child Health. However, when looking at each of these indicators by race or ethnicity, differences can be seen. These differences are shown in the graphs below.

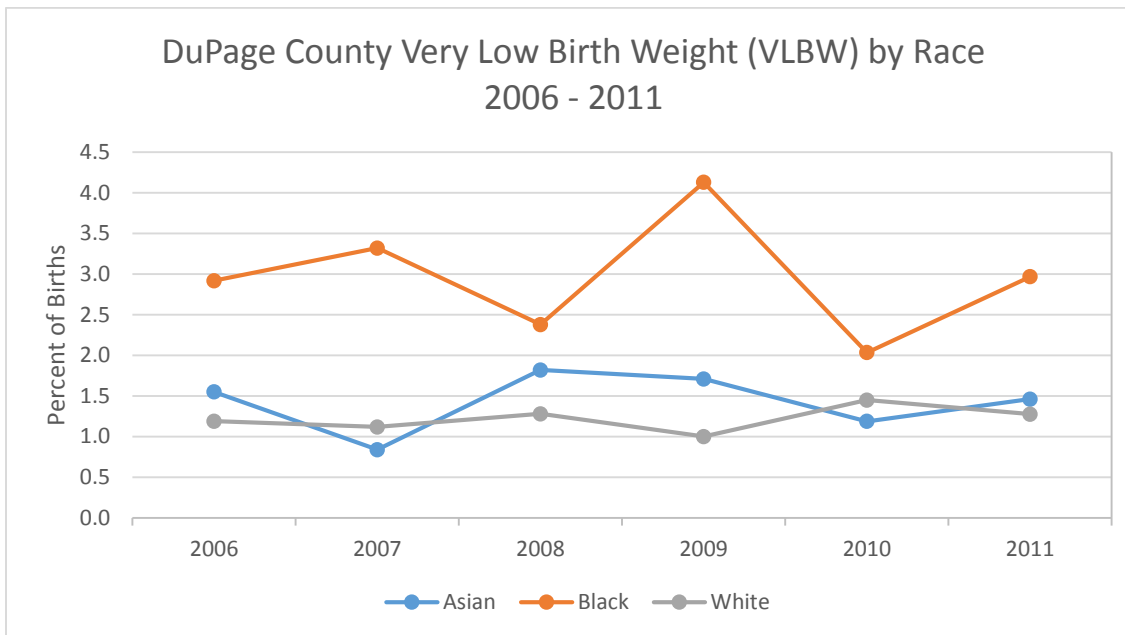
Low Birth Weight

Graphs 2.1, 2.2, 2.3, and 2.4 illustrate percentages of low birth weight (LBW) and very low birth weight (VLBW) births in DuPage County from 2006 to 2011 by race and ethnicity. Black mothers have higher percentages of births that are LBW and VLBW than Asian and white mothers (6). When LBW and VLBW is examined by ethnicity, Hispanic mothers have slightly lower rates than non-Hispanic mothers (6).



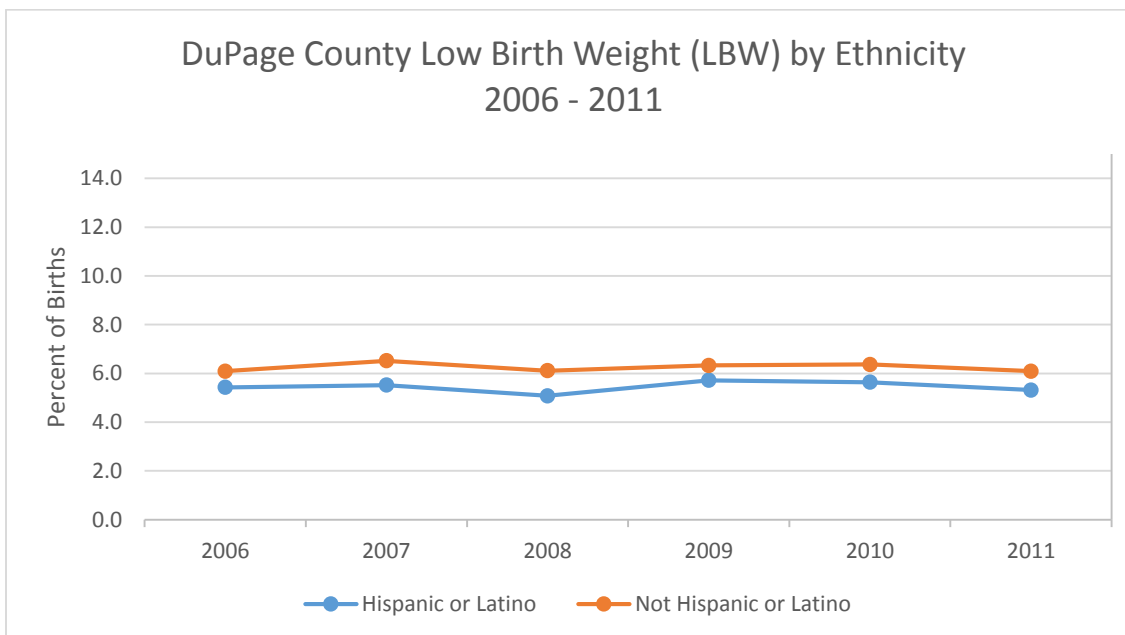
Graph 2.1

Source: Illinois Department of Public Health (6)



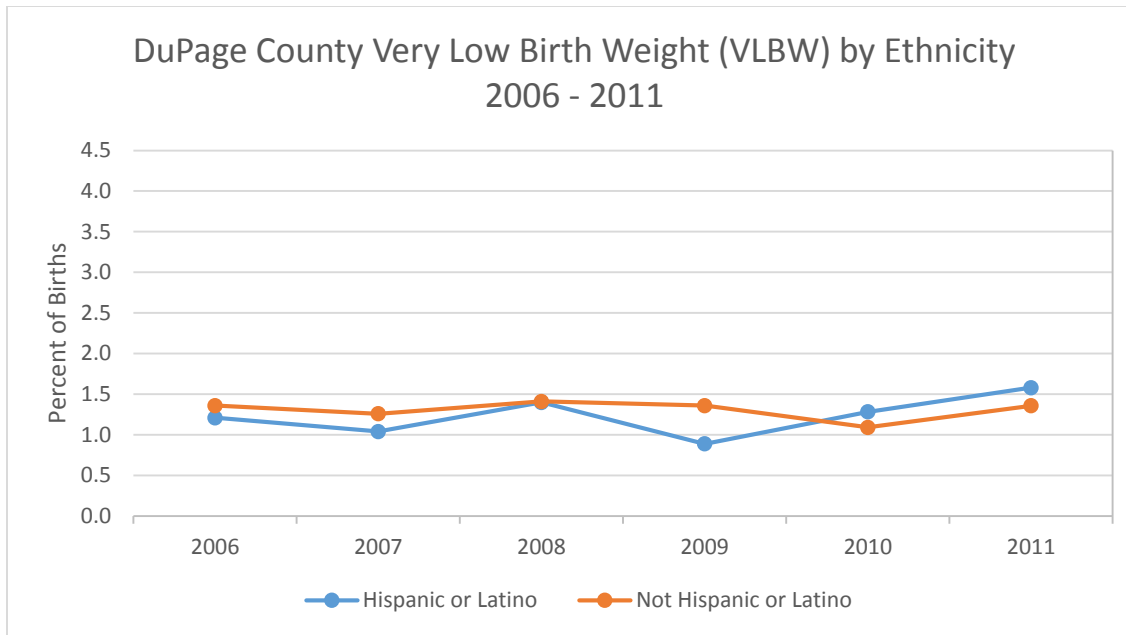
Graph 2.2

Source: Illinois Department of Public Health (6)



Graph 2.3

Source: Illinois Department of Public Health (6)

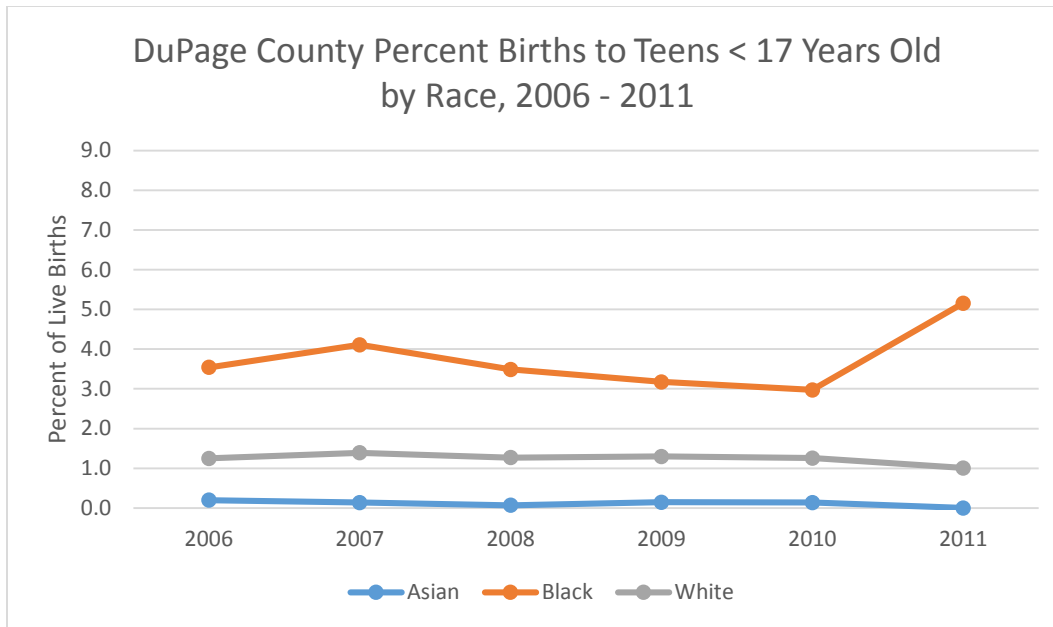


Graph 2.4

Source: Illinois Department of Public Health (6)

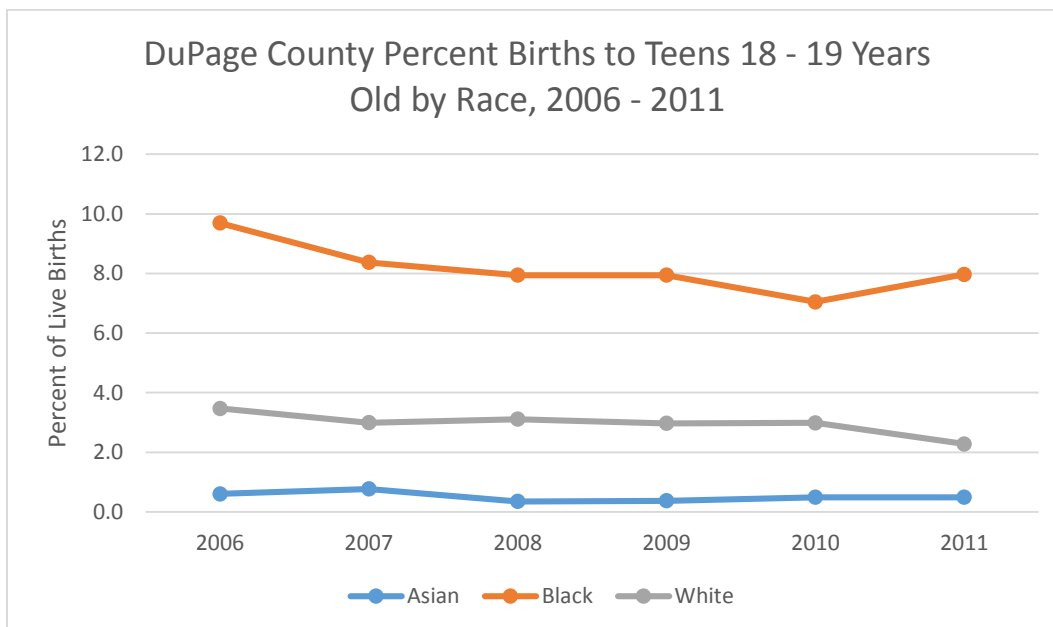
Adolescent Pregnancy

Graphs 2.5 and 2.6 show the percent births in DuPage County to teens under seventeen years old, and teens eighteen to nineteen years old, from 2006 to 2011, by race. Black mothers have the highest percentage of births to teens, both under seventeen years old and eighteen to nineteen years old, and Asian mothers have the lowest percentage (6).



Graph 2.5

Source: Illinois Department of Public Health (6)

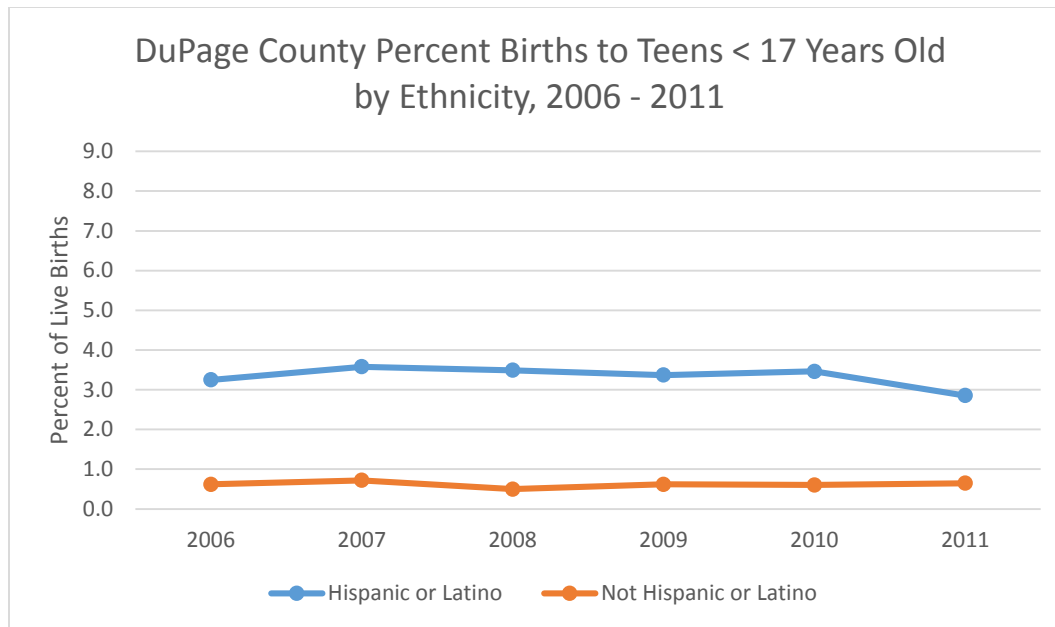


Graph 2.6

Source: Illinois Department of Public Health (6)

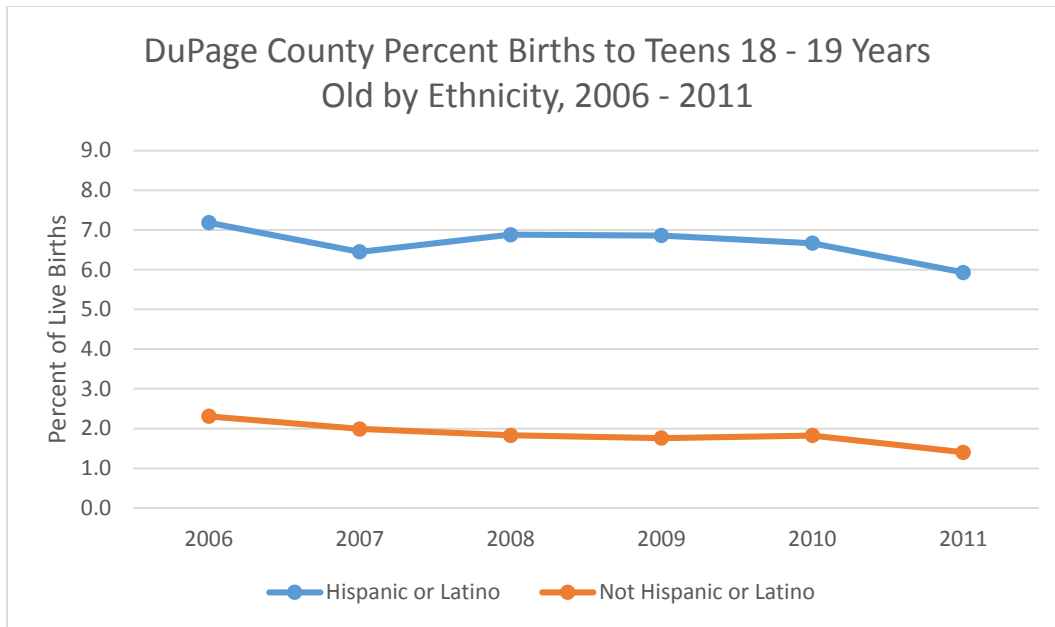


Graphs 2.7 and 2.8 show the same indicator, births to teens from 2006 to 2011, by ethnicity. Hispanic or Latino mothers have higher percentages of births to teens than non-Hispanic or Latino mothers (6). The percent of births to all teens aged nineteen and younger was 8.78 percent for Hispanic or Latino mothers and 2.05 percent for non-Hispanic or Latino mothers in 2011, a 328 percent difference (6).



Graph 2.7

Source: Illinois Department of Public Health (6)

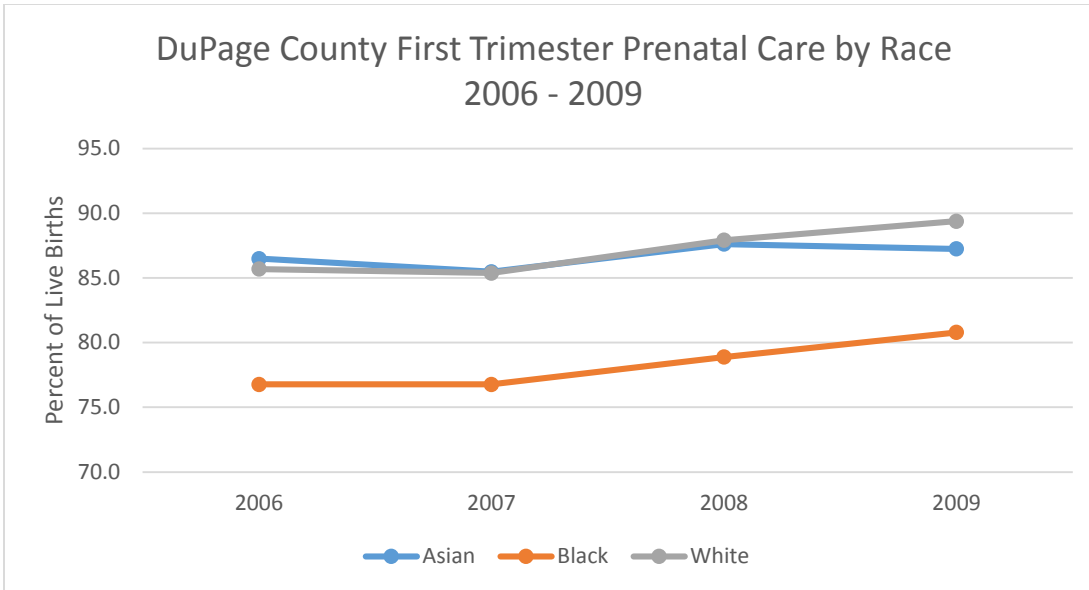


Graph 2.8

Source: Illinois Department of Public Health (6)

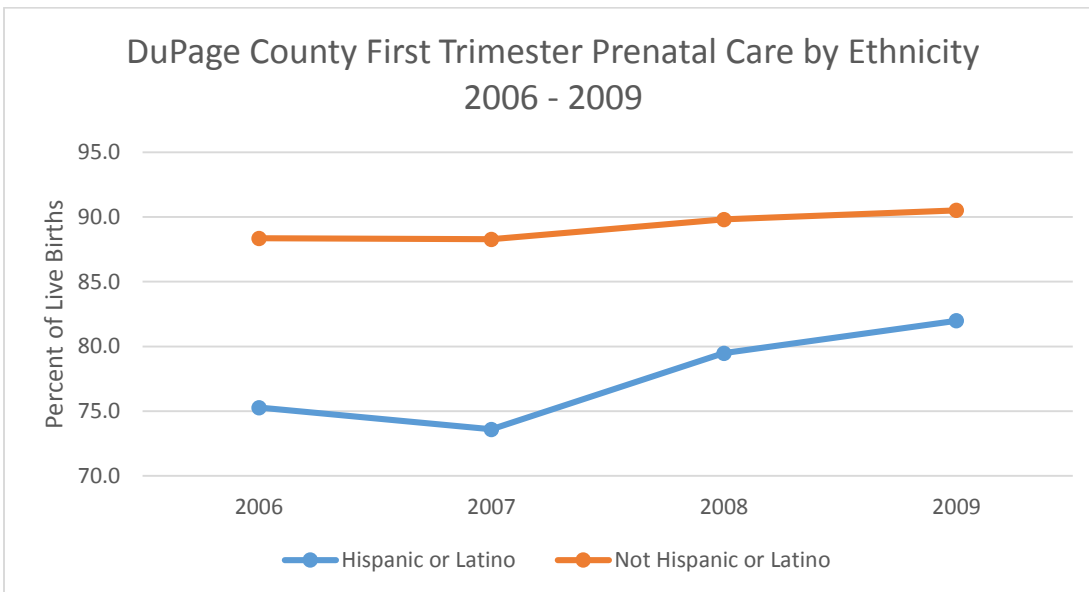
First Trimester Prenatal Care

Graphs 2.9 and 2.10 show first trimester prenatal care by race and ethnicity for DuPage County live births between 2006 and 2009. This data is no longer being collected and, therefore, is not available for 2010 onward. Between 2006 and 2009, fewer black mothers reported first trimester prenatal care than Asian and white mothers (6). Similarly, fewer Hispanic or Latino mothers reported first trimester prenatal care than non-Hispanic or Latino mothers (6).



Graph 2.9

Source: Illinois Department of Public Health (6)



Graph 2.10

Source: Illinois Department of Public Health (6)

Breastfeeding

In DuPage County, 89.17 percent of mothers of births in 2011 reported that they were breastfeeding at discharge after delivery (6). As seen in Table 8.7, the percentage is lower for black mothers, mothers with a high school diploma or less education, unmarried mothers, and mothers under age twenty-four (5). DuPage County WIC clients, participants in a nutrition assistance program for women, infants, and children, reported a cumulative breastfeeding initiation rate of 82



percent between July 1, 2014 and November 30, 2014 (7). The rate for breastfeeding at six months dropped to 33 percent and was 18 percent at 12 months of age (7).

Table 2.6: DuPage County Infants Being Breastfed at Discharge, 2011

	DuPage County Infants Being Breastfed at Discharge n=9,601
	Percent of Total
Total	89.17
Mother's Race	
Asian	95.20
Black	74.22
White	89.36
Mother's Ethnicity	
Hispanic or Latino	87.57
Not Hispanic or Latino	89.65
Mother's Education Level	
Less than high school	79.85
High school graduate	83.79
At least 1 year of college	91.72
Marital Status	
Married	91.75
Not married	80.59
Mother's Age Group	
19 years and younger	74.87
20 to 24 years	82.05
25 to 29 years	90.99
30 to 34 years	91.15
35 years and older	89.72

Source: Illinois Department of Public Health (6)



Sexual Health

The Illinois Department of Public Health provides data on the case rates for the sexually-transmitted diseases chlamydia and gonorrhea, by race and ethnicity in DuPage County (5). As shown in Table 2.6, black residents have much higher rates of both diseases, compared to white residents or Asian/Pacific Islander residents (5). Hispanic residents have higher rates of chlamydia compared to non-Hispanic residents, but similar rates of gonorrhea (5).

Table 2.6 DuPage County Cases of Chlamydia and Gonorrhea by Race, 2012

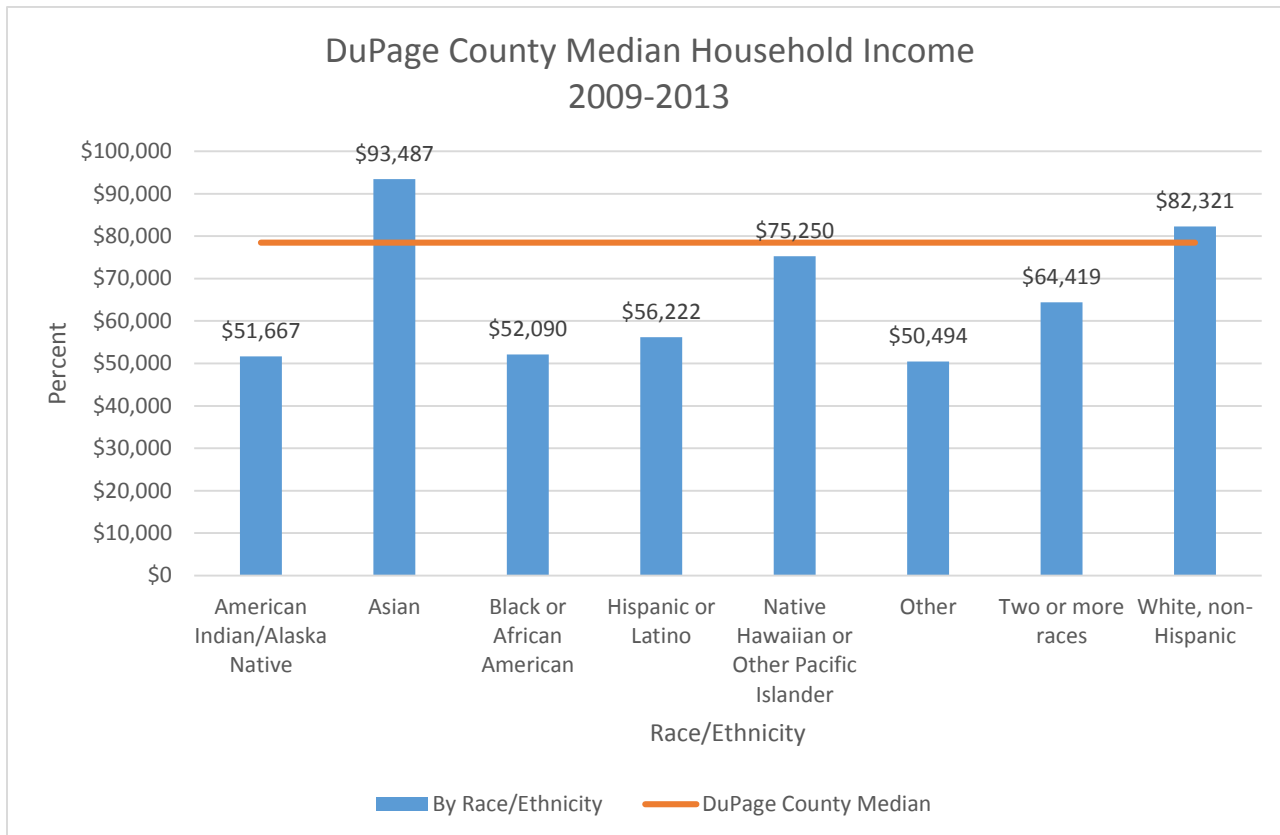
Race	Chlamydia		Gonorrhea	
	Count	Cases per 100,000 Population	Count	Cases per 100,000 population
White	832	108.1	80	10.4
Black	417	838.8	111	223.3
Asian or Pacific Islander	50	48.1	4	3.9
Ethnicity				
Hispanic	277	216.5	22	17.2
Non-Hispanic	743	92.9	145	18.1

Source: Illinois Department of Public Health (5)



Income

Graph 2.11 illustrates the disparities in median household income by race and ethnicity. According the American Community Survey 5 Year Estimates 2009-2013, the median household income in DuPage County was \$78,487. However, the median household income for black or African American residents is \$52,090, \$56,222 for Hispanic or Latino residents, and \$51,687 for American Indian/Alaska Native residents. Asian and White, non-Hispanic residents have higher median household incomes than the average for DuPage County at \$93,487 and \$82,321 respectively (8).



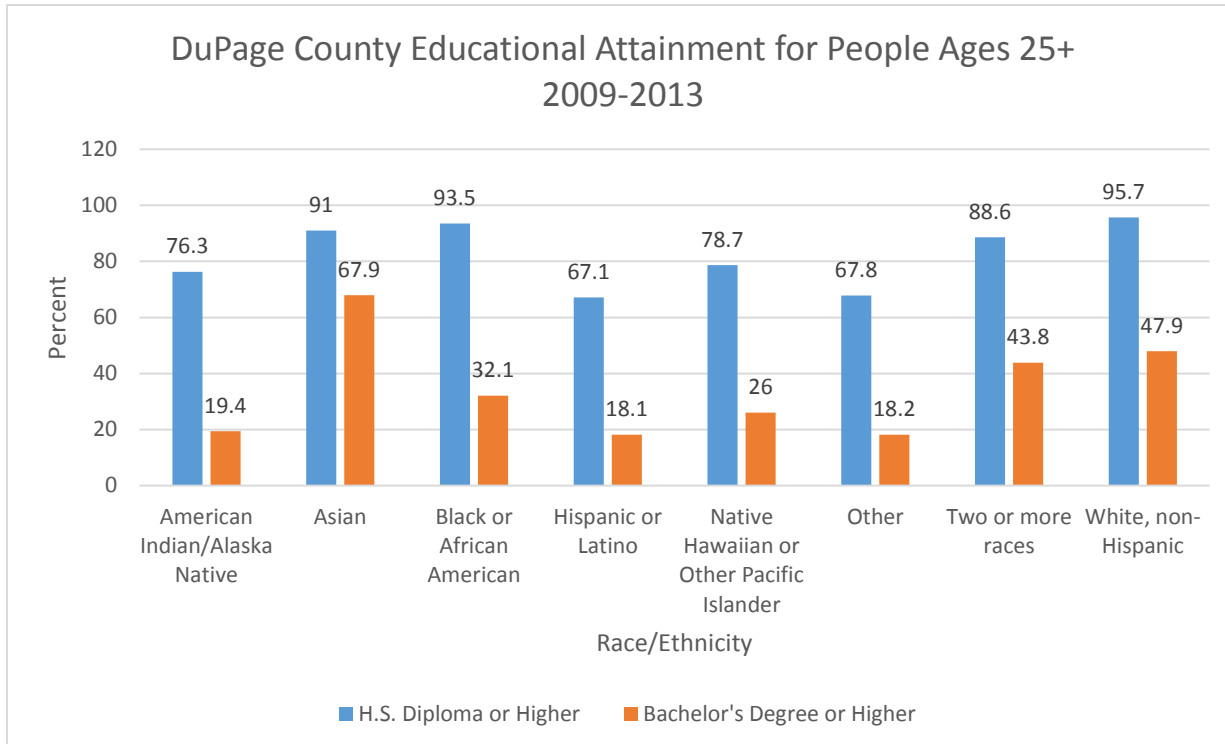
Graph 2.11

Source: U.S. Census Bureau (8)



Educational Attainment

Individuals with higher levels of education have lower rates of disease and higher life expectancies (9). According to the American Community Survey 5 Year Estimate 2009-2013, 92.1 percent of adults aged 25 years and older attained a high school diploma or higher, and 46.3 percent attained a bachelor's degree or higher (10). As seen in Graph 2.12, only 18.1 percent of Hispanic or Latino residents have a Bachelor's Degree or higher, compared to 67.9 percent of Asian residents and 47.9 percent of White, non-Hispanic residents.



Graph 2.12

Source: U.S. Census Bureau (10)

Uninsured

According to the U.S. Census Bureau, 13 percent of the DuPage County adult population under the age of 65 was uninsured in 2013. This is less than the state and national percentages of 18.4 and 20.3, respectively. Of this population in DuPage, more than 16 percent are within the 19 to 25 years age group, as seen in Table 2.7. The percentage of uninsured among the Hispanic or Latino population is more than double the percentage for the non-Hispanic white population (11).



Table 2.7 Percent Uninsured in DuPage by Age, Hispanic or Latino Origin, and Income, 2013

Age	Percent Uninsured
Under 18 years	3.6%
19 to 25 years	16.5%
18 to 64 years	13.0%
65 years and older	1.0%
Hispanic or Latino Origin	Percent Uninsured
White alone, not Hispanic or Latino	7.0%
Hispanic or Latino (of any race)	19.7%
Household Income	Percent Uninsured
Under \$25,000	16.5%
\$25,000 to \$49,999	19.9%
\$50,000 to \$74,999	11.1%
\$75,000 to \$99,999	7.2%
\$100,000 and over	4.4%

Source: U.S. Census Bureau (11)



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Section 3: Health Resource Availability

Access to a continuum of quality health care services is an important determinant of individual health, as well as the health of our nation. Improving the availability of quality health care is essential in eliminating health disparities and increasing both the quality and number of years of healthy life for all persons in our country. Healthy People 2020 focuses on four components of health resource availability: coverage, services, timeliness, and workforce.

Financial, structural, and personal barriers can limit access to health care. Financial barriers include not having health insurance, not having enough health insurance to cover needed services, or not having the financial capacity to cover services outside a health plan or insurance program (1). Structural barriers include the lack of primary care providers, medical specialists, or other health care professionals to meet special needs or the lack of health care facilities (1). Personal barriers include cultural or spiritual differences, language barriers, not knowing what to do or when to seek care, or concerns about confidentiality or discrimination (1).

Strong predictors of access to quality health care include having a higher income level, health insurance, and a regular primary care provider or other source of ongoing health care (1). Measures of access to care are an important way to evaluate the quality of our Nation's health care system.

Key Findings

- ❖ 4.8 percent of DuPage County families and 6.9 percent of all residents live below the poverty level.
- ❖ The percent of DuPage children (ages 0-17) below poverty level for the past 12 months was 9.4 percent in 2013.
- ❖ In 2013, 11.6 percent of the DuPage County adult population was uninsured.
- ❖ Between 2010 and 2013, the number of persons enrolled in the Medicaid program increased by 14,924.
- ❖ In 2013, 86.4 percent of DuPage County residents had a primary care provider, and 69.2 percent of residents had their last routine checkup within one year.
- ❖ 12.1 percent of DuPage County residents could not see a doctor due to cost in 2013.
- ❖ Only 44.5 percent of adults over 50 years of age received colorectal cancer screening in the form of a sigmoidoscopy or colonoscopy in 2010.

Income

According to the U.S. Census Bureau three year estimates from 2011-2013, the median household income for the United States was \$52,176. When looking at those who live below the poverty level, 15.9 percent of individuals fall into this category, which is more than 49 million people living in poverty in our nation. This amount includes 11.7 percent of families and 22.4 percent of children under 18 years of age living in poverty. Presented in Table 3.1 is the percent of families earning less than \$35,000 per year, a figure that falls well short of the median household income. As can be seen in Table 3.1, over one quarter of U.S. families earned less than \$35,000 per year during 2011-2013 (2).



Table 3.1 United States Low Income Families, 2011-2013

Income	Number of Families	Percent
Less than \$10,000	3,753,462	4.9
\$10,000 - \$14,999	2,535,857	3.3
\$15,000 - \$24,999	6,332,549	8.3
\$25,000 - \$34,999	6,980,077	9.1
Sub-total	19,601,945	25.6
Total	76,444,922	100.0

Source: U.S. Census Bureau (2)

For the state of Illinois, the median household income was \$55,799 for the U.S. Census 2011-2013 estimates, with 10.9 percent of families and 14.8 percent of individuals having income below the poverty level for the past 12 months, and, as presented in Table 3.2, nearly one quarter of families earned below \$35,000 per year (3).

Table 3.2 Illinois Low Income Families, 2011-2013

Income	Number of Families	Percent
Less than \$10,000	143,201	4.6
\$10,000 - \$14,999	88,829	2.9
\$15,000 - \$24,999	230,082	7.4
\$25,000 - \$34,999	258,834	8.3
Sub-total	720,946	23.2
Total	3,114,415	100.0

Source: U.S. Census Bureau (3)

DuPage County's median household income was \$77,494 for the 2011-2013 3-year estimates, according to the U.S. Census Bureau. This figure is among the highest for all Illinois counties and well above the amounts for both the state of Illinois and the United States as a whole. When looking at 2009-2013 5-year estimates, 4.8 percent of families and 6.9 percent of all people were living below the poverty, and the percent of DuPage children (ages 0-17) below poverty level was 9.4 percent. As presented in Table 3.3, an analysis of families with incomes well below the median indicates that just over 12 percent of DuPage families earn below \$35,000 per year (4).

Table 3.3 DuPage County Low Income Families, 2011-2013

Income	Number of Families	Percent
Less than \$10,000	4,650	1.9
\$10,000 - \$14,999	2,940	1.2
\$15,000 - \$24,999	9,836	4.1
\$25,000 - \$34,999	12,530	5.2
Sub-total	29,956	12.4
Total	239,278	100.0

Source: U.S. Census Bureau (4)



Health Insurance

Healthy People 2020 Objective AHS-1.1: Increase the proportion of persons with medical insurance

National Baseline: 83.2 percent of persons had medical insurance in 2008

Target: 100 percent

Data Sources: National Health Interview Survey (NHIS), CDC/NCHS

Health services research clearly documents that having health insurance or using more medical care improves health. For example, a comprehensive review of 94 studies of the association between health outcomes and either insurance coverage or medical use, published by the Kaiser Commission on Medicaid and the Uninsured in 2003, concludes that (5):

- The uninsured receive less preventive care, are diagnosed at more advanced disease stages, and, once diagnosed, tend to receive less therapeutic care, such as drugs or surgical interventions
- Receiving less care increases risk of death and the likelihood of poor health status (phrased positively, having health insurance reduces mortality rates by 10-15 percent)
- Poor health status affects educational attainment, ability to work, and productivity, which reduces earnings and earnings potential (phrased positively, “better” health improves annual earnings by 10-30 percent, depending on measures and specific health condition, and increases educational attainment).

Health insurance provides access to health care. Persons with health insurance are more likely to have a primary care provider and to have received appropriate preventive care such as a recent Pap test, immunization, or early prenatal care. Adults with health insurance are twice as likely to receive a routine check-up as are adults without health insurance (1).

Health insurance is broadly classified as either private or government-sponsored. Private health insurance plans are the most common and can be offered by employers or purchased by individuals. Government-sponsored coverage can be at the federal, state, or local level, and the most common programs include Medicaid, which is typically offered to low-income individuals and families, and Medicare, typically for individuals over 65 years of age (6).

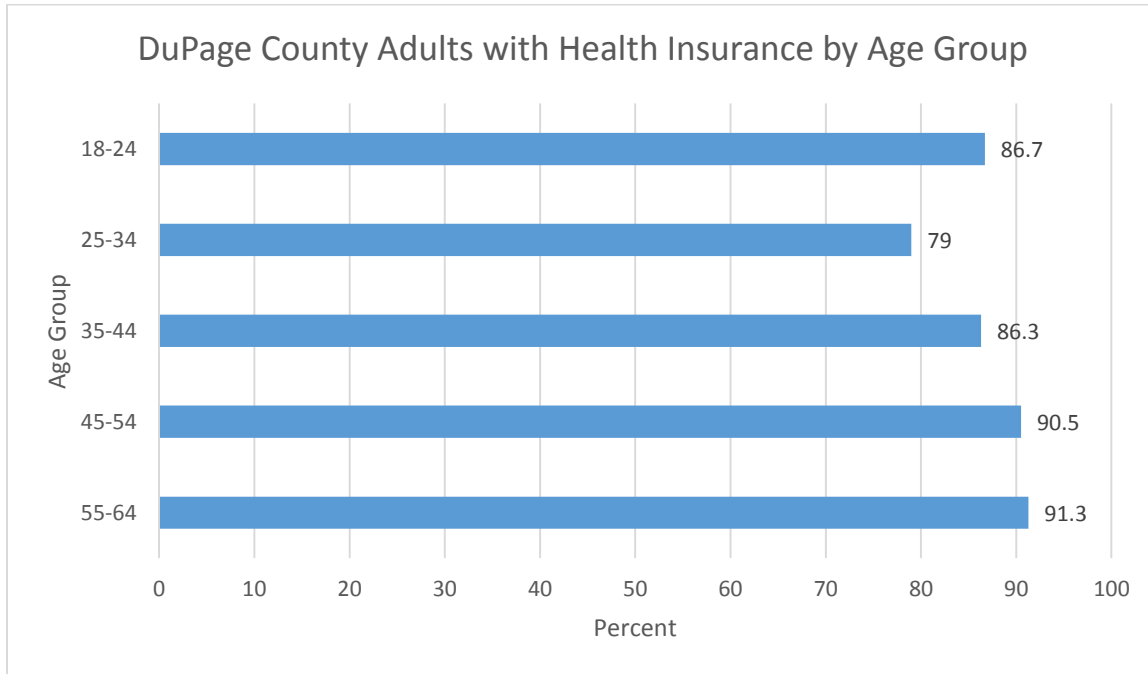
In 2013, 202 million people were covered by private health insurance nationally, and 98 million were covered by government funded programs (2). Of the people covered under government programs, 49 million were covered under the Medicare program and 55 million by Medicaid (7). Nationally, the number of individuals who were without health insurance was 45 million in 2013 (7). Of the people uninsured in 2013, 5.2 million were children under the age of 18 years (7).

For the state of Illinois in 2013, 1.6 million individuals were without health insurance, or 12.7 percent of the population. Of those with health insurance, 1.86 million were covered through Medicare, and another 2.3 million through Medicaid (8).

In 2013, 88.4 percent of the DuPage County adult population had health insurance coverage, leaving 11.6 percent of the adult population uninsured (9). Among children, 96.4 percent had health insurance coverage (10).



Graph 3.1 shows that the 25-34 year old age group has the lowest percentage of individuals (79 percent) with health insurance (10).



Graph 3.1

Source: U.S. Census Bureau (10)

Medicaid Enrollment

As shown in Table 3.4, the number of persons enrolled in the Medicaid program has been increasing over time. In 2013, there were 131,298 individuals residing in DuPage County enrolled in the Medicaid program (11).

Table 3.4 Medicaid Enrollment for DuPage County

Year	Total Persons
2010	116,374
2011	128,352
2012	134,680
2013	131,298

Source: Illinois Department of Healthcare and Family Services (11)

Ongoing Sources of Primary Care

In 2011, 77.3 percent of Americans had a usual primary care provider, or a particular doctor's office, clinic, health center, or other place where they usually went to seek health care or health-related advice (12).

Primary care providers include practicing physicians specializing in general practice medicine, family medicine, internal medicine, and pediatrics. With increased access to primary care providers, there is an increased likelihood that



individuals will have routine checkups and screenings. Individuals with access to primary care are more likely to know where to seek treatment for acute conditions, whereas individuals without access to a primary care provider are more likely to skip routine medical care due to costs, increasing their risk of more serious and disabling conditions (13).

Primary Care Provider Rate

Healthy People 2020 Objective AHS-3: Increase the proportion of persons with a usual primary care provider

National Baseline: 76.3 percent of persons had a usual primary care provider in 2007

Target: 83.9 percent

Data Source: Medical Expenditure Panel Survey (MEPS), AHRQ

In DuPage County in 2013, 86.4 percent of DuPage County residents had a primary care provider, and 69.2 percent of residents had their last routine checkup within one year. The rates for DuPage County are above the HP 2020 target; however, there is need for improvements among low income populations as 12.1 percent of DuPage County residents could not see a doctor due to cost (9).

Non-Physician Primary Care Provider Rate

Those with access to primary care providers have an increased likelihood of receiving routine checkups and screenings. Individuals with access to primary care are also more likely to know where to go for treatment in acute situations. With increasing population growth, there is an increasing shortage of primary care physicians. The number of non-physician clinicians can partially make up for the shortfall of physicians and is projected to continue to rise. Non-physician clinicians include nurse practitioners, physician assistants, and clinical nurse specialists (14). In DuPage County, the rate of non-physician primary care providers is 35 providers per 100,000 population, which falls in the bottom 50 percent for all U.S. counties (15).

Preventable Hospital Stays

The rate of preventable hospitalizations provide an indication of the quality and accessibility of primary health care services available. When the quality of care in the outpatient setting is poor, there is increased likelihood that individuals will overuse the hospital as a main source of care and be hospitalized unnecessarily. Areas with a higher density of primary care providers are associated with lower rates of hospitalization for ambulatory care-sensitive conditions (ACSC), or conditions that are preventable hospitalizations (16). In DuPage County, the hospital discharge rate for ambulatory care-sensitive conditions is 60 discharges per 1,000 Medicare enrollees, compared to 73 discharges per 1,000 Medicare enrollees for the state of Illinois and 46 discharges per 1,000 Medicare enrollees for top U.S. performers (90th percentile)(17).

Prenatal Care

The Kotelchuck Index of Prenatal Care Utilization attempts to characterize prenatal care (PNC) utilization on two independent and distinctive dimensions - namely, adequacy of initiation of prenatal care and adequacy of received services (number of visits) (18). This index does not assess quality of the prenatal care that is delivered, only its utilization. Based on standards from the American College of Obstetrics & Gynecology (ACOG), inadequate care is defined as PNC begun after the 4th month or fewer than 50 percent of expected visits were received (18). The ACOG standard is one visit per month through 28 weeks gestation, one visit every 2 weeks through 36 weeks gestation, and one visit per week thereafter, adjusted for date of initiation of PNC (18). The availability of early and adequate prenatal care is an access to care issue.



As illustrated in Table 3.5, the percentage of live births where prenatal care is defined as being inadequate has remained relatively consistent over the last five years for DuPage County, though the rate for Illinois has been declining (19).

Table 3.5 Kotelchuck Index Inadequate Prenatal Care Utilization as a percent of Total Live Births

Year	Percent of Total Live Births with Inadequate Prenatal Care	
	DuPage County	Illinois
2000	5.9%	11.5%
2001	5.6%	10.2%
2002	5.9%	9.3%
2003	6.0%	8.9%
2004	5.9%	8.8%
2005	5.7%	8.2%
2006	5.5%	8.1%
2007	5.8%	8.0%

Source: Illinois Department of Public Health (19)

Screening

Pap Test History

Healthy People 2020 Objective C-15: Increase the proportion of women who receive a cervical cancer screening based on the most recent guidelines

National Baseline: 84.5 percent of females aged 21 to 65 years in 2008 (age adjusted to the year 2000 standard population)

Target: 93.0 percent

Data Sources: National Health Interview Survey (NHIS), CDC/NCHS

Among gynecologic cancers, cervical cancer is classified as the easiest to prevent through regular screenings and follow-up (20). A Pap smear screens for precancers on the cervix and is recommended by the U.S. Preventive Services Task Force for women aged 21 to 65 years every three years (21). In 2010, 78.6 percent of adult women over the age of 18 years received a Pap smear within the previous 3 years in DuPage County (22). In Illinois, 83.2 percent of this population had a Pap smear (22).

Mammogram Screening

Healthy People 2020 Objective C-17: Increase the proportion of women who receive a breast cancer screening based on the most recent guidelines

National Baseline: 73.7 percent of females aged 50 to 74 years received a breast cancer screening based on the most recent guidelines in 2008 (age adjusted to the year 2000 standard population)

Target: 81.1 percent

Data Sources: National Health Interview Survey (NHIS), CDC/NCHS

Mammogram screenings are used to detect early signs of breast cancer, such as tumors or calcifications, in women who have no signs or symptoms (23). With early detection of breast cancer, treatment can begin earlier and prevent the spread of the disease (23). The Centers for Disease Control and Prevention (CDC) recommends that women between the



ages of 50 to 74 years receive a mammogram screening every two years (24). In DuPage County in 2010, 74.0 percent of women over the age of 40 had a mammogram within the past two years (22). This is only slightly higher than the Illinois value of 71.4 percent (22).

Colon Cancer Screening

Healthy People 2020 Objective C-16: Increase the proportion of adults who receive a colorectal cancer screening based on the most recent guidelines

National Baseline: 52.1 percent of adults aged 50 to 75 years received a colorectal cancer screening based on the most recent guidelines in 2008 (age adjusted to the year 2000 standard population)

Target: 70.5 percent

Data Sources: National Health Interview Survey (NHIS), CDC/NCHS

Colorectal cancer screening tests allow for the ability to find precancerous polyps and remove them before they develop into cancer as well as the ability to find colorectal cancer early, which is when treatment is most effective (25). The U.S. Preventive Services Task Force recommends that adults should begin receiving colorectal screening at regular intervals after the age of 50 and until the age of 75 years (26). Colorectal screening can be conducted through high-sensitivity fecal occult blood testing, sigmoidoscopy, or colonoscopy (26). In 2010, 44.5 percent of DuPage County adults over the age of 50 years received a sigmoidoscopy or colonoscopy, similar to the Illinois value of 47.4 percent (22).



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Section 4: Quality of Life

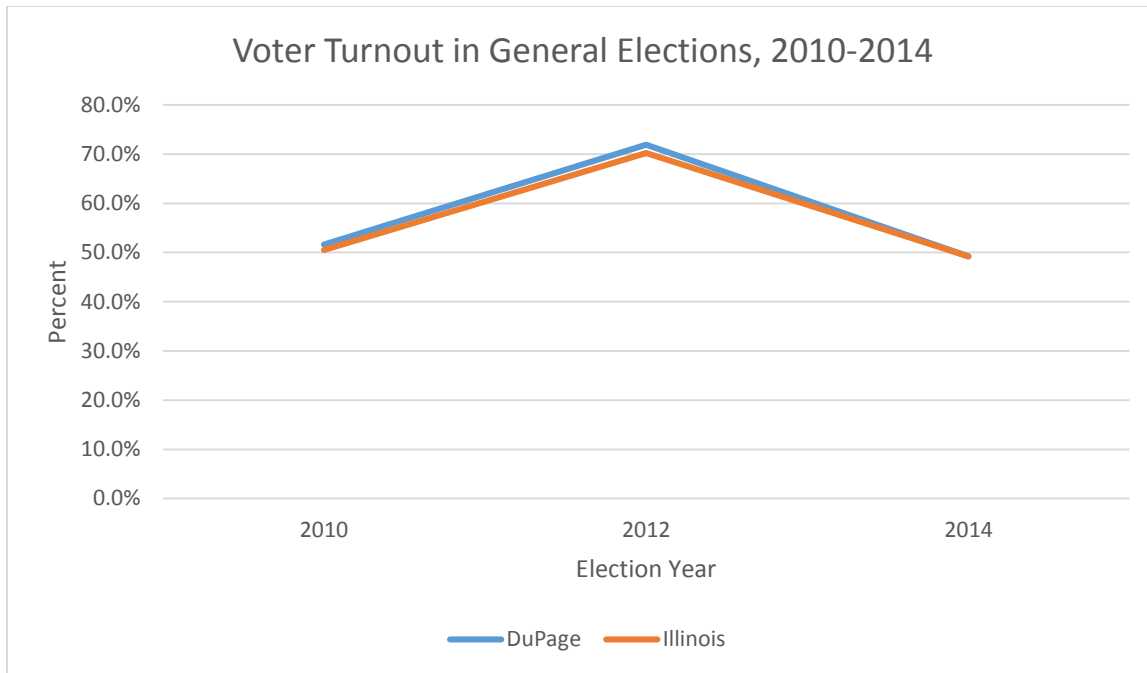
When assessing the health of the community, it is important to consider broad concepts such as quality of life and well-being. These concepts expand beyond traditional measures of health, such as morbidity and mortality, and examine social and emotional well-being and life satisfaction (1). Measures for quality of life include indicators such as voter turnout, commuting, and housing, as well as perceptions of the community provided by residents themselves.

Key Findings

- ❖ DuPage County workers travel an average of 28.9 minutes to work, compared to 28 minutes and 25.5 minutes for Illinois and the United States, respectively.
- ❖ 15 percent of DuPage County households have severe housing problems.
- ❖ 74.4 percent of occupied housing units in DuPage County are occupied by homeowners.
- ❖ Life expectancy at birth increased by 3.97 years in DuPage County between 1990 and 2010. This increase puts DuPage County at #12 of 102 for largest increase in years gained at birth for life expectancy for Illinois, Chicago, and Illinois counties. The life expectancy at birth in 2010 was 81.83 years for DuPage County and 79.19 years for Illinois.
- ❖ For both DuPage County and the state of Illinois, Alzheimer's disease ranked as the sixth leading cause of death for 2011.

Community Engagement

Voter turnout is measured by the number of ballots cast compared to the number of registered voters. As shown in Graph 4.1, the percentage of registered voters who cast a ballot in the previous three general elections is similar for both DuPage County and Illinois overall.

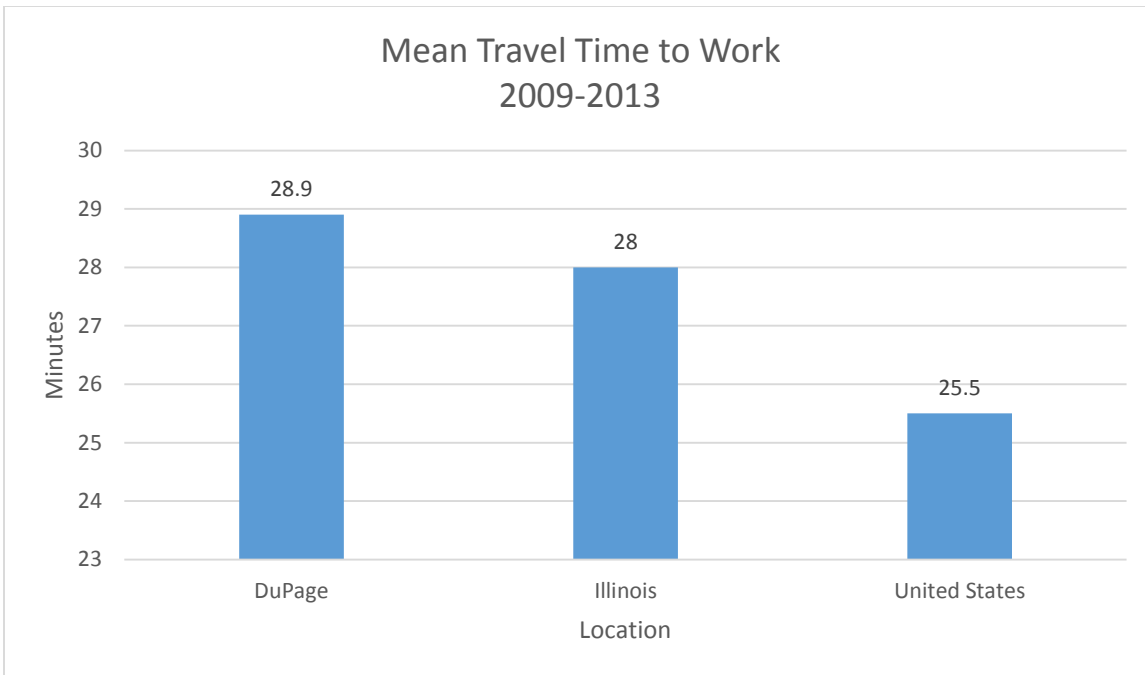


Graph 4.1

Source: Illinois State Board of Elections (2)

Commuting

Graph 4.2 shows the average commute time in minutes for workers 16 years of age and older, according to the American Community Survey. DuPage County workers travel an average of 28.9 minutes to work, compared to 28 minutes and 25.5 minutes for Illinois and the United States, respectively (3).



Graph 4.2

Source: U.S. Census Bureau (3)

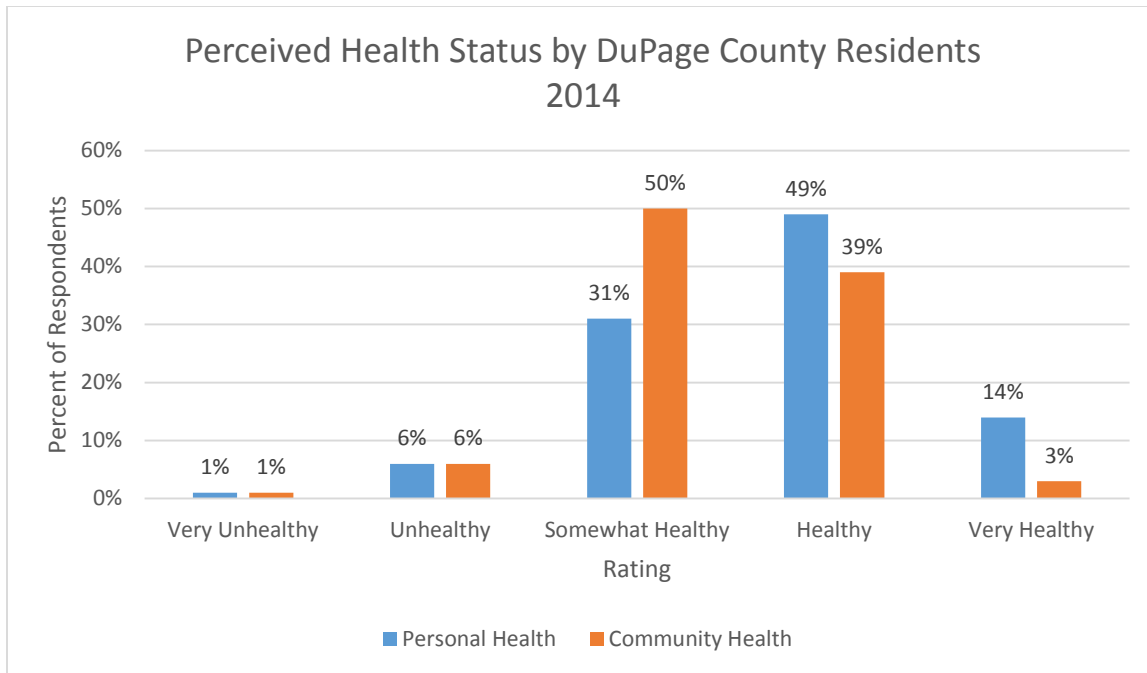
Housing

The conditions where people live can impact their overall well-being. According to County Health Rankings analysis of data from 2006-2010, 15 percent of DuPage County households have severe housing problems (4). The problems include at least one of the following: overcrowding, high housing costs, or lack of kitchen or plumbing facilities. While this percentage is slightly lower than Illinois overall (18 percent of households), it is above the value of 9 percent of households for top U.S. performers (90th percentile) (4).

Another quality of life indicator related to housing is homeownership. Estimates from the U.S. Census Bureau show that 74.4 percent of occupied housing units in DuPage County are occupied by homeowners. This is above the estimate for Illinois (67.5 percent) and the United States (64.9 percent) (5).

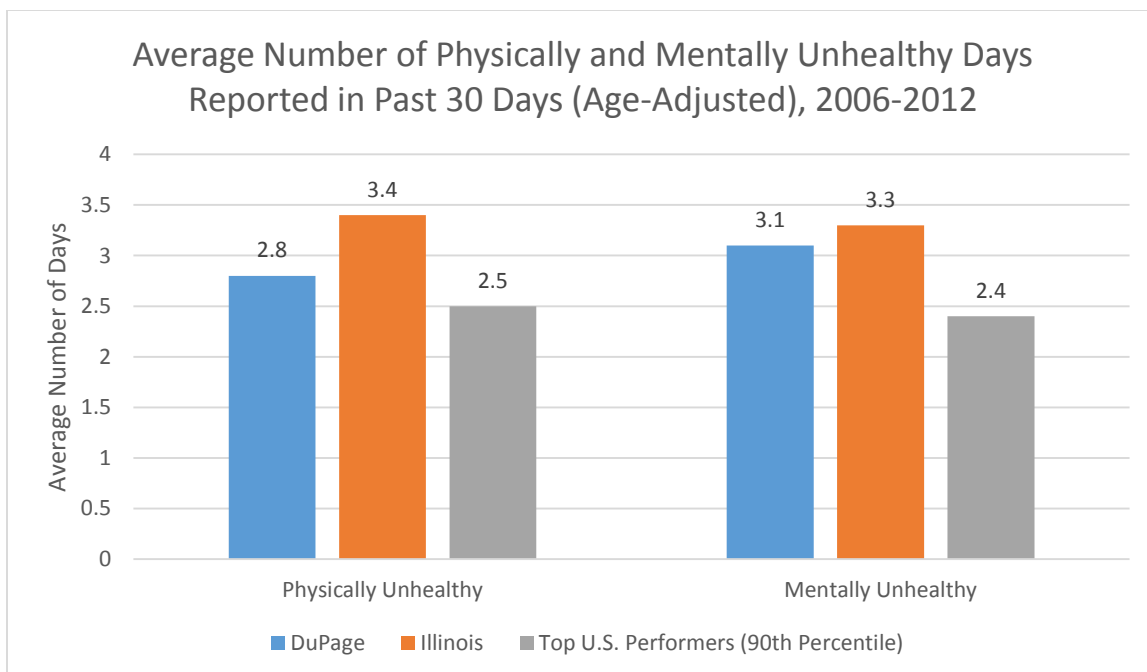
Perceived Health Status

Graphs 4.3 and 4.4 illustrate the perceptions of DuPage County residents of their personal health and the health of their community. As part of the 2014 Impact DuPage county-wide assessment, residents were surveyed about the strengths of DuPage County, issues that require attention, and perceived health status. As seen in Graph 4.3, 49 percent of respondents rate their personal health as “Healthy”, and 50 percent of respondents rate the health of their community as “Somewhat Healthy” (6). A thorough examination of the data collected from this survey is available in the Impact DuPage Landscape Review report. Figure 4.4 shows another indicator of health status – the average number of physically and mentally unhealthy days for the past thirty days. While DuPage County residents reported a higher number of unhealthy days than the top U.S. performers (90th percentile), this average was lower than the Illinois average (4).



Graph 4.3

Source: Impact DuPage (6)



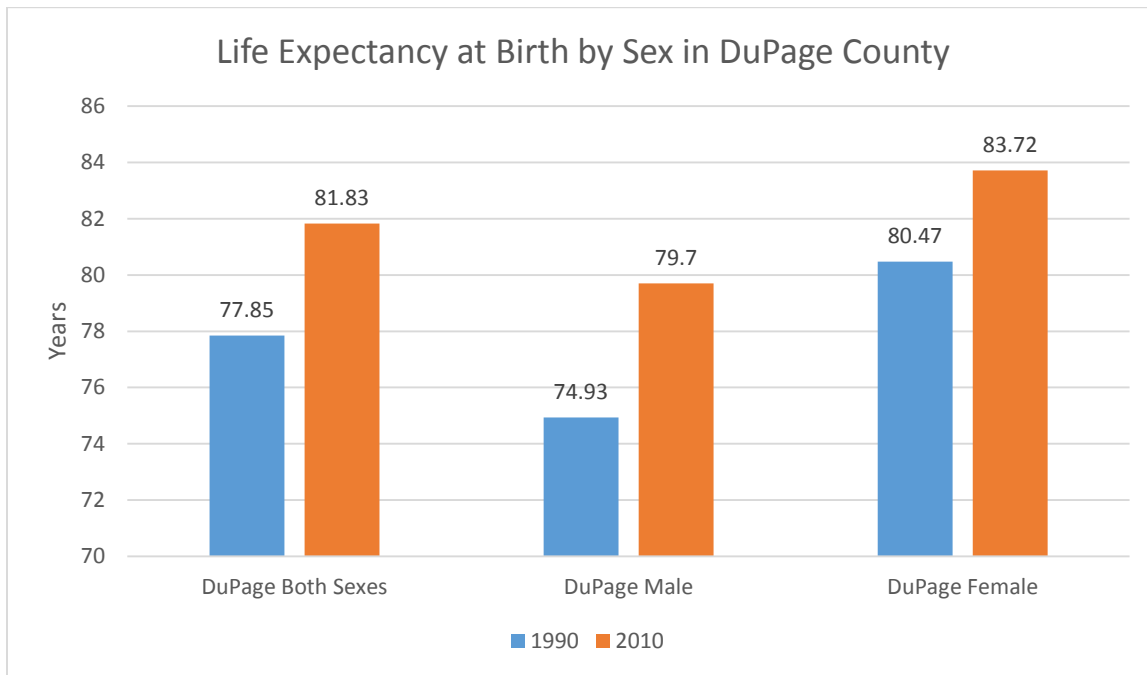
Graph 4.4

Source: County Health Rankings (4)



Life Expectancy

Life expectancy at birth increased by 3.97 years in DuPage County between 1990 and 2010 (7). This increase puts DuPage County at #12 of 102 for largest increase in years gained at birth for life expectancy for Illinois, Chicago, and Illinois counties (7). The life expectancy at birth in 2010 was 81.83 years for DuPage County and 79.19 years for Illinois (7). Figure 4.5 illustrates the increase in life expectancy from 1990 to 2010 for DuPage County overall and by sex.

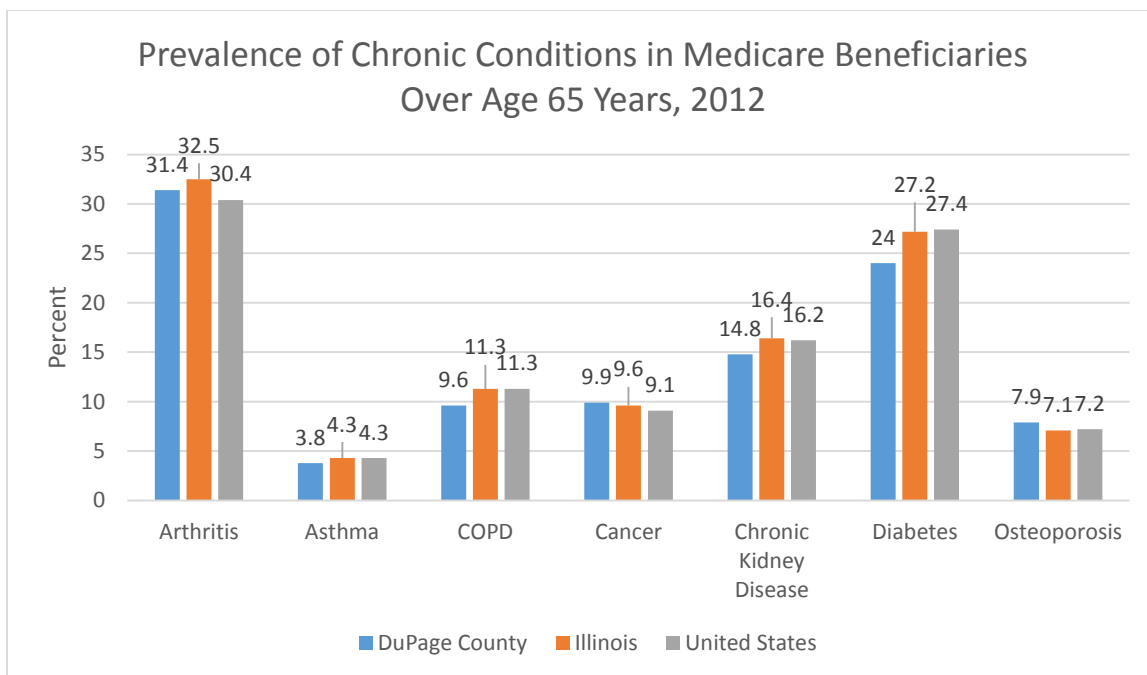


Graph 4.5

Source: Shahidullah M, Agbodo N (7)

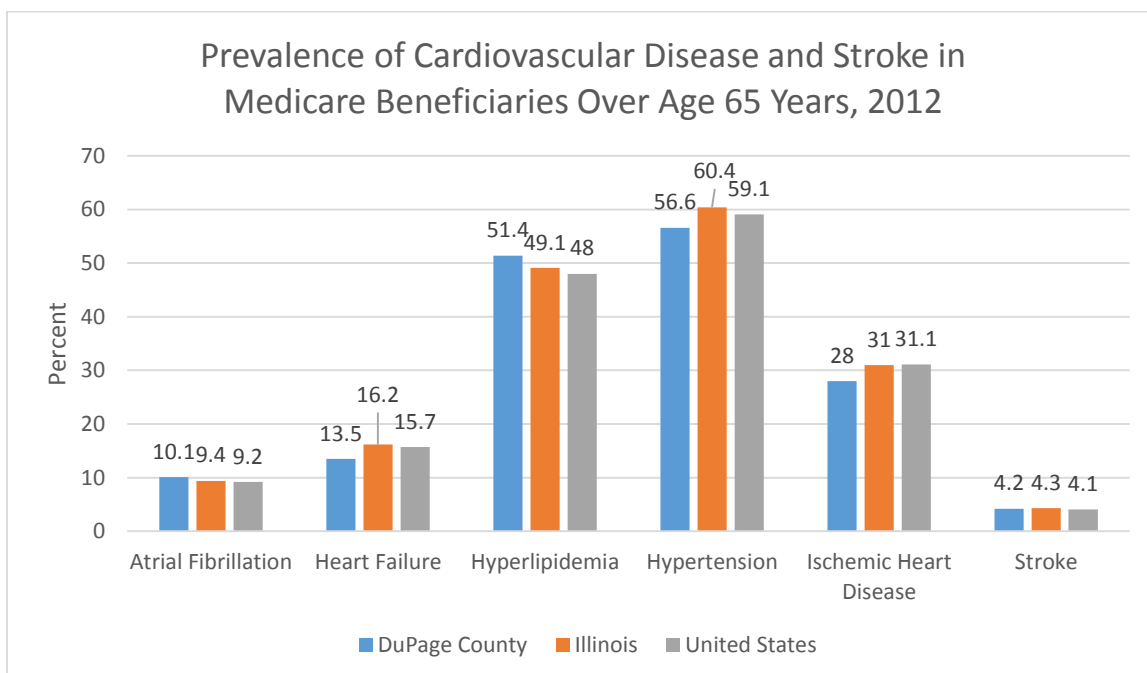
Older Adults and Aging

The population of older adults has been increasing nationally as a result of increased life expectancy and overall population increases (8). Chronic diseases can have an impact on the quality of life of this population, affecting ability to carry out activities of daily living and possibly requiring a caretaker (8). Data from the Centers for Medicare and Medicaid provide information about the prevalence of chronic disease in older adults (9). Graphs 4.6 and 4.7 show prevalence of chronic conditions in Medicare beneficiaries over age 65 for DuPage County, Illinois, and the United States for the year 2012. For most chronic conditions, prevalence in this population is lower in DuPage County than Illinois and the United States (9). However, prevalence is slightly higher in DuPage County than both Illinois and the United States for osteoporosis, atrial fibrillation, and hyperlipidemia (9).



Graph 4.6

Source: U.S. Department of Health and Human Services (9)



Graph 4.7

Source: U.S. Department of Health and Human Services (9)



Nationally, as many as 5 million adults suffer from Alzheimer’s disease (10). This disease usually affects individuals over 60 years of age, with the risk of developing the disease rising as age increases. By 2050 it is projected that nearly 14 million Americans will have this disease (10). However, the number of people with the disease doubles every five years, resulting in half of people 85 years and older being diagnosed with the disease (11). Alzheimer’s disease is the most common form of dementia, which is the loss of cognitive functioning (thinking, remembering, reasoning), and is thought to be responsible for 60 to 70 percent of all cases of dementia (11). Although it is unknown what the cause of this disease is, it has become increasingly clear that it develops because of a complex series of events that take place in the brain over a long period of time. It is likely that the causes include some mix of genetic, environmental, and lifestyle factors (9).

In recent years, Alzheimer’s disease has commanded greater attention as a major health concern. Growing awareness, coupled with improved diagnosis, has meant that Alzheimer’s is becoming recognized more often as the underlying cause of death than even a few years ago. In 2013, Alzheimer’s disease surpassed diabetes as the sixth leading cause of death in the United States (10). Additionally, the number of Americans diagnosed with the disease has doubled since 1980. In 2013, an estimated 5 million Americans aged 65 years or older had Alzheimer’s disease and it is expected to continue to grow, and may impact as many as 13.8 million adults by the year 2050 (21). In 2010, an estimated \$159 - \$215 billion were the projected financial burden that this diseases carries. It is projected by 2040 the cost will be somewhere between \$379- \$500 billion annually (10).

Table 4.1 Number of Deaths from Alzheimer’s Disease in DuPage County and Illinois, 2007-2011

Year	DuPage County	Illinois
2007	194	2,729
2008	226	3,188
2009	218	2,896
2010	217	2,915
2011	216	2,896

Source: Illinois Department of Public Health (12)(13)

For both DuPage County and the state of Illinois, Alzheimer’s disease ranked as the sixth leading cause of death for 2011 (12). Alzheimer’s disease as a leading cause of death departs from most other major causes in that Alzheimer’s is a function of mental capacity as compared to the other leading causes.



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Section 5: Behavioral Risk Factors

Many behaviors have a strong influence on health and well-being, such as eating habits, physical activity, substance abuse, and tobacco use. Research shows that personal health behaviors play a large role in premature morbidity and mortality (1). For example, poor eating habits and lack of physical activity can lead to overweight and obesity, which in turn increases the risk of chronic diseases such as diabetes, hypertension, and coronary heart disease (1). Cigarette smoking leads to an increased risk of many diseases, including heart disease, the leading cause of death in the United States (1). This particular behavioral risk factor is the single largest cause of preventable deaths and disease in the United States (2). The study of health risk behaviors is valuable in deciding where to target resources to reduce behavioral risks and their resulting consequences.

Key Findings

- ❖ For DuPage County in 2013, 26.4 percent of adults identified as obese, while 14.2 percent of children and adolescents were obese in 2013-2014.
- ❖ For public school students in DuPage County, the obesity rate was a statistically significant 1 percent lower in the 2012-13 year when compared to the 2011-12 academic year. Following this decrease, the obesity rate in 2013-14 remained stable.
- ❖ The percent of DuPage County children eating fruits and vegetables decreased with age in 2014.
- ❖ In 2013, 25.8 percent of DuPage County adults met the criteria for binge drinking.
- ❖ In 2014, 45 percent of DuPage County high school students used alcohol during the past 30 days. Students in twelfth grade were the most frequent binge drinkers, with 25 percent consuming five or more drinks in a row in the previous two weeks.
- ❖ Between 2009 and 2013, the number of current smokers in DuPage decreased by 9.3 percent, while former smokers increased by 4 percent.
- ❖ In 2014, 15 percent of high school students smoked cigarettes and 18 percent of twelfth grade students used tobacco products other than cigarettes in the past month.
- ❖ For DuPage County, in 2014, 15 percent of tenth grade students and 24 percent of twelfth grade students used marijuana within the past month.
- ❖ Between 2011 and 2014, 66 percent of emergency department visits due to heroin use were in the 18-29 age group.

Nutrition

Nutrition is essential for growth and development, health, and well-being. A healthy diet is one that includes a variety of nutrient-dense foods (vegetables, fruits, whole grains, calcium-rich foods, and protein); limits saturated fat, *trans* fat, sugar, sodium, cholesterol, refined grains, and alcohol; provides adequate amounts of essential nutrients; supplies adequate amounts of energy to maintain a healthy weight; and accounts for calories contained in beverages (3). Many dietary components are involved in the relationship between nutrition and health, and primary concerns involve



consuming too much saturated fat, *trans* fat, and added sugars and too few vegetables, fruits and grain products that are high in vitamins and minerals.

To achieve and maintain a healthy weight, calories consumed via foods and beverages must be balanced with physical activity (3). Lack of physical activity and poor nutrition are contributing to the increase of overweight and obesity in the United States as well as to the major causes of morbidity and mortality, even in the absence of overweight and obesity (3). Healthful dietary habits must be coupled with decreased sedentary behavior and increased physical activity and become permanent lifestyle changes in order to lower the risk for a number of chronic diseases and improve overall well-being.

Healthy People 2020 Objective: NWS-15.1: Increase the contribution of total vegetables to the diets of the population aged 2 years and older.

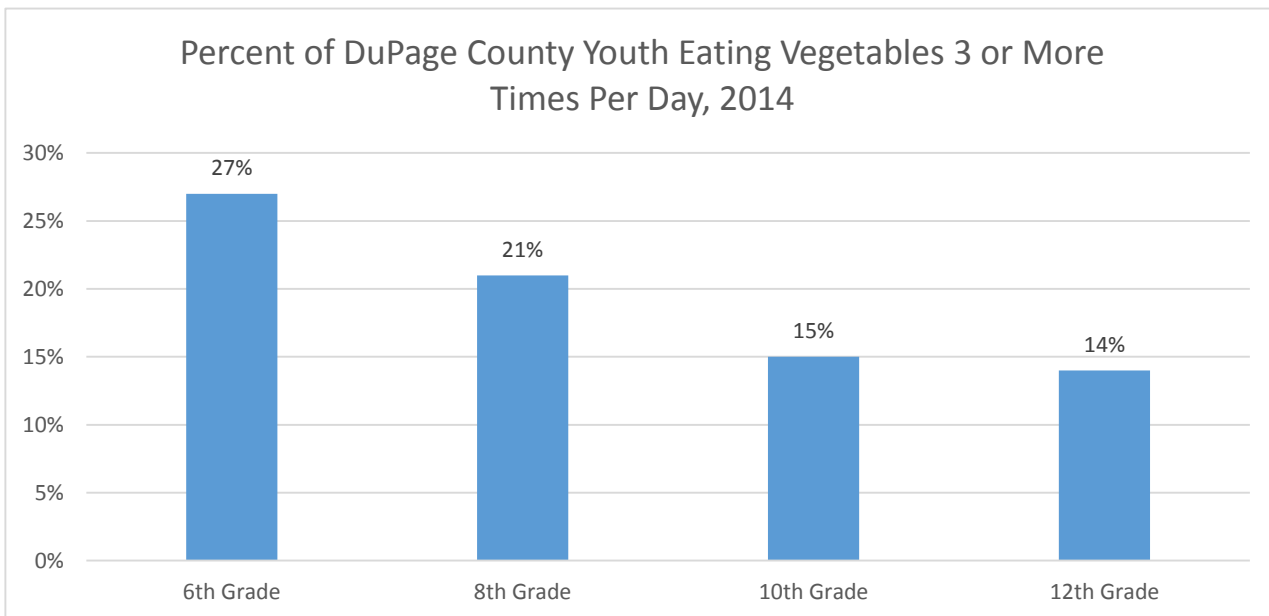
National Baseline: 0.8 cup equivalent of total vegetables per 1,000 calories was the mean daily intake by persons aged 2 years and older in 2001–04 (age adjusted to the year 2000 standard population)

Target: 1.1 cup equivalent per 1,000 calories.

Data Sources: National Health and Nutrition Examination Survey (NHANES), CDC/NCHS

In the United States in 2013, 6.6 percent of high school students did not eat vegetables during the 7 days prior to the survey, according to the Youth Risk Behavioral Survey (YRBS) (4). This is similar to the Illinois high school population (at 6.8 percent) (4).

In 2014, 27 percent of DuPage County sixth grade students reported eating vegetables three or more times per day in the 7 days prior to the survey, and as age increased, this figure decreased, to 21 percent of eighth grade students, 15 percent of tenth grade students, and 14 percent of twelfth grade students (5). This is illustrated in Graph 5.1.



Graph 5.1

Source: Illinois Department of Human Services and University of Illinois (5)



When looking at the adult population in DuPage County in 2008, 55 percent of this population ate three or more servings of fruit or vegetables daily (6). Thus, 45 percent of adults in DuPage ate zero to two servings of fruits and vegetables per day (6). In 2013, 24 percent of adults in Illinois consumed vegetables less than one time per day, slightly worse than the national average of 22.9 percent (7).

Healthy People 2020 Objective NWS-14: Increase the contribution of fruits to the diets of the population aged 2 years and older

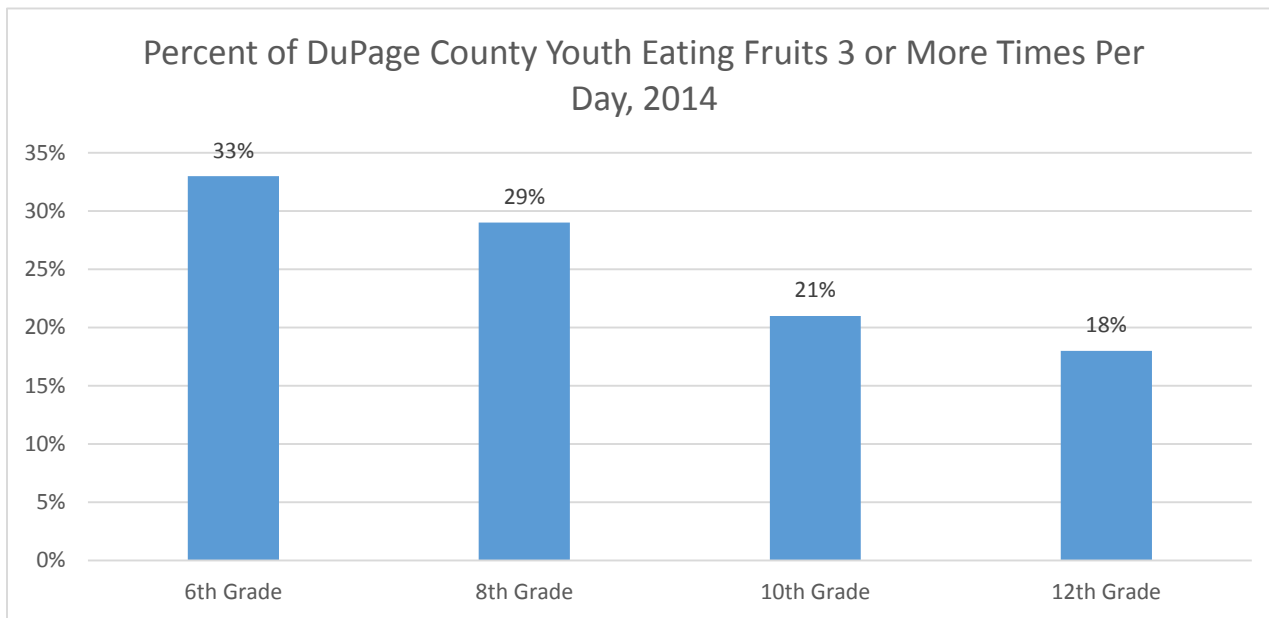
National Baseline: 0.5 cup equivalent of fruits per 1,000 calories was the mean daily intake by persons aged 2 years and older in 2001–04 (age adjusted to the year 2000 standard population)

Target: 0.9 cup equivalent per 1,000 calories

Data Sources: National Health and Nutrition Examination Survey (NHANES), CDC/NCHS

In the United States in 2013, 5.0 percent of high school students did not eat fruit or drink 100% fruit juice during the 7 days prior to the survey, according to the Youth Risk Behavioral Survey (YRBS) (4). This is similar to the Illinois high school population (at 4.9 percent) (4).

As illustrated in Graph 5.2, in 2014, 33 percent of DuPage County sixth grade students reported eating fruit three or more times per day in the 7 days prior to the survey. As age increased, this figure decreased, to 29 percent of eighth grade students, 21 percent of tenth grade students, and 18 percent of twelfth grade students (5).



Graph 5.2

Source: Illinois Department of Human Services and University of Illinois (5)

In 2013, 36.7 percent of adults in Illinois consumed fruit less than one time per day, slightly better than the national average of 39.2 percent (7). DuPage County data for adult fruit consumption is combined with vegetable consumption,



as described above. In 2008, 55 percent of DuPage County adults ate three or more servings of fruit or vegetables daily (6).

Physical Activity

Healthy People 2020 Objective PA-2.4: Increase the proportion of adults who meet the objectives for aerobic physical activity and for muscle-strengthening activity

National Baseline: 18.2 percent of adults in 2008

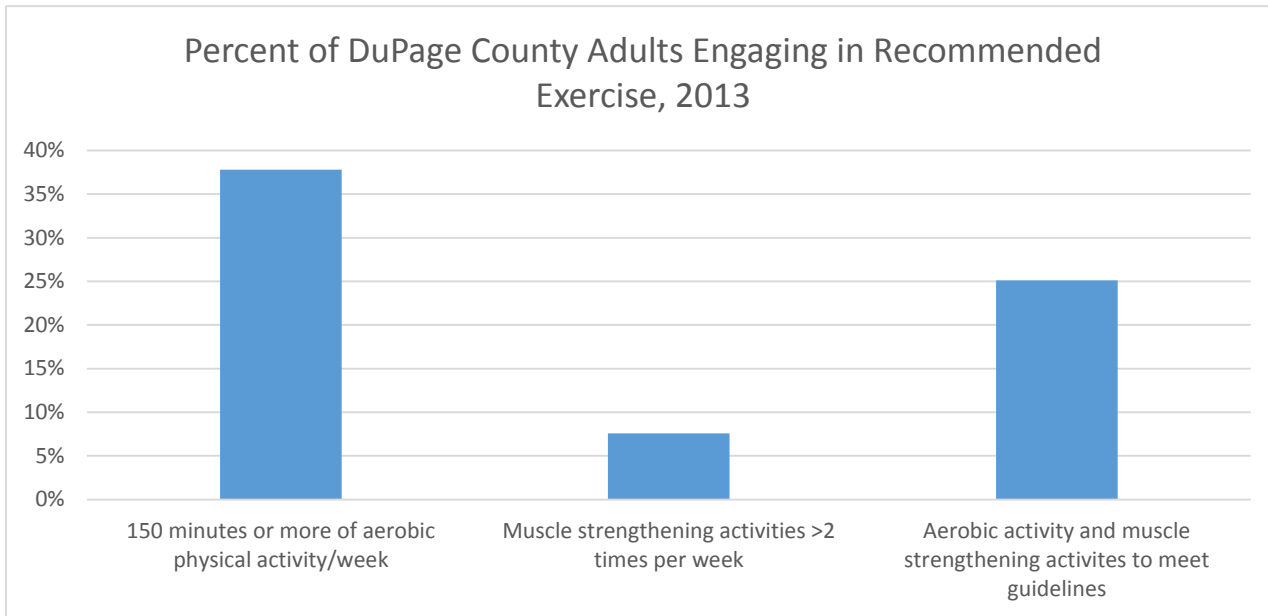
Target: 20.1 percent

Data Sources: National Health Interview Survey (NHIS), CDC/NCHS

For adults, the *2008 Physical Activity Guidelines for Americans* recommends 150 minutes of moderate-intensity aerobic activity every week and 2 or more days a week of muscle-strengthening activities that are moderate or high intensity and that work all major muscle groups (8).

According to the 2012 National Health Interview Survey (NHIS), 50 percent of adults in the United States reported being sufficiently active throughout their leisure-time physical activity (9). Furthermore, in the United States in 2013, 50.8 percent of adults detailed engaging in 150 minutes or more of aerobic physical activity per week, 29.8 percent described completing muscle strengthening activities more than twice per week, and 20.5 percent listed undertaking enough aerobic activity and muscle conditioning to meet guidelines (7). Illinois' percentages were just above those nationwide for the same year (52.4 percent, 30.2 percent, and 21.3 percent, respectively) (7).

As seen in Graph 5.3, in DuPage County in 2013, 37.8 percent of adults detailed engaging in 150 minutes or more of aerobic physical activity per week, 7.6 percent described completing muscle strengthening activities more than twice per week, and 25.1 percent listed undertaking enough aerobic activity and muscle conditioning to meet guidelines (6).



Graph 5.3

Source: Illinois Department of Public Health (6)

Healthy People 2020 Objective: PA-3.1: Increase the proportion of adolescents who meet current Federal physical activity guidelines for aerobic physical activity

National Baseline: 18.4 percent of adolescents in 2009

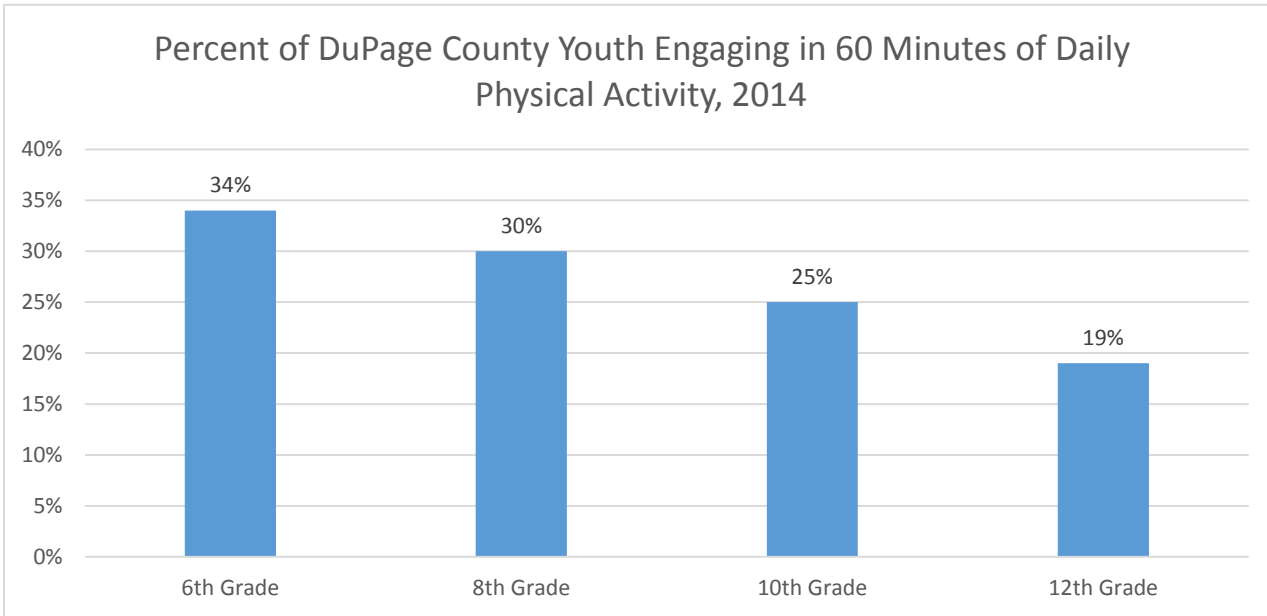
Target: 20.2 percent.

Data Sources: Youth Risk Behavior Surveillance System (YRBSS), CDC/NCCDPHP

Per the *2008 Physical Activity Guidelines for Americans*, children and adolescents should do 60 minutes or more of physical activity daily, most of which should be either moderate- or vigorous-intensity aerobic physical activity with vigorous-intensity physical activity included at least 3 days a week (8).

In 2013, 27.1 percent of high school students in the United States reported engaging in at least 60 minutes of physical activity daily, just above the rate for Illinois high school students (25.4 percent) (4). Encouraging physically active lifestyles in adolescents is important, especially since 9 percent of twelfth grade students in DuPage County in 2014 did not participate in 60 minutes of physical activity for a single day in the past seven, nor did 8 percent of tenth grade students, 5 percent of eighth graders, and 3 percent of sixth graders (5).

As seen in Graph 5.4, when asked about the previous seven days, 34 percent of DuPage County sixth graders in 2014 indicated that they were physically active for a total of at least 60 minutes per day every day that week. This declined with the increased grade of the students; 30 percent of eighth graders, 25 percent of tenth graders, and 19 percent of twelfth graders reported being physically active for a total of at least 60 minutes per day every day that week (5).

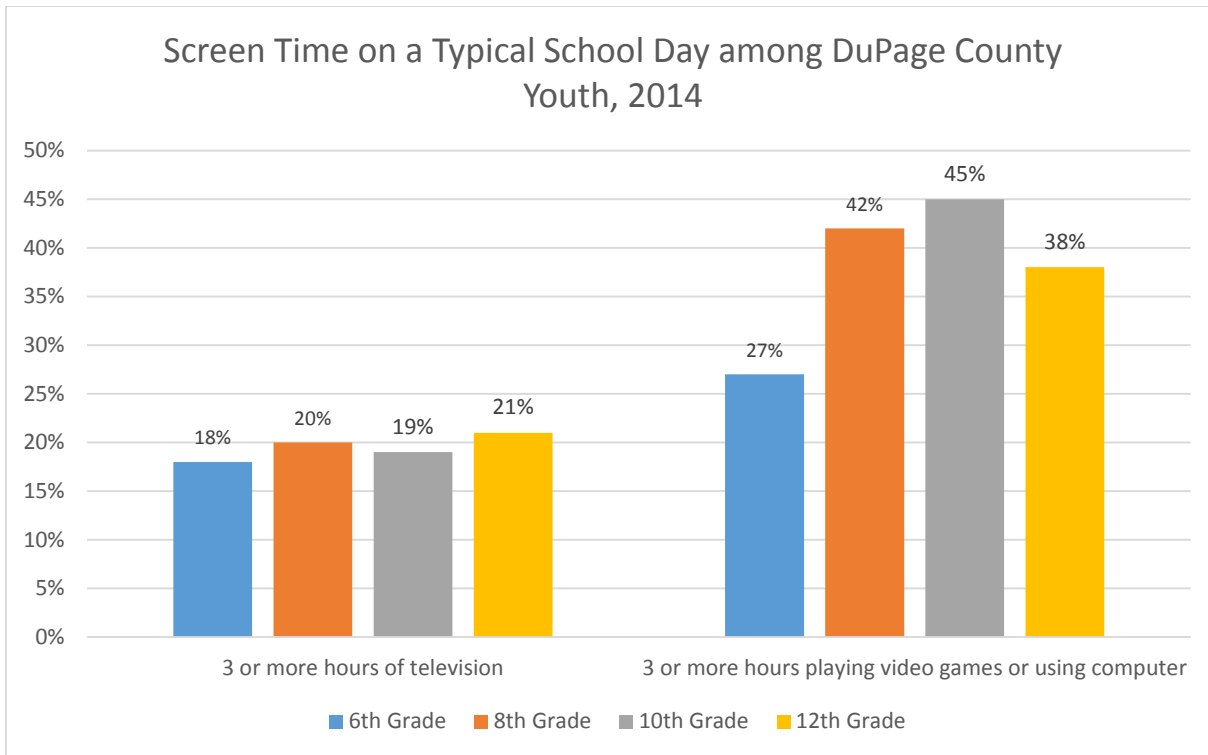


Graph 5.4

Source: Illinois Department of Human Services and University of Illinois (5)

Promoting physical activity is essential for youth. As seen in Graph 5.5, 18 percent of DuPage County sixth grade students watched 3 or more hours of television on a typical school day in 2014 (5). For eighth grade students, 20 percent did the same, as did 19 percent of tenth grade students and 21 percent of twelfth graders (5). These figures are lower than the percent for Illinois; in 2013, 29.1 percent of high school students watched television three or more hours daily during an average school day (4).

Watching television is not the only form of screen time. In DuPage County in 2014, 27 percent of sixth grade students, 42 percent of eighth grade students, 45 percent of tenth grade students, and 38 percent of twelfth grade student reported spending three or more hours of their average school day playing video and computer games and/or using a computer for something other than homework (5).



Graph 5.5

Source: Illinois Department of Human Services and University of Illinois (5)

Obesity

Healthy People 2020 Objective: NWS-9: Reduce the proportion of adults who are obese

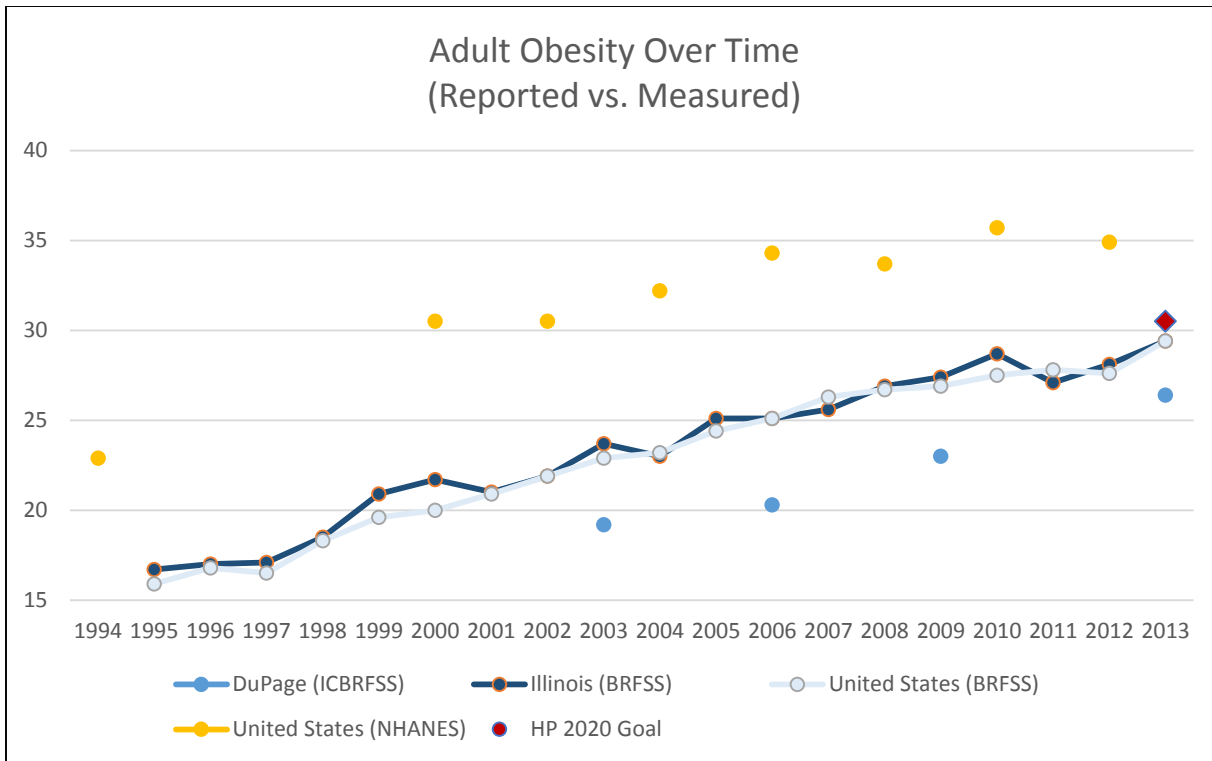
DuPage Baseline: 24.8 percent

Target: 30.5 percent

National Baseline: 33.9 percent of persons aged 20 years and older were obese in 2005–08 (age adjusted to the year 2000 standard population)

Data Sources: National Health and Nutrition Examination Survey (NHANES), CDC/NCHS

There are a number of adverse health consequences associated with overweight and obesity. Persons who are overweight or obese are at an increased risk of hypertension, type 2 diabetes, coronary heart disease, stroke, liver and gallbladder disease, osteoarthritis, sleep apnea, respiratory problems, and some types of cancer, among other things (10). In addition to the numerous health consequences of overweight and obesity, these individuals may also suffer from discrimination, social stigmatization, and lowered self-esteem (11). While addressing this issue is complex due to the variety of contributing factors, health outcomes related to these diseases can often be improved through weight loss or, at a minimum, weight maintenance.



Graph 5.6

Source: Illinois Department of Public Health (6); Centers for Disease Control and Prevention (7); Fryar, Carroll, Ogden (12)

As can be seen in Graph 5.6 above, adult obesity rates continue to rise in the U.S., Illinois and DuPage County. Nationwide, in 2013, 29.4 percent of adults in both the United States and Illinois reported that they were obese, defined by a body mass index (BMI) of 30 or more (7). For DuPage County that same year, 26.4 percent of adults identified as obese (6). All of these rates meet the HP 2020 target of 30.5 percent but exceed the more ambitious HP 2010 target of 15 percent. See Graph 5.1.

The national measured adult obesity data differed from the aforementioned reported rate. In 2011-2012, 34.9 percent of adults were measured as obese (12). This 5.5 percent difference in measured (34.9 percent) vs. reported (29.4 percent) obesity rates demonstrates that respondents underreport weight and/or over report height.

Healthy People 2020 Objectives NWS-10: Reduce the proportion of children and adolescents who are considered obese Target, National Baseline, and DuPage Baseline

Objective	Reduction in Obesity	2020 Target (Percent)	National 2005-08 Baseline (Percent)	DuPage 2013-14 (Percent)
NWS-10.1	Children aged 2-5 years	9.6	10.7	12.7
NWS-10.2	Children aged 6-11 years	15.7	17.4	15.1

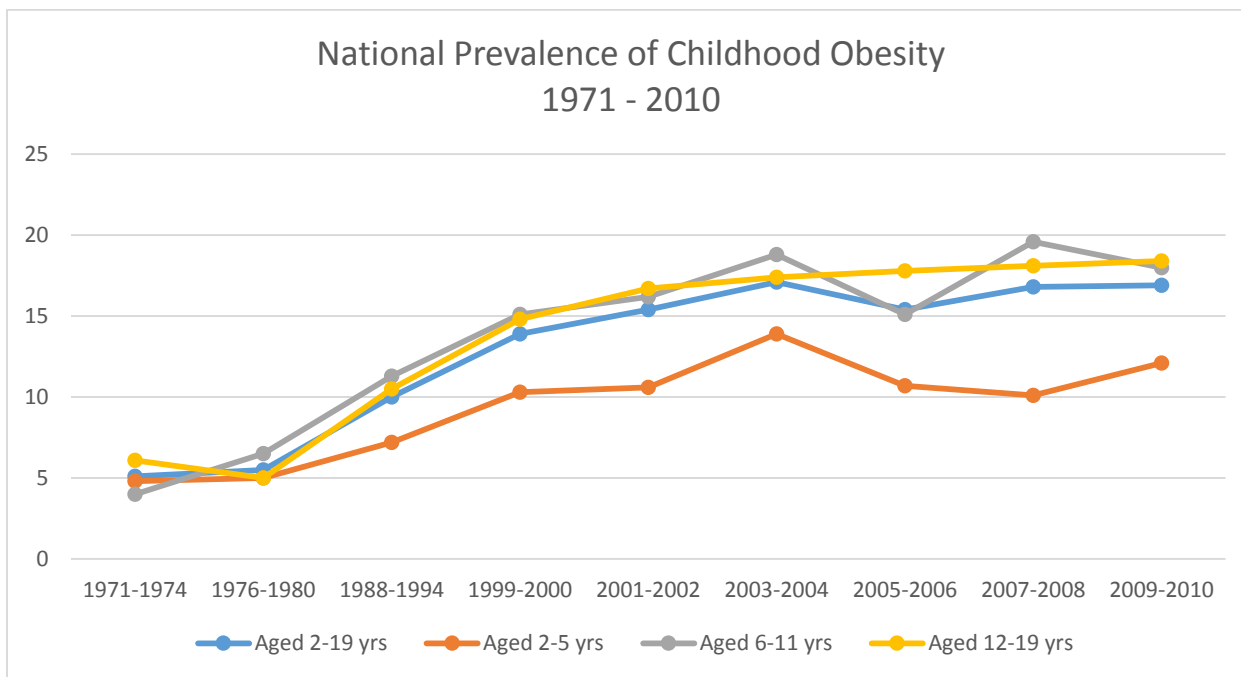


NWS-10.3	Adolescents aged 12-19 years	16.1	17.9	14.7
NWS-10.4	Children and adolescents aged 2 to 19 years	14.5	16.1	14.2

National Data Source: Fryar, Carroll, Ogden (14)

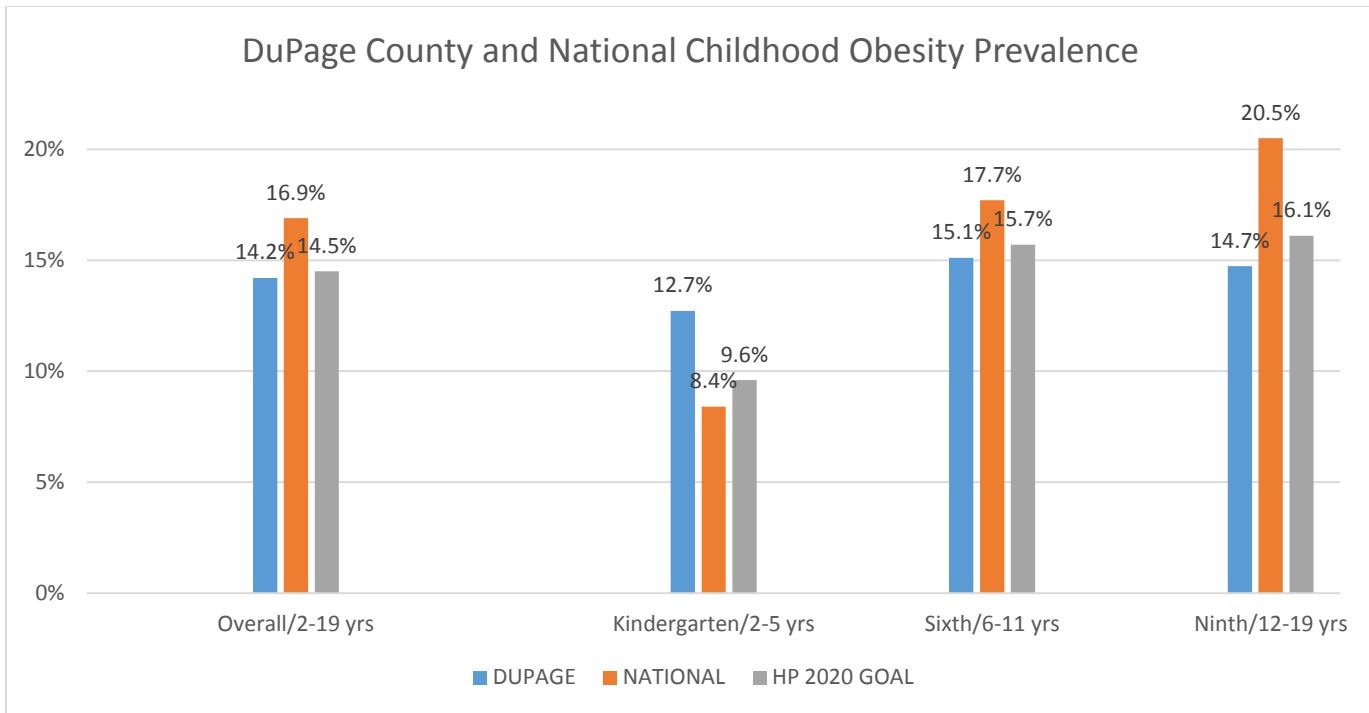
DuPage Data Source: FORWARD (13)

In the past 30 years, the proportion of overweight and obese children and adolescents of both genders has increased dramatically. Graph 5.7 shows this increase in prevalence of childhood obesity nationally, defined as a body mass index (BMI) at or above the 95th percentile for children of the same age and sex (14). There are many psychosocial and health-related risks that overweight or obesity has on a child. Moreover, children who are obese during childhood are more likely to be obese as adults (11). Research supports the concept of focusing on children and getting them on a healthy path early in life as one of the areas where the greatest successes can be achieved (15).



Graph 5.7

Source: Fryar, Carroll, Ogden (14)



Graph 5.8

Sources: FORWARD (13); Ogden, Carroll, Kit, Flegal (16)

Graph 5.8 shows that DuPage County has met the HP 2020 Target for 2-19 year olds, 6-11 year olds, and 12-19 year olds. However, for 2-5 year olds, DuPage County kindergarteners exceed the national prevalence (8.4 percent) and the HP 2020 Target (9.6 percent) by 4.3 percent and 3.1 percent, respectively (16).

Additional existing data were collected and analyzed to further explore the obesity rates of 2-5 year olds in DuPage County. The Women Infant and Children Supplemental Nutrition Program (WIC) is offered to the residents by the DuPage County Health Department. In 2014, 13.3 percent of the 4,014 2-5 year olds enrolled measured as obese (17).

As seen with the adult obesity rates, measured childhood obesity rates were higher than reported rates. In 2014, only 5 percent of sixth graders in DuPage County self-identified as obese while measured data showed actual obesity rates of 15.1 percent (5,13). For ninth graders, 14.7 percent measured as obese while only 5 percent of eighth graders and 8 percent of tenth graders self-reported as obese (5,13). Another survey of students in Illinois in grades 9-12 showed 11.5 percent self-reported as obese (4).

For public school students in DuPage County, the obesity rate (14.4 percent) for the 2012-13 academic year was significantly lower than the obesity rate (15.4 percent) for the 2011-12 academic year (13). Following this decrease, the obesity rate in 2013-14 remained stable (13).



Substance Abuse

Substance abuse is the harmful or hazardous use of psychoactive substances, including tobacco, alcohol and illicit drugs (18). Dependence syndrome, or addiction, describes that while initial substance use might be voluntary, repeated use may be outside the user's control, and an individual may continue to use a substance despite adverse consequences (19). Consequences to a person's health can include cardiovascular disease, cancer, injuries, and HIV infection (18). In 2013, an estimated 21.6 million Americans aged 12 years or older, or 8.2 percent of this population, were classified with substance dependence or abuse in the past year, based on *Diagnostic and Statistical Manual-IV (DSM-IV)* criteria (20).

Alcohol Use

While responsible light to moderate alcohol use has little to no side effects, problems arise when consumption becomes excessive. Excessive drinking includes heavy drinking, more than one drink per day for women and two per day for men, and binge drinking, consuming four or more drinks per occasion for women and five or more for men (21). Each year in this country, there are 88,000 deaths caused by excessive alcohol use, and 2.5 million years of potential life lost (YPLL), shortening the lives of those who died by an average of 30 years (21).

Alcohol abuse is comprised of one or more of the following criteria: role impairment (e.g. failed work or home obligations), hazardous use (e.g. driving while intoxicated), legal problems, or social or interpersonal problems caused or exacerbated by use (22). Repeated alcohol abuse can lead to alcohol dependence or alcoholism in which consumption is at a level that interferes with physical health, mental health, family and/or social responsibilities, and a person craves or depends on alcohol consumption (22). Alcohol abuse can have long term effects on a person's quality of life and can lead to high blood pressure and cardiovascular disease; cancer of the breast, mouth, throat, esophagus, liver, and colon; and mental health problems, such as depression and anxiety (21). It can also have more immediate consequences, such as injuries; in 2010, the National Institutes of Health reported that alcohol is involved in 37 percent of all traffic deaths among persons aged 16 to 20 (23).

Excessive alcohol use among individuals under 21 years of age is responsible for more than 4,300 deaths among this population each year in the United States, and in 2010, led to 189,000 emergency room visits (24,25). Also, youth who drink alcohol are at higher risk for: school, social, and legal problems; physical and sexual assault; memory problems; abuse of other drugs; alcohol-related injuries, including motor vehicle accidents; and death from alcohol poisoning (24). Age at onset of drinking strongly predicts development of alcohol dependence over the course of the lifespan, and youth who start drinking before the age of 15 years are five times more likely to develop alcohol abuse or dependence later in life when compared to adults who have their first drink at age 21 or older (24).

Healthy People 2020 Objective SA-14.3: Reduce the proportion of persons engaging in binge drinking of alcoholic beverages during the past 30 days- adults aged 18 years and older.

National Baseline: 27.1 percent of adults aged 18 and older in 2008.

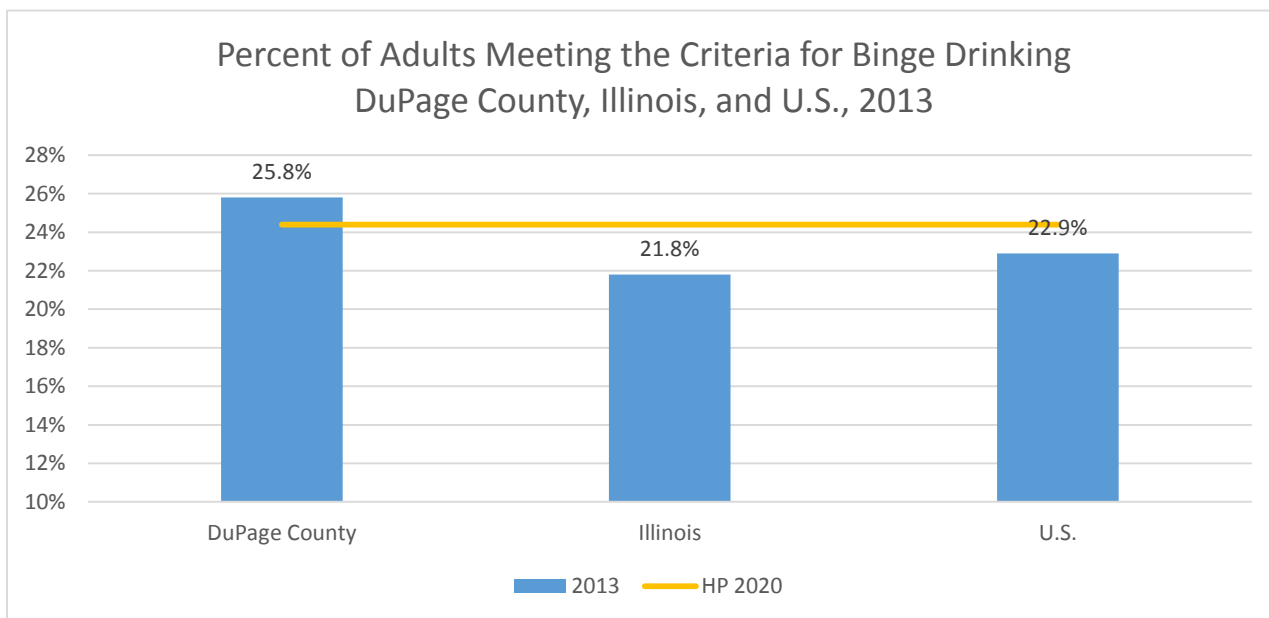
Target: 24.4 percent

Data Sources: National Survey on Drug Use and Health (NSDUH), SAMHSA



Each year, approximately 92 percent of persons 18 years or older in the U.S. who drink excessively report binge drinking in the past 30 days, and more than 50 percent of the alcohol consumed in our country is consumed during binge drinking episodes (26).

As can be seen from Graph 5.9, in 2013, 25.8 percent of DuPage County adults met the criteria for binge drinking, while 93.7 percent of adults were considered at risk for chronic drinking (27). For the state of Illinois in 2013, 21.8 percent of adults statewide met the criteria for binge drinking, and 6.5 percent were at risk of binge drinking (28). DuPage County was above nationwide statistics for 2013, in which 22.9 percent of adults were binge drinkers (20). The DuPage County figures are above the HP 2020 target of 24.4 percent of adults engaging in binge drinking.



Graph 5.9

Source: Centers for Disease Control and Prevention (25,26), Illinois Department of Public Health (27)



Healthy People 2020 Objective SA-14.1: Reduce the proportion of students engaging in binge drinking of alcoholic beverages during the past 2 weeks- high school seniors

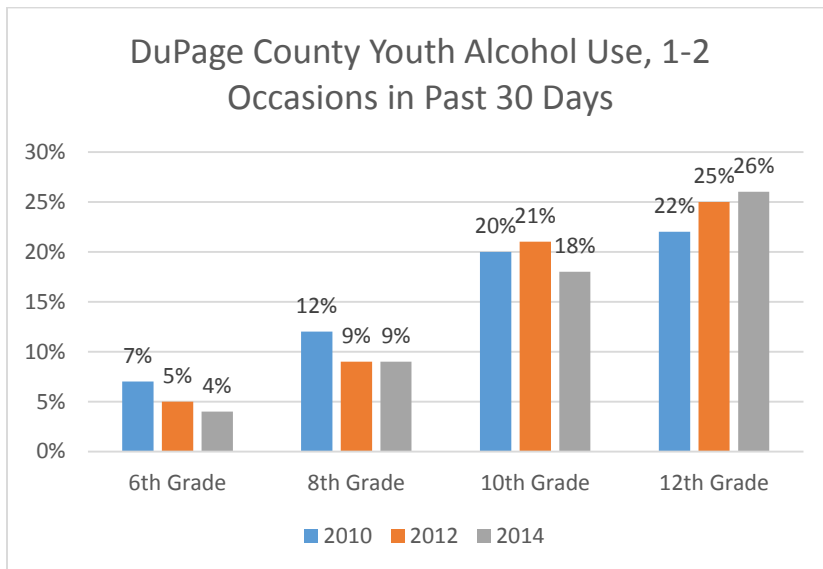
National Baseline: 25.2 percent of high school seniors in 2009

Target: 22.7 percent

Data Sources: Monitoring the Future Study (MTF), NIH/NIDA.

In 2014, 45 percent of DuPage County high school students used alcohol during the past 30 days (29). Seniors were the most frequent binge drinkers, with 25 percent consuming five or more drinks in a row in the previous two weeks and 1 percent doing so on 20 or more consecutive days (29). This is consistent with the 2009 national baseline, and exceeds the Healthy People 2020 target.

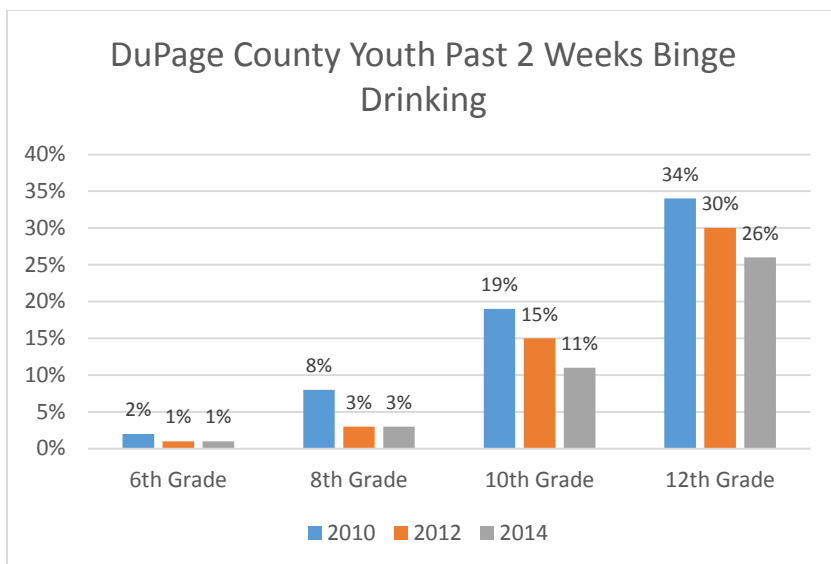
As shown in Graph 5.10, in 2014, 4 percent of DuPage County sixth graders had alcohol on 1-2 occasions in the past month. This figure increased with grade level, as 9 percent of eighth grade students, 18 percent of tenth grade students, and 26 percent of twelfth grade students reported the same behavior.



Graph 5.10

Source: Illinois Department of Human Services and University of Illinois (29)

As for binge drinking (consuming 5 or more drinks in a row), 2 percent of 8th graders, 6 percent of 10th graders, and 12 percent of 12th graders binge drank one time in the last two weeks. What's more, 1 percent of 12th graders binge drank 10 or more times in the past two weeks (29). Graph 5.11 below shows the percentage of 6th, 8th, 10th, and 12th graders engaging in at least one instance of binge drinking in the past two weeks. Binge drinking among high school seniors is above the Healthy People 2020 target of 22.7 percent.



Graph 5.11

Source: Illinois Department of Human Services and University of Illinois (29)

In 2014, 3 percent of tenth grade students and 11 percent of twelfth grade students reported driving a vehicle at least once when they had been drinking alcohol within the past 12 months (29).

Healthy People 2020 Objective SA-11: Reduce cirrhosis deaths

National Baseline: 9.1 deaths per 100,000 population in 2007 (age adjusted to the year 2000 standard population).

Target: 8.2 deaths per 100,000 population

Data Sources: National Vital Statistics System-Mortality (NVSS-M), CDC/NCHS; Population Estimates, Census.

Heavy alcohol use increases risk for cirrhosis and other liver disorders (21). As seen in Table 5.1, in DuPage County in 2009, there were 64 deaths due to chronic liver disease and cirrhosis, in 2010 there were 59 and in 2011 there was an increase to 60 deaths (30).

Table 5.1 DuPage County Chronic Liver Deaths Disease and Cirrhosis

Year	Number of Deaths	Deaths per 100,000 Population
2009	64	6.9
2010	59	6.3
2011	60	6.5

Source: Illinois Department of Public Health (31)



Tobacco Use

Healthy People 2020 Objective TU-1.1: Reduce cigarette smoking by adults

National Baseline: 20.6 percent of adults aged 18 years and older in 2008 (age adjusted to the year 2000 standard population)

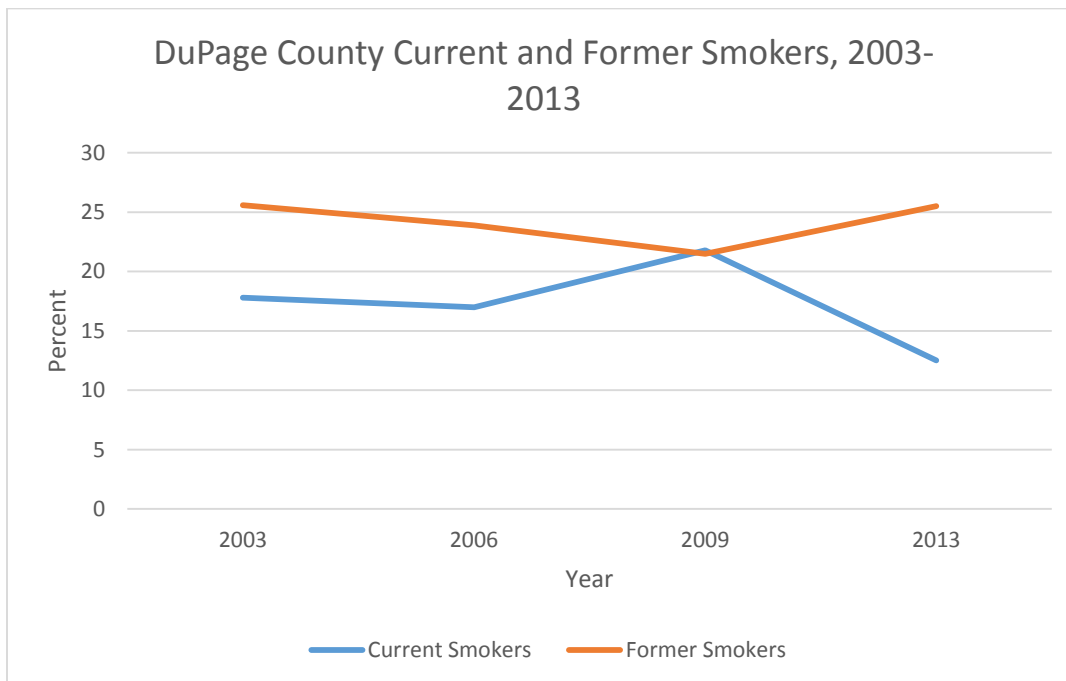
Target: 12.0 percent

Data Sources: National Health Interview Survey (NHIS), CDC/NCHS

Using tobacco products, which contain the addictive ingredient nicotine, increases an individual's risk of numerous health conditions including cancer and cardiovascular disease (31). The World Health Organization estimates that nearly six million people die worldwide as a result of tobacco use, with more than 600,000 deaths the result of second-hand smoke (31). Risks of stroke and coronary heart disease decrease after smoking cessation; however, because of the addictive nature of tobacco products, it is difficult to stop using them (32). Tobacco use is the single most preventable cause of death in the United States, and contributes to more than 480,000 deaths each year (33).

Nationally in 2013, 17.8 percent of adults were cigarette smokers (34). Prevalence was higher among males (20.5 percent) when compared to females (15.3 percent), and highest among the 25-44 year old age group (20.1 percent) (34). The rate of current smokers in Illinois was 18 percent of the adult population in 2013 (35).

In DuPage County in 2013, 12.5 percent of adults were current smokers, while 25.5 percent were former smokers (27). Smoking cessation has major and immediate health benefits for men and women of all ages. For example, people who quit smoking lower their risk of lung cancer, coronary heart disease, stroke, and chronic obstructive pulmonary disease (COPD) (36). As seen in Graph 5.12, the percent of adult smokers has decreased from 21.8 in 2009 to 12.5 percent in 2013, while the percent of former smokers increased from 21.5 in 2009 to 25.5 percent in 2013 (27).





Graph 5.12

Source: Illinois Department of Public Health (27)

Healthy People 2020 Objective TU-2: Reduce tobacco use by adolescents

National Baselines and Targets:

Objective	Reduction in Tobacco Use by Students in Grades 9 Through 12	2009 Baseline	2020 Target
		<i>Percent</i>	
TU-2.	Tobacco products (past month)	26.0	21.0
TU-2.2.	Cigarettes (past month)	19.5	16.0
TU-2.3.	Smokeless tobacco (past month)	8.9	6.9
TU-2.4.	Cigars (past month)	14.0	8.0

Data Sources: Youth Risk Behavior Surveillance System (YRBSS), CDC/NCHHSTP

In 2013, 14.1 percent of Illinois high school students smoked cigarettes in the previous month, which is below the national average of 15.7 percent. The majority of students smoking cigarettes are twelfth graders, with 19.6 percent of twelfth graders in Illinois admitting cigarette use and 19.2 percent at the national level (37). As for other tobacco products, in Illinois in 2013, 8.4 percent of high school students (compared to 8.8 percent nationally) used smokeless tobacco in the past month, and more specifically, 9.9 percent of twelfth graders (37). This amount exceeds national averages, where 9.4 percent of twelfth graders used smokeless tobacco in the past month (37).

In 2014, 15 percent of DuPage County high school students smoked cigarettes at least once in the past 30 days, a figure that is below the HP 2020 target, though 9 percent smoked cigarettes daily. In 2014, 10 percent of DuPage County 12th graders reported cigarette use in the month prior to the survey, though only 1 percent of 8th graders reported the same. For 12th graders who smoked, 3 percent indicated smoking between 1 and 5 cigarettes daily, while 1 percent smoked about one-half pack per day (29). Also in 2014, 18 percent of DuPage County 12th graders reported using tobacco products other than cigarettes in the past month. Again this figure declined with age, as only 2 percent of 8th graders and zero percent of 6th graders reported other tobacco use in the previous 30 days. For adolescents who used cigarettes or other tobacco products, the most common source for obtaining these products for 10th grade students was from friends with 6 percent of students claiming this as their source, while 10 percent of 12th grade students often bought products at a gas station or store and another 10 percent of students obtained these products from a friend (29).

Illicit Drug Use

There are five categories of Illicit or illegal drugs, including cannabis or marijuana, narcotics, stimulants, depressants, and hallucinogens (38). In 2013, according to the National Survey on Drug Use and Health, an estimated 24.6 million



Americans aged 12 years or older used illicit drugs in the past month, which translates to 9.4 percent of this population (20). Marijuana is the most commonly used illicit drug, and in 2013, 19.8 million individuals 12 years and older were past month users (20). Illicit drug use contributes to a broad range of social and health-related problems for our nation, and there is an excess mortality burden of illicit drug use that tends to impact individuals early in life (39). Use of illicit drugs, such as heroin, cocaine, methamphetamine, and nonmedical use of prescription drugs can lead to injury, illness, disability, crime, domestic violence, and risky sexual behavior. The correlation between frequent users of illicit drugs other than marijuana and mental health disorders has shown to be substantial (39).

Healthy People 2020 Objective: SA-12: Reduce drug-induced deaths

Target: 11.3 deaths per 100,000 population.

National Baseline: 12.6 drug-induced deaths per 100,000 population occurred in 2007 (age adjusted to the year 2000 standard population).

Data Sources: National Vital Statistics System-Mortality (NVSS-M), CDC/NCHS; Population Estimates, Census.

As seen in Table 5.4, the number of drug-induced deaths in DuPage County have been fluctuating in the past five years. The number of drug-induced deaths for DuPage County in 2011 was 55, or a crude rate of 6.0 deaths per 100,000 population.

Table 5.4 DuPage County Drug-Induced Deaths

Year	Number	Deaths per 100,000 Population
2007	64	6.9
2008	90	9.7
2009	68	7.3
2010	76	8.1
2011	55	6.0

Source: Illinois Department of Public Health (40)

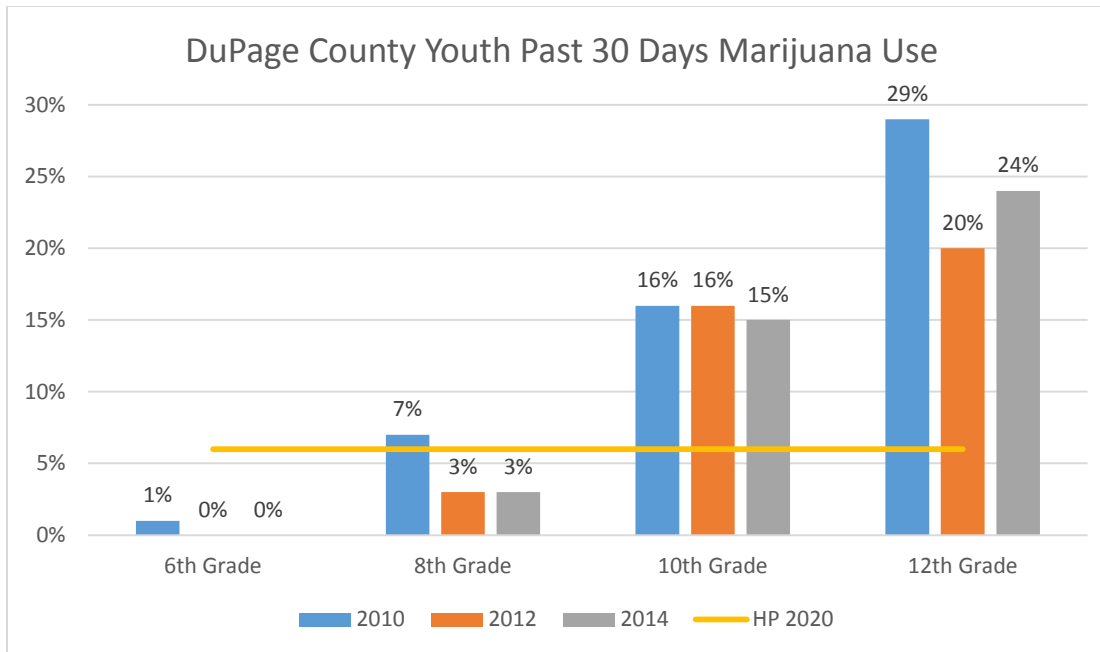
Healthy People 2020 Objective SA-13.2: Reduce the proportion of adolescents reporting use of marijuana during the past 30 days.

National Baseline: 6.7 percent of adolescents aged 12 to 17 years reported marijuana use in the past 30 days in 2008

Target: 6.0 percent

Data Sources: National Survey on Drug Use and Health (NSDUH), SAMHSA

Nationally in 2013, for youth aged 12 to 17, 7.1 percent of this population reported marijuana use in the past month, an increase from 6.7 percent in 2008 (20). As for DuPage County in 2014 (Graph 5.13), past month marijuana use varied by grade level with 3 percent of 8th grade students, 15 percent of 10th grade students, and 24 percent of 12th grade students admitting use (29). For 12th grade students, while 9 percent indicated using marijuana one or two times in the past month, an additional 5 percent indicated they used marijuana 20 or more times in the past month (29). In addition to the significant consequences of driving under the influence of alcohol, evidence suggests that drivers who use marijuana with high levels of THC in their blood are three to seven times more likely to be responsible for accidents than drivers who had not used drugs or alcohol (41). In 2014, eight percent of tenth grade students and 21 percent of twelfth grade students reported driving a vehicle at least once when they had been using marijuana within the past 12 months (29).

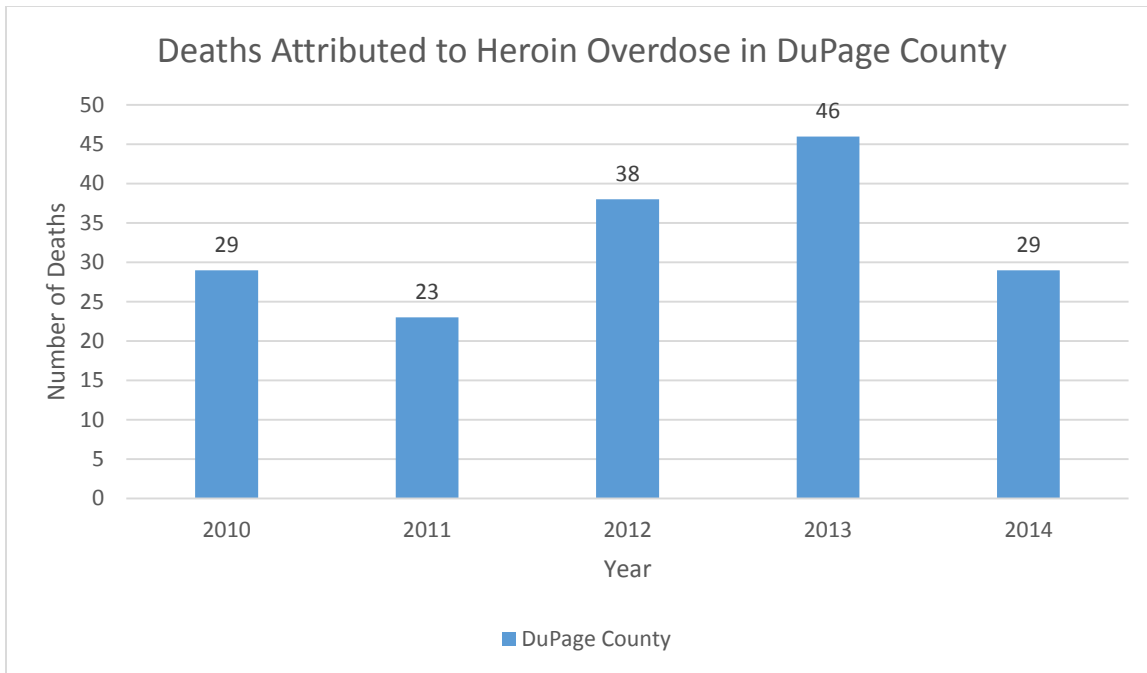


Graph 5.14

Source: Illinois Department of Human Services and University of Illinois (29)

Emerging Drug Trends

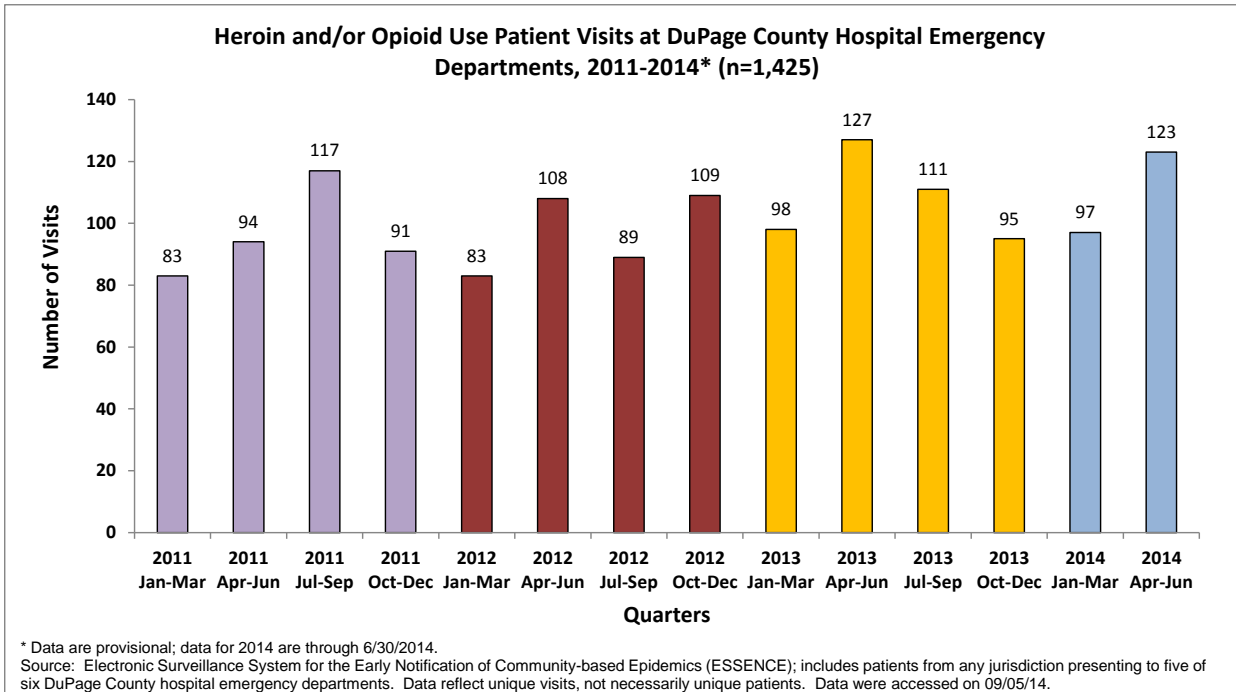
In 2012 and 2013, there was an increase in deaths attributed to heroin overdose in DuPage County. As a result of this sentinel event, the DuPage Narcan Program was developed to provide law enforcement officers with naloxone, an opioid overdose reversal drug. In 2014, there were 34 overdose reversals through the DuPage Narcan Program (42).



Graph 5.15

Source: DuPage Coalition Against Heroin (42)

In DuPage County, from January 1, 2011 to June 30, 2014, there were 1,425 patient visits at the hospital emergency departments with chief complaints and/or discharge diagnoses related to heroin use and/or opioid use as seen below in Graph 5.16 (43).



Graph 5.16

Source: ESSENCE (43)

Table 5.5 shows demographic characteristics of patients presenting in DuPage County hospital emergency departments with chief complaints and/or discharge diagnoses related to heroin use (43).



Table 5.5: DuPage County hospital emergency departments with chief complaints and/or discharge diagnoses related to heroin use - January 1, 2011 – June 30, 2014

Characteristic	n (%)
Heroin Use Patient Visits	985 (100)
Gender	
Male	656 (67)
Female	329 (33)
Age	
Range	0-62 years
Average (Mean)	27.3 years
Median	25 years
Age Group (years)	
0-4	1 (0)
5-17	27 (3)
18-29	648 (66)
30-39	209 (21)
40-49	70 (7)
50-64	30 (3)
65+	0 (0)

Source: ESSENCE (43)

Electronic Cigarettes

In the United States, significant increases also were observed in overall current use of electronic cigarettes and hookahs. According to the Centers for Disease Control and Prevention's Morbidity and Mortality Weekly Report, the use of electronic cigarettes doubled among middle and high school females, middle school males, and Hispanic high school students in the U.S. (44). During 2011–2012, among high school students, for electronic cigarette use, significant increases were observed overall (1.5 percent to 2.8 percent) and among females (0.7 percent to 1.9 percent), males (2.3 percent to 3.7 percent), non-Hispanic whites (1.8 percent to 3.4 percent), and Hispanics (1.3 percent to 2.7 percent) (44).



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Section 6: Environmental Health

Protecting the environment is important in public health practice. Maintaining a healthy environment is central to increasing quality of life and years of healthy life. Core environmental health programs in DuPage County continue to address exposures to hazardous substances in the water, soil, and food. Additionally, mosquito-borne and tick-borne diseases have arrived in DuPage County as emerging threats to health. West Nile virus and foodborne illness are highlighted in this section.

Key Findings

- ❖ In DuPage County, West Nile virus human case numbers and rates have fluctuated over the past five years, between a low of zero cases in 2009 and a high of 56 cases (6.03 cases per 100,000 population) in 2012.
- ❖ During 2009-2013, there were several restaurant-associated outbreaks, including one caused by *Shigella* (245 cases in DuPage residents), one caused by *Salmonella* (9 cases), and one caused by *E. coli* O157:H7 (37 cases).
- ❖ To date, 11 police departments and the DuPage County Sheriff's office have collected over 25 tons of medications through the RxBox Program.

Emerging Diseases and West Nile Virus

Though the presence of Chikungunya - a viral disease spread by the bites of infected mosquitos - has not yet been identified in Illinois, helping to identify the relative quantities and geographical range of distribution of *Aedes albopictus* mosquitoes in DuPage County may be a future surveillance opportunity. *A. albopictus* is considered one potential carrier species of the disease in the region. Helping to identify its relative abundance in the region will provide a basis for future disease surveillance planning. Additionally, rising tick-borne cases of Lyme disease in the area may be an opportunity for prevention and public education on control measures.

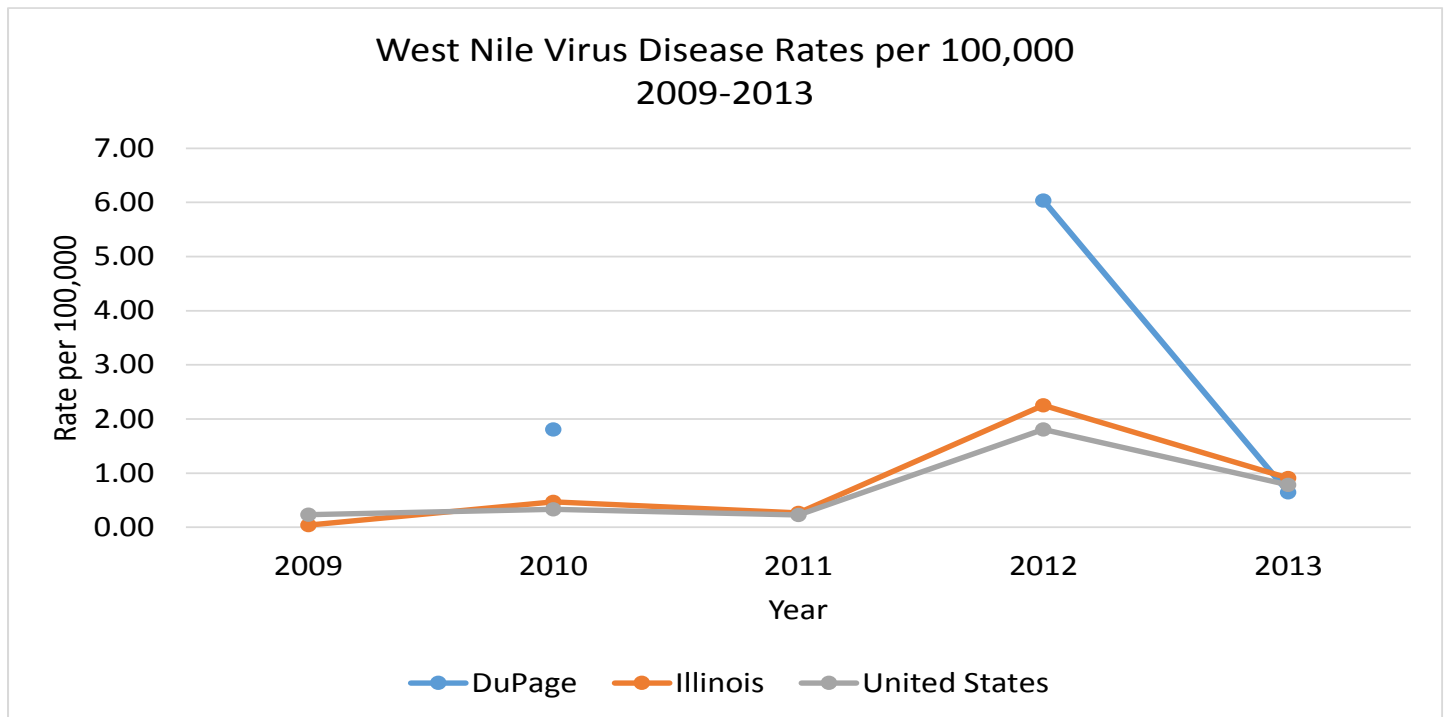
West Nile virus (WNV) is a mosquito-borne virus that is commonly found in Africa, West Asia, and the Middle East, and in recent years has been found in the United States. The onset of symptoms is 2 to 14 days after being bitten by an infected mosquito. Most people infected with WNV experience few if any symptoms and recover completely after a few days. Mild symptoms include a fever, headache, body aches, occasionally with a skin rash on the trunk of the body, and swollen lymph glands. Although rare, some people experience severe infection (West Nile encephalitis or meningitis) and the symptoms include headache, high fever, neck stiffness, stupor, disorientation, coma, tremors, convulsions, muscle weakness, and paralysis. Symptoms of severe disease may last several weeks, although neurological effects may be permanent. According to the Centers for Disease Control and Prevention, about 1 in 5 people who are infected with WNV will develop a fever with other symptoms. It is rare (less than 1 percent) for infected people to develop a serious, sometimes fatal, neurologic illness (1).

The DuPage County Health Department (DCHD) tracks West Nile Virus (WNV) cases, and also tests the environment for positive pools of susceptible mosquitoes. As seen in Graph 6.1, human case numbers and rates have fluctuated over the



past five years, between a low of zero cases in 2009 and a high of 56 cases (6.03 cases per 100,000 population) in 2012. In 2014, DCHD's Environmental Health Services monitored 37 mosquito traps, from May to October.

DCHD also collects samples from crows, blue jays, and other birds for its WNV surveillance program. These birds are very sensitive to WNV and they can indicate the presence of WNV in an area.



Graph 6.1

Sources: Illinois Department of Public Health (5)

Table 6.1: West Nile Virus. Number of reported cases and rates per 100,000 population -- DuPage County, Illinois, and United States, 2009-2013

Region	2009		2010		2011		2012		2013	
	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
DuPage County	0	--	17	1.81	2	--	56	6.03	6	0.64
Illinois	5	0.04	61	0.47	34	0.26	290	2.25	117	0.91
United States	720	0.23	1,021	0.33	712	0.23	5,674	1.81	2,469	0.78




-- Rates not calculated for less than 5 cases due to increased variability

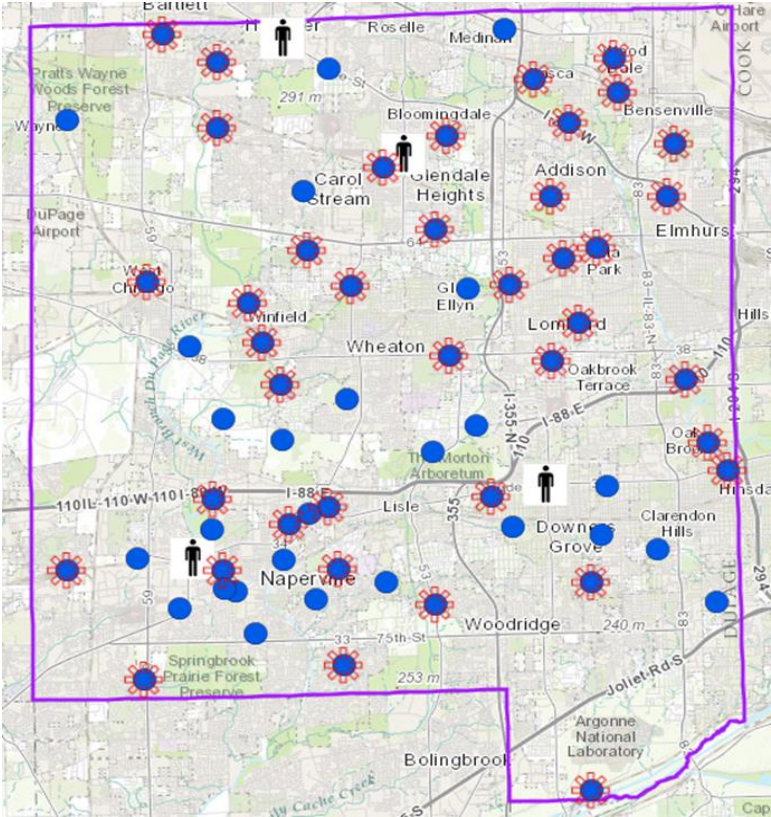
Sources: Illinois Department of Public Health (5)



Below is an example of a map that DCHD uses to track WNV cases throughout DuPage County. These maps are created in partnership with DCHD and the DuPage County Geographic Information Systems (GIS) Department.

Legend

	WNV Results and Human Cases
	WNV Results and Human Cases Traps Positive Only
	WNV Results and Human Cases Reported Human Cases



Foodborne Illness

Contaminated food consumed in the U.S. causes an estimated 48 million illnesses, 128,000 hospitalizations, and 3,000 deaths annually (2). Foodborne disease reporting is not only important for disease prevention and control, but for more accurate assessments of the burden of foodborne illness and identification of foodborne disease outbreaks in the community. This may lead to early identification and removal of contaminated products from the commercial market and education about proper food handling and preparation practices in restaurants and homes (3). Table 6.2 shows the reported cases and rates of foodborne illnesses in DuPage County. In 2013, the rate of *Salmonella* infections (13.73) was higher than the HP 2020 target of 11.4 per 100,000.



Healthy People 2020 Objective FS-1: Reduce infections caused by key foodborne pathogens.

National Targets and Baselines:

Objective	Reduction in Infections Caused by Microorganisms	2006-08 Baseline	2020 Target
		<i>Cases per 100,000</i>	
FS-1.2	<i>Escherichia coli</i> O157:H7	1.2	0.6
FS-1.3	<i>Listeria monocytogenes</i>	0.3	0.2
FS-1.4	<i>Salmonella</i> species	15.0	11.4
	Hepatitis A		No Target
	<i>Shigella</i>		No Target

Data Source: Foodborne Diseases Active Surveillance Network (FoodNet), CDC/NCID (4)

Table 6.2 DuPage County Foodborne Illness Reported Cases and Rates per 100,000 population¹, 2009-2013

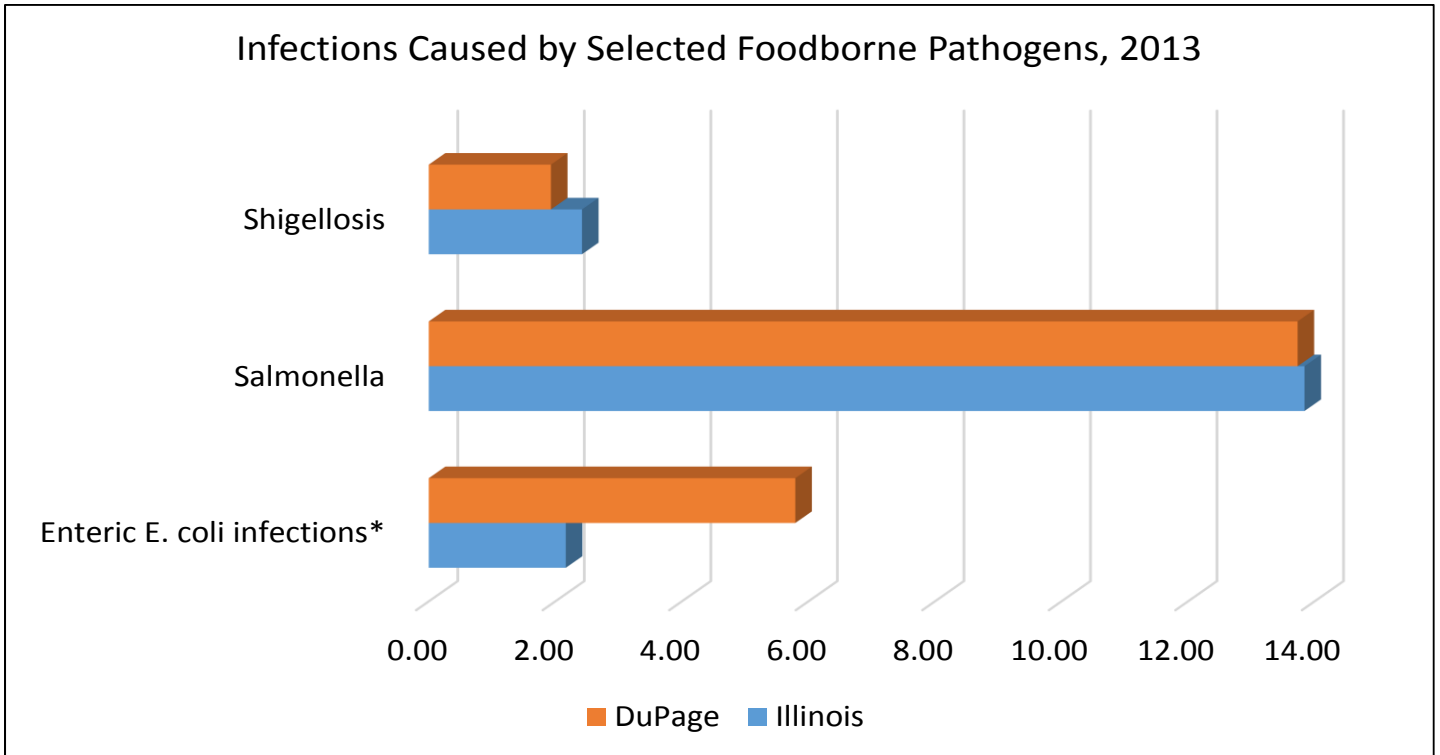
Organism	2009		2010		2011		2012		2013	
	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Enteric <i>E. coli</i> infections*	12	1.29	19	2.02	22	2.38	19	2.05	54	5.79
Hepatitis A	6	0.64	3	--	8	0.87	8	0.86	4	--
<i>Listeria monocytogenes</i>	3	--	6	0.64	2	--	2	--	2	--
<i>Salmonella</i>	89	9.54	136	14.45	95	10.29	123	13.25	128	13.73
Shigellosis	13	1.39	277	29.43	22	2.38	20	2.16	18	1.93

¹ Rates for less than five cases not calculated due to increased unreliability

* Includes O157:H7, STEC, EIEC, ETEC, EPEC

Sources: Illinois Department of Public Health (5)

Foodborne illnesses are a substantial health burden in the U.S., and the most commonly reported enteric pathogens include *Salmonella*, Shiga toxin-producing *Escherichia coli* O157 (STEC O157), *Shigella*, *Campylobacter*, *Listeria*, *Cryptosporidium*, *Vibrio*, and *Yersinia* (6).



Graph 6.2

* Includes O157:H7, STEC, EIEC, ETEC, EPEC

Source: Illinois Department of Public Health (5)

Several large restaurant-associated outbreaks were reported to DCHD Communicable Disease and Epidemiology and Environmental Health Services staff during 2009-2013: one caused by *Shigella* (245 cases in DuPage residents), one caused by *Salmonella* (9 cases), and one caused by *E. coli* O157:H7 (37 cases). These outbreaks are highlighted in graphs 6.3, 6.4, and 6.5, respectively. Confirmed foodborne illness outbreaks in DuPage County between 2009 and 2013 are listed in Table 6.2.

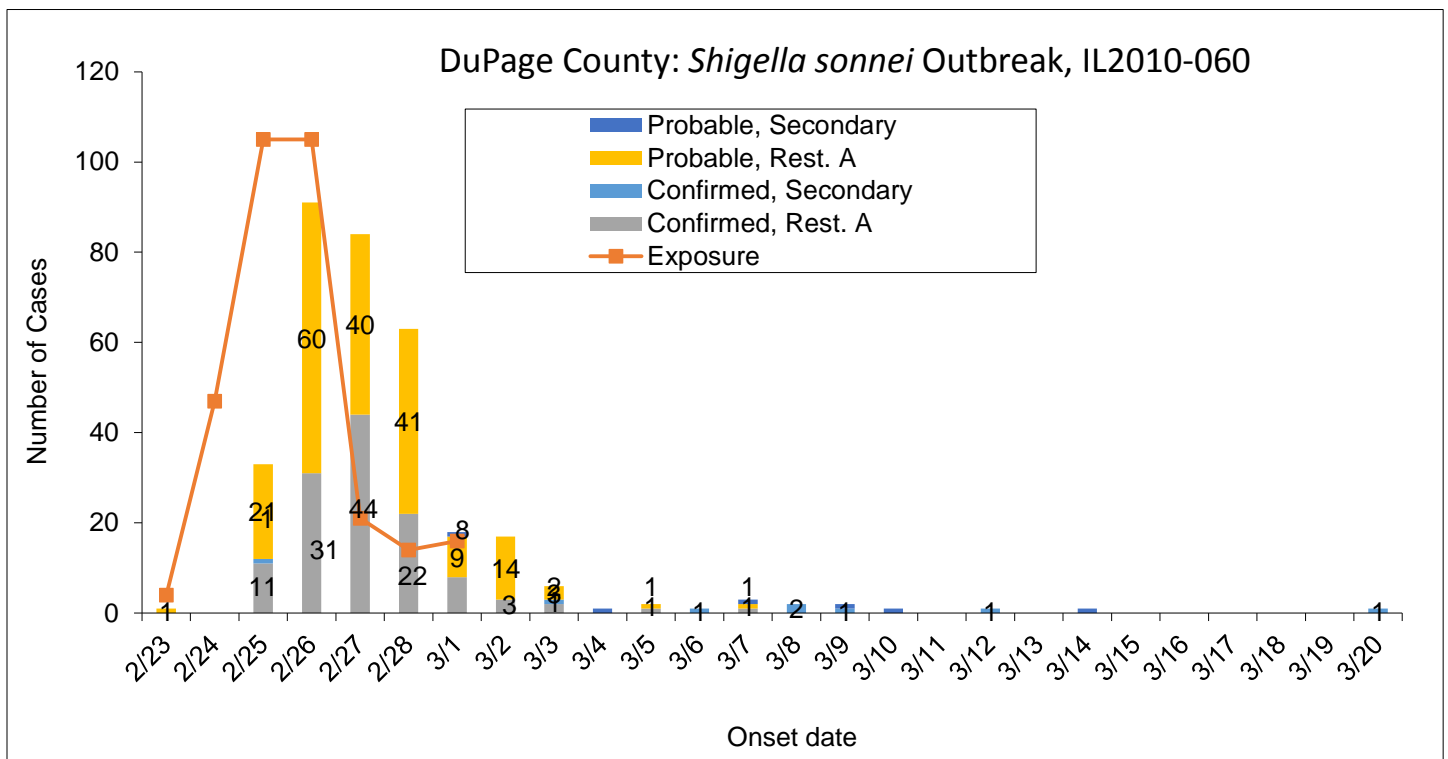


Table 6.3 Confirmed Foodborne Illness Outbreaks in DuPage County

Year	Number of Outbreaks in DuPage*	Number of DuPage Residents Ill
2009	1	1
2010	9	262
2011	4	11
2012	3	11
2013	5	53

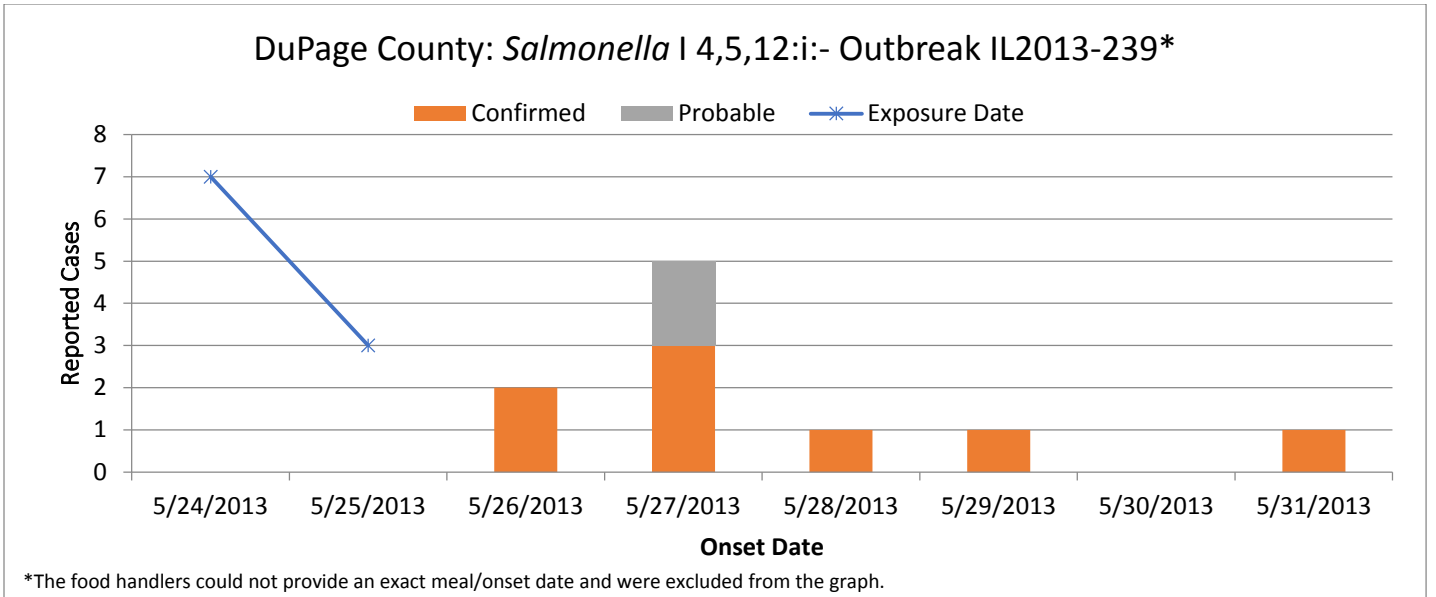
*Includes only reportable foodborne illnesses. Foodborne outbreaks involving Norovirus are not reportable in the National Electronic Disease Surveillance System. Norovirus outbreaks make up approximately half of DuPage County investigations and are not represented in this table.

Source: Illinois Department of Public Health (5)



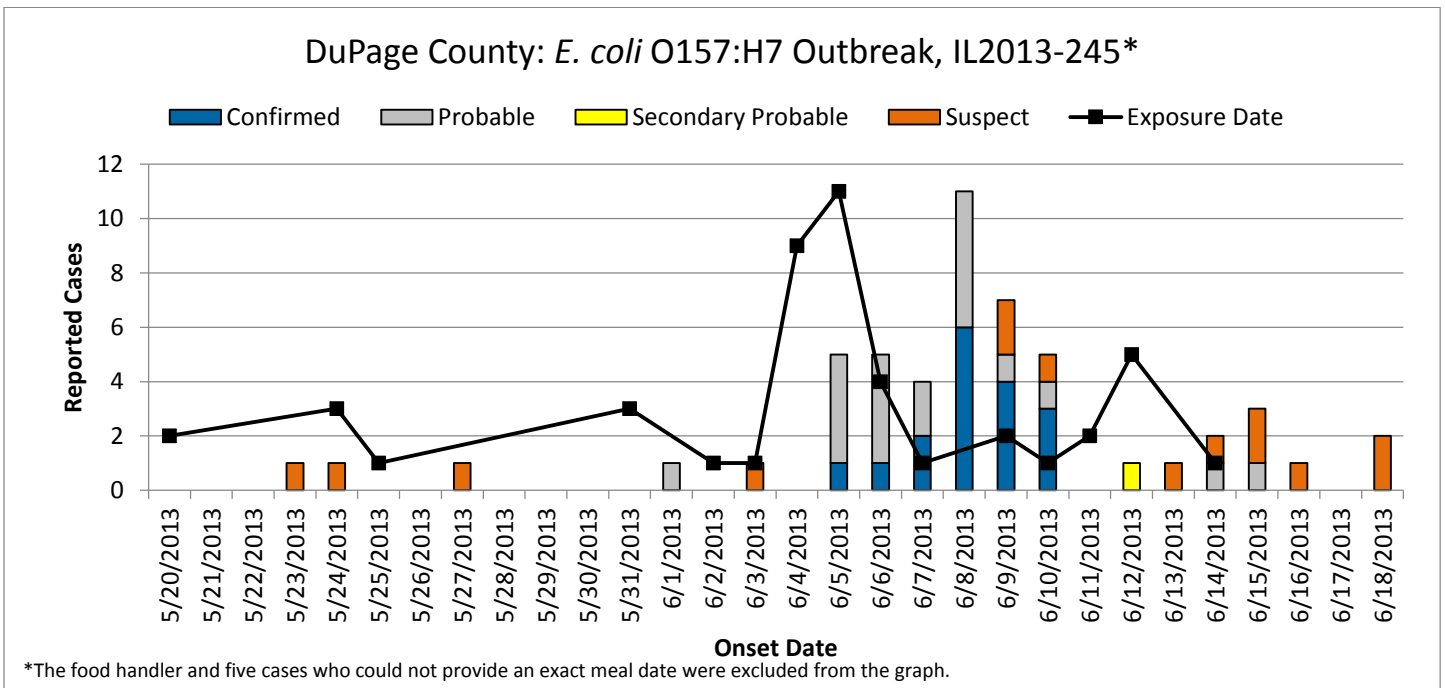
Graph 6.3

Sources: Illinois Department of Public Health (5)



Graph 6.4

Source: Illinois Department of Public Health (5)



Graph 6.5

Source: Illinois Department of Public Health (5)



Prevention of exposure to environmental hazards relies on many community partners. Integrated surveillance systems, effective staff, and public education are important components for monitoring for disease risk factors, analyzing hazards, and reducing or preventing the human impact of the disease in DuPage County.

Safe Prescription Drug Disposal

In 2009, the RxBox program was launched in partnership with the DuPage County Health Department and local law enforcement agencies, to safely remove unwanted medications from homes, as well as keep prescriptions away from teens and protect the environment. Promoting safe disposal of unused pain medication is one strategy in preventing youth prescription drug abuse. The RxBox Program reduces the amount of unused and expired medications in DuPage County households by disposing of them in a way that is the safest for the environment. The medications are incinerated in collaboration with the Illinois Environmental Protection Agency using state-of-the-art technology. To date, 11 police departments and the DuPage County Sheriff's office have collected over 25 tons of medications. Table 6.3 shows the yearly pounds of prescription drugs that have been collected by the RxBox Program, since the program's inception.

Table 6.4: RxBox Program Drop Off Totals: Total yearly pounds of prescription drugs collected through the DuPage County Health Department's RxBox Program 2009 – 2014

Year	Month	Drop Off Total Pounds	Yearly Total pounds
2009	July	710	
2009	August	280	
2009	November	825	
2009	Year Total		1,815
2010	February	1,018	
2010	June	2,245	
2010	October	2,827	
2010	Year Total		6,090
2011	March	2,165	
2011	June	2,390	
2011	September	2,548	
2011	Year Total		7,103
2012	January	3,068	
2012	March	2,279	
2012	June	2,788	
2012	October	3,139	



Table 6.4: RxBox Program Drop Off Totals: Total yearly pounds of prescription drugs collected through the DuPage County Health Department's RxBox Program 2009 – 2014 (continued)

Year	Month	Drop Off Total Pounds	Yearly Total pounds
2012	Year Total		11,274
2013	January	3,127	
2013	May	3,157	
2013	August	3,302	
2013	October	2,495	
2013	Year Total		12,081
2014	January	2,223	
2014	April	2,333	
2014	July	3,359	
2014	October	4,724	
2014	Year Total		12,639

Source: DuPage County Health Department (7).



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Section 7: Mental Health

Many individuals will experience a mental health concern at some point during their lives. Mental health concerns that persist with symptoms that affect one's ability to function often become classified as a mental illness (1). Mental illness impacts the lives of millions of Americans each year. In 2013, 43.8 million adults aged 18 or older in the United States indicated having a mental illness, which represented 18.5 percent of all adults (2); of those, approximately 10.0 million adults aged 18 or older had a serious mental illness (SMI) (2).

Recent research indicates that, on average, individuals with serious mental illness die 25 years earlier than the general population (3). One study of Medicaid clients with and without a serious mental illness showed that persons with a serious mental illness had a significantly higher prevalence of major medical conditions including diabetes, metabolic syndrome, lung and liver diseases, hypertension, cardiovascular disease, infectious diseases, and dental disorders (4).

Local and national data shows that adults with SMI and co-morbid medical conditions are not receiving the care they need to prevent or treat chronic diseases. A closely related issue is the prevalence of tobacco use among people with mental illnesses. About 75 percent of individuals with mental illness or substance abuse disorders use tobacco, a rate that is two to four times higher than that of the general population. Consequently, these individuals are also experiencing higher rates of smoking related illnesses and mortality (3).

Key Findings

- ❖ Between 2010 and 2012, the age-adjusted death rate by suicide for DuPage County men was 14.1, over two times the rate for women (4.5).
- ❖ The majority of emergency department (ED) visits for mental disorders occur in the 18-44 age group.
- ❖ 21.8 percent of ED visits for mental disorders included anxiety states, panic attacks, or acute reaction to stress as a chief complaint or discharge diagnosis.
- ❖ 7.2 percent of mental disorders ED visits were for drug-related chief complaints or discharge diagnoses.

Mental Disorders

Healthy People 2020 Objective MHMD-9: Increase the proportion of adults with mental disorders who receive treatment

National Baselines and Targets:

Objective	Increase in Adults With Mental Disorders Receiving Treatment	2008 Baseline	2020 Target
		<i>Percent</i>	
MHMD-9.1.	Adults aged 18 to 54 years with serious mental illness	65.7	72.3
MHMD-9.2	Adults aged 18 years and older with major depressive episodes	69.0	75.9

Data Sources: National Survey on Drug Use and Health (NSDUH), SAMHSA



Depression is the most common type of mental illness, affecting more than 26 percent of the U.S. adult population. It has been estimated that by the year 2020, depression will be the second leading cause of disability throughout the world (5). In 2012, 10 percent of U.S. adults experienced feelings of sadness for all, most or some of the time during the 30 days prior to being interviewed for the National Health Interview Survey, while 5 percent felt worthlessness, 6 percent felt hopelessness, and 13 percent of adults felt that everything was an effort (6). In addition, 6.9 percent of persons, or 16.0 million people, aged 18 or older in the U.S. had at least one major depressive episode (MDE) in the past year; of those, 10.9 million (68.0 percent) received treatment (7).

For the state of Illinois in 2013, 23.6 percent of adults indicated their mental health was not good 1-7 days in the past 30 days. Another 14.9 percent noted their mental health was not good 8-30 days in the past 30 days. This included stress, depression, and problems with emotions (8). Comparatively in 2013, 22.9 percent of adults in DuPage County, indicated their mental health was not good 1-7 days in the past 30 days. There were 11.7 percent whose mental health was not good 8-30 days in the past 30 days (9).

Emergency Department Visits for Mental Health Reasons

The Electronic Surveillance System for the Early Notification of Community-Based Epidemics (ESSENCE) can be used to identify DuPage County Emergency Department visits for mental health reasons. ESSENCE is a prototype syndromic surveillance system used for capturing and analyzing public health indicators for early detection of disease outbreaks. ESSENCE was queried to obtain any chief complaint or discharge diagnoses containing the ICD-9 code or text description for Mental Disorders (290-319). All DuPage hospitals except Elmhurst Hospital report Emergency Department (ED) visits to ESSENCE effective January 2011. For the time period 1/1/2011 through 5/26/2014, 14,954 ED visits for mental disorders were identified. For that three year and five month time period, 2.1 percent of ED visits were for mental disorders. The percent of total ED visits attributed to mental disorders is increasing (Table 7.1).

Table 7.1: Percent of total ED visits for mental disorders

Year	Total ED Visits	Mental Disorders Visits	Percent of Total
2011	207,491	3,294	1.9
2012	214,560	4,552	2.1
2013	214,032	4,543	2.1
2014 (5 months)	85,415	1,935	2.3
Total	721,499	14,954	2.1

Source: Electronic Surveillance System for the Early Notification of Community-Based Epidemics (10)

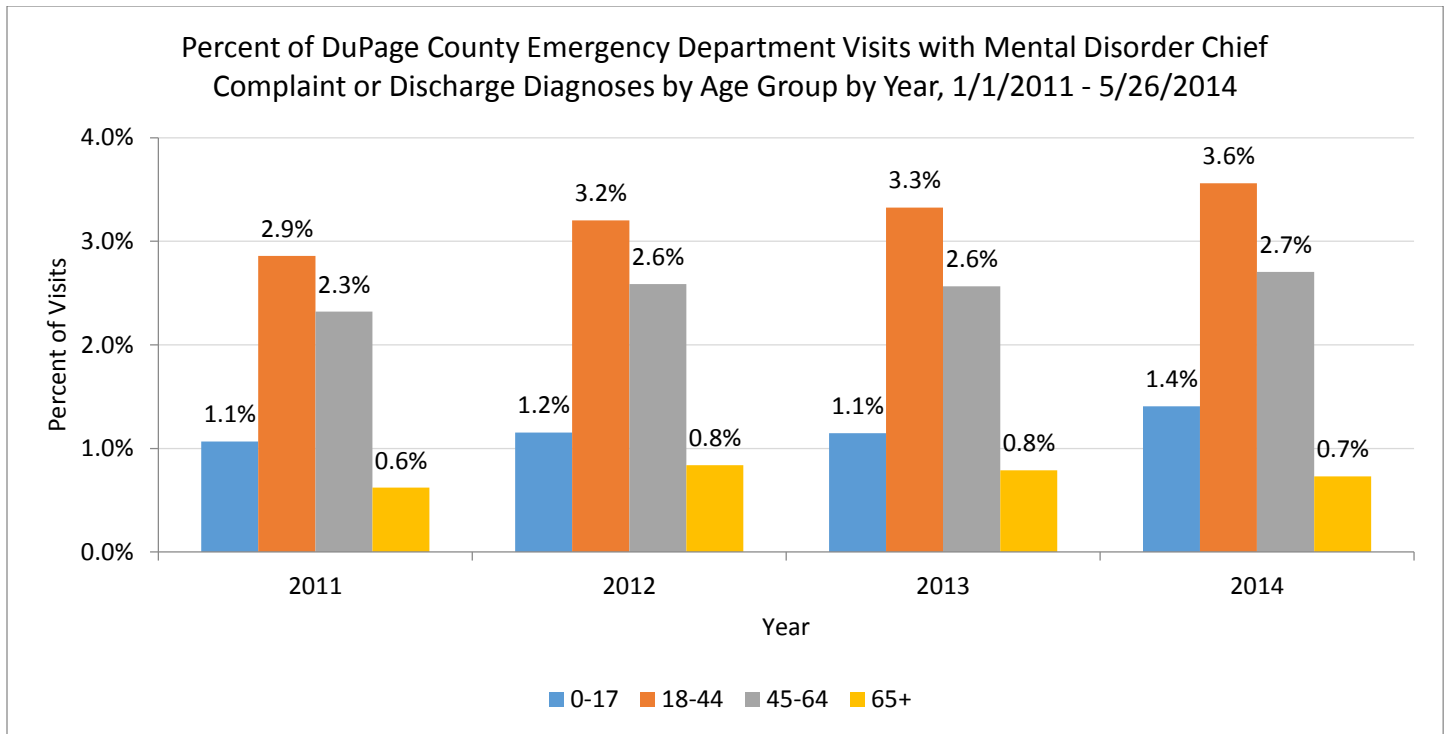
The distribution of ED visits for mental disorders by age group and year is shown below (Table 7.2). The majority of visits occur in the 18-44 age groups (Graph 7.1).



Table 7.2: Percent of total ED visits for mental disorders by age group and year

	0-17 years			18-44 years			45-64 years			65+ years		
	Mental Visits	Total Visits	%	Mental Visits	Total Visits	%	Mental Visits	Total Visits	%	Mental Visits	Total Visits	%
2011	548	51,349	1.10%	2,091	73,160	2.90%	1,051	45,289	2.30%	234	37,684	0.60%
2012	607	52,640	1.20%	2,378	74,255	3.20%	1,230	47,534	2.60%	337	40,129	0.80%
2013	568	49,516	1.10%	2,378	71,493	3.30%	1,246	48,566	2.60%	351	44,453	0.80%
2014	260	18,496	1.40%	1,000	28,082	3.60%	536	19,819	2.70%	139	19,019	0.70%

Source: Electronic Surveillance System for the Early Notification of Community-Based Epidemics (10)



Graph 7.1

Source: Electronic Surveillance System for the Early Notification of Community-Based Epidemics (10)

Anxiety Disorders

For the three year five month time period of 01/01/2011 to 05/26/2014, 21.8 percent of ED visits attributed to mental disorders included a chief complaint or discharge diagnoses of anxiety states or panic attack (ICD-9 300.0 and subcategories), or acute reaction to stress (ICD-9 308 and subcategories). In total, 3,225 ED visits for mental disorders



were attributed to anxiety. The percent of total ED visits for mental disorders attributed to anxiety is fluctuating (Table 7.3).

Table 7.3: Percent of mental disorder ED visits for anxiety

Year	Mental Disorder Visits	Anxiety Visits	Percent of Total
2011	3,294	904	23.0
2012	4,552	958	21.0
2013	4,543	989	21.8
2014 (5 months)	1,935	404	20.9
Total	14,954	3,225	21.8

Source: Electronic Surveillance System for the Early Notification of Community-Based Epidemics (10)

Drug-Related Disorders

For the three year five month time period of 01/01/2011 to 05/26/2014, 7.2 percent of ED visits for mental disorders included a chief complaint or discharge diagnoses of drug psychoses, withdrawal, abuse, or dependence (ICD-9 292, 304, 305 (excluding alcohol) and subcategories) and intentional drug overdose (ICD-9 969 and subcategories and 977.9). In total, 1,025 ED visits for mental disorders were attributed to drug-related disorders, and this percent has slightly decreased over the analysis period (Table 7.4).

Table 7.4: Percent of mental disorder visits for drug-related causes

Year	Mental Disorder Visits	Drug-Related Visits	Percent of Total
2011	3,294	293	8.9
2012	4,552	308	6.8
2013	4,543	299	6.6
2014 (5 months)	1,935	125	6.5
Total	14,954	1,025	7.2

Source: Electronic Surveillance System for the Early Notification of Community-Based Epidemics (10)

Suicide

In the United States, suicide was the 10th overall leading cause of death in 2010; it was the third leading cause of death for those aged 15-24 and the second leading cause of death for those aged 25-34 (11). In adults for every suicide death, an estimated 25 suicide attempts are made. For youth there are approximately 100-200 attempts for every completed suicide (11). In 2012, an estimated 9.0 million adults in our country had serious thoughts of suicide in the past year. The rate was the highest among young adults aged 18 to 25 years at 7.2 percent of this population having these thoughts (7).



The economic burden of suicide in our nation is severe. In 2012, it was estimated that we spend \$34 billion annually (12). Additionally, for suicide attempts, another \$3 billion is spent annually for medical care and another \$5 billion is spent for indirect costs such as lost wages and productivity (12).

Healthy People 2020 Objective: MHMD-1. Reduce the suicide rate

National Baseline: 11.3 suicides per 100,000 population occurred in 2007

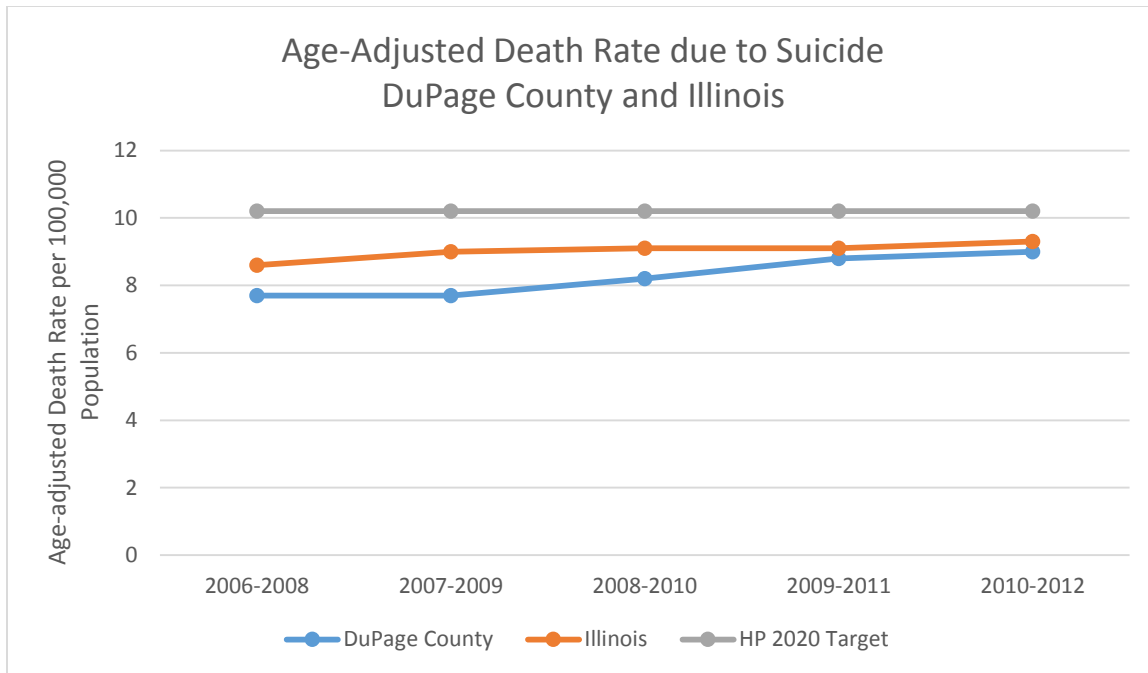
Target: 10.2 suicides per 100,000 population.

Data Sources: National Vital Statistics System-Mortality (NVSS-M), CDC/NCHS; Population Estimates, Census

Suicide continues to be a major public health problem, though one that is preventable. Suicidal behavior is complex and risk factors for engaging in these behaviors differ by gender and age. While women attempt suicide more often than men, four times more men die by suicide than woman (11). In 2011, men had a suicide rate of 20.2 whereas women had a suicide rate of 5.4. Men made up 78.5 percent of those who died by suicide (12). The suicide gender gap begins in adolescence and grows through middle and later life, with men over age 84 having the highest suicide rates (13).

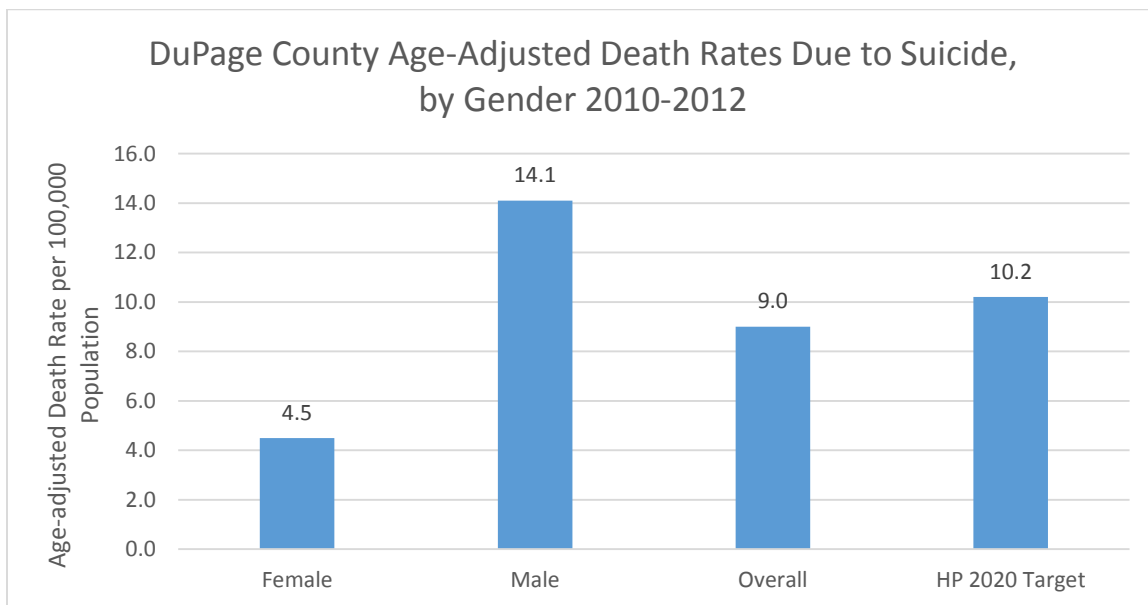
Besides gender differences, there are also differences in suicide rates among age groups with young people and the elderly disproportionately likely to die by suicide (12). In many cases, suicide can be prevented through the early recognition and treatment of mental disorders. At least 90 percent of all people who die by suicide have a mental or substance abuse disorder, or a combination of disorders (5). However, most persons with a mental or substance abuse disorder do not kill themselves; thus other factors contribute to suicide risk. Additional risk factors include prior suicide attempts, stressful life events, access to lethal suicide methods, family history of suicide, and family history of mental disorder or substance abuse (14). Due to the difficulty in predicting suicide, prevention efforts focus on these risk factors. Thus, recognition and treatment of mental and substance abuse disorders are among the most promising approaches to suicide prevention.

Nationally in 2010, the overall rate for suicide was 11.9 per 100,000 population but was significantly higher for individuals 75 and older (16.3 per 100,000) (11). In Illinois, the age-adjusted death rate due to suicide was 9.3 per 100,000 from 2010-2012 in contrast to DuPage County's age-adjusted rate of 9.0 per 100,000 for the same time period (15). Graph 7.2 illustrates DuPage and Illinois suicide rates in comparison to the Healthy People 2020 target and Graph 7.3 shows DuPage County rates by gender.



Graph 7.2

Source: Centers for Disease Control and Prevention (15)



Graph 7.3

Source: Centers for Disease Control and Prevention (15)



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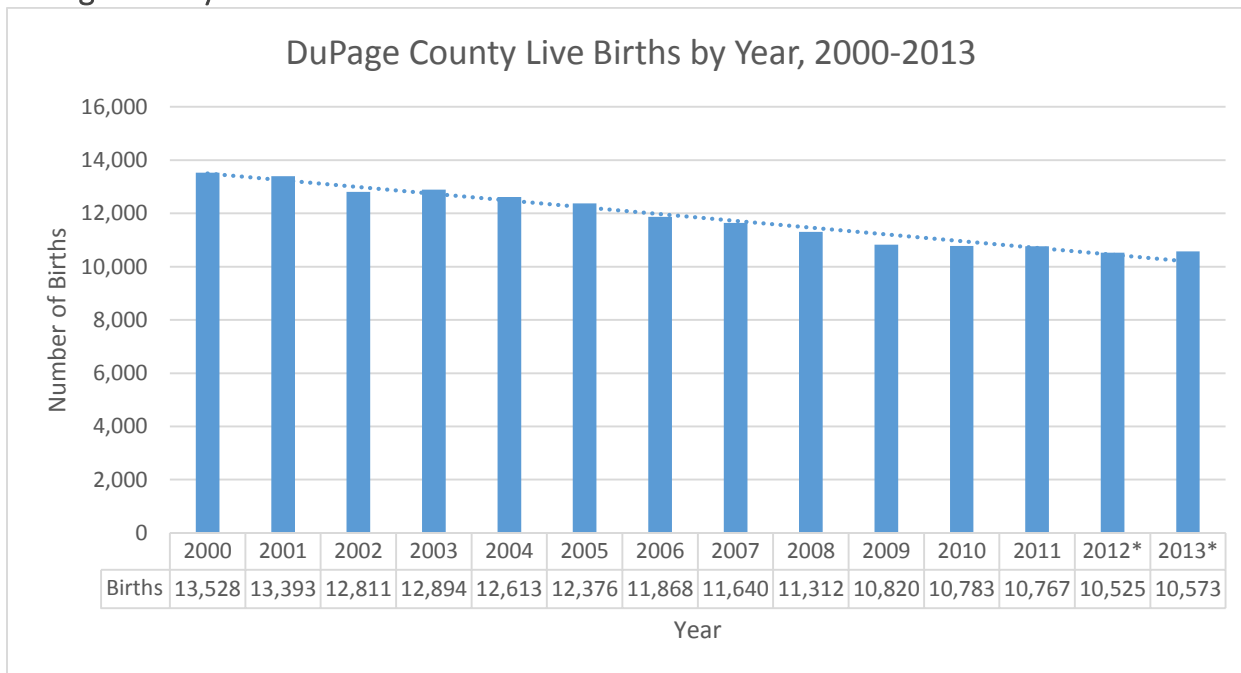
Section 8: Maternal, Infant, and Child Health

The well-being of mothers, infants, and children is an important indicator of the overall health of the community. Outcomes of pregnancy and childbirth can be affected by both health and social factors, such as income and access to healthcare (1).

Key Findings

- ❖ Birth rates in DuPage County, as well as in Illinois and the United States, have decreased over the past decade. The number of live births have declined at a faster rate in DuPage, with a 22 percent decrease from 2000 to 2013.
- ❖ Racial and ethnic disparities are seen in percentage of mothers who gave birth to a low birth weight infant as well as in percentage of births to adolescents.
- ❖ The percentage of mothers who reported breastfeeding at discharge from the hospital after delivery is lower for black mothers, mothers with a high school diploma or less education, unmarried mothers, and mothers under age twenty-four.

DuPage County Birth Trends



Graph 8.1

*Provisional tabulations

Source: Illinois Department of Public Health (2)



The number of live births in DuPage County continues to decline, with a 22 percent decrease from 2000 to 2013. The trend line in Graph 8.1 illustrates the overall decline. The decreasing number of births in DuPage County is similar to state and national trends, as seen in Table 8.1. Table 8.2 shows the number of births in each DuPage County municipality for the five year period of 2005-2009, with the number of births occurring in unincorporated areas recorded by township.

Table 8.1 Percent Change in Number of Births by Geography, 2000-2013

Geography	2000 Births	2013 Births	Percent Change
DuPage County	13,528	10,573*	-21.8%
Illinois	185,003	155,528*	-15.9%
United States	4,058,814	3,932,181	-3.1%

*Provisional tabulations as of 15 July 2014

Source: Illinois Department of Public Health (2), United States Department of Health and Human Services (US DHHS) (3,4)

Table 8.2 DuPage County Live Births by Municipality and Township, 2005-2009

Municipality	2005	2006	2007	2008	2009
DuPage County	12,376	11,868	11,640	11,312	10,820
Unspecified Place					
Addison Village	675	622	646	675	614
Aurora City (pt.)	808	830	830	770	745
Bartlett Village (pt.)	316	317	331	270	249
Batavia City (pt.)	1	1	1	1	0
Bensenville Village (pt.)	400	367	327	330	292
Bloomington Village	241	237	238	259	239
Bolingbrook Village (pt.)	35	35	27	26	25
Burr Ridge Village (pt.)	56	40	45	29	35
Carol Stream Village	577	511	582	522	555
Chicago(pt.)	0	0	1	2	0
Clarendon Hills Village	101	111	84	101	91
Darien City	216	189	194	226	181
Downers Grove Village	600	539	558	535	528
Elk Grove Village (pt.)	6	1	2	4	1
Elmhurst City (pt.)	536	493	438	459	455
Glen Ellyn Village	393	347	315	384	360
Glendale Heights Village	605	621	639	620	582
Hanover Park Village (pt.)	281	240	270	223	211
Hinsdale Village (pt.)	167	139	128	107	102
Itasca Village	113	113	114	109	104
Lemont Village (pt.)	4	5	8	12	5
Lisle Village	315	265	294	279	262



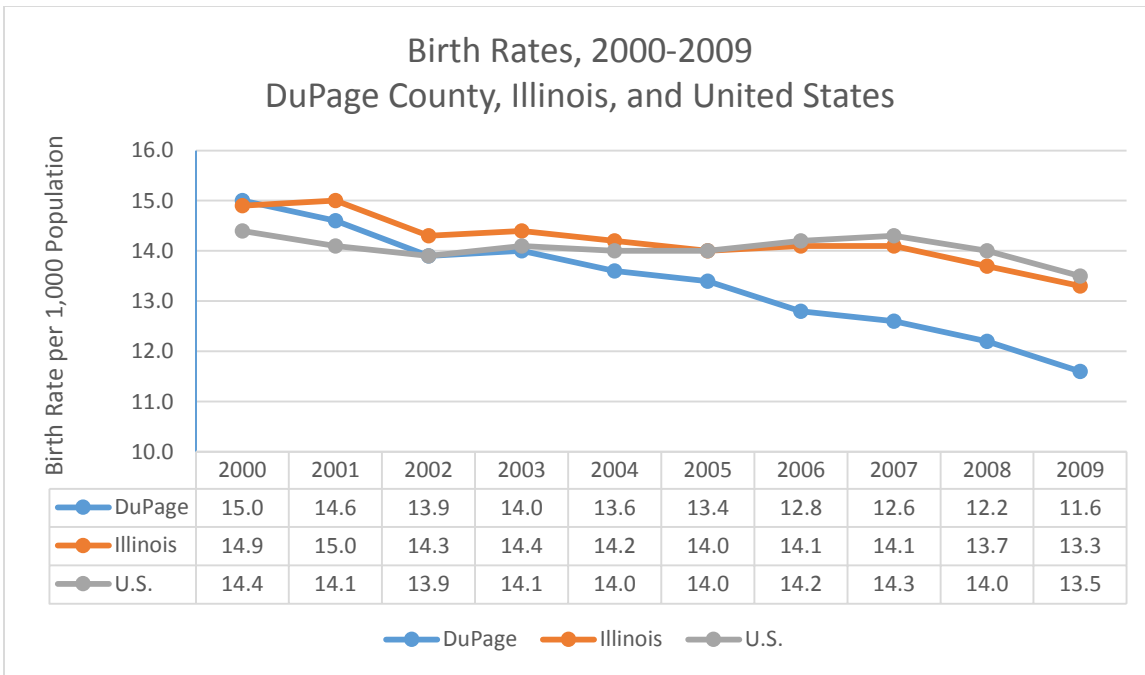
Table 8.2 DuPage County Live Births by Municipality and Township, 2005-2009 (continued)

Municipality	2005	2006	2007	2008	2009
Lombard Village	599	587	575	617	580
Naperville City (pt.)	1,222	1,259	1,135	1,174	1,089
Northlake (pt.)	0	1	1	2	0
Oak Brook (pt.)	56	43	50	37	45
Oakbrook Terrace	20	27	18	26	31
Roselle	261	219	236	212	214
Schaumburg (pt.)	3	4	3	2	5
St. Charles (pt.)	16	14	16	7	10
Villa Park	372	368	355	376	355
Warrenville	196	220	194	180	174
Wayne (pt.)	12	11	6	6	6
West Chicago	668	705	621	626	576
Westmont	370	365	364	340	324
Wheaton	623	623	593	570	558
Willow Springs (pt)	0	0	0	2	2
Willowbrook	124	111	101	129	151
Winfield	98	75	99	101	91
Wood Dale	158	156	155	168	135
Woodridge (pt.)	486	442	466	429	443
Unincorporated Areas	2005	2006	2007	2008	2009
Addison Township	37	22	24	12	10
Bloomington Township	56	46	51	39	34
Downers Grove Township	127	98	112	65	88
Lisle Township	90	64	52	43	35
Milton Township	165	168	155	95	78
Naperville Township	34	39	31	26	28
Wayne Township	28	31	33	12	31
Winfield Township	50	49	51	42	43
York Township	59	69	71	33	48
Unspecified Place	0	29	0	0	0

Source: Illinois Department of Public Health (5)

Birth Rate

Birth rate is defined as the average annual number of births during one year per 1,000 persons in the population at midyear (July 1), and is also known as crude birth rate. As can be seen from Figure 8.2, in 2003 the DuPage County, Illinois and U.S. birth rates were equivalent at 14.0 births per 1,000 persons. However, since that time, the DuPage County birth rate has steadily declined while the Illinois and U.S. birth rates have remained stable.



Graph 8.2

Source: Illinois Department of Public Health (5,6); U.S. DHHS (7)

Infant Mortality

Healthy People 2020 Objective MICH-1.3: Reduce rate of fetal and infant deaths

National Baselines and Targets:

Objective	Reduction in Infant Deaths	2006 Baseline	2020 Target
		Rate per 1,000 Live Births	
MICH 1.3	All infant deaths (within 1 year)	6.7	6.0
MICH 1.4	Neonatal deaths (within the first 28 days)	4.5	4.1
MICH 1.5	Postneonatal deaths (between 28 days and 1 year)	2.2	2.0

Data Sources: Linked Birth/Infant Death Data Set, CDC/NCHS

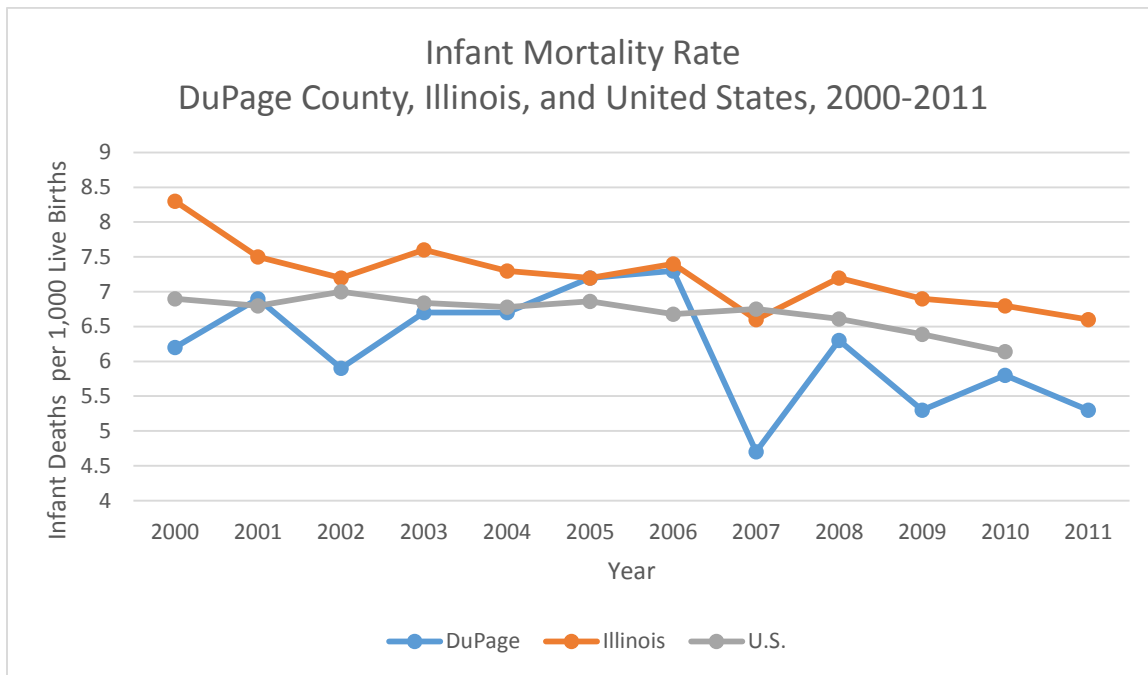
Infant mortality is an important indicator of population health. In 2010, DuPage County had 63 infant deaths and an infant mortality rate of 5.8 deaths per 1,000 live births (2,8). As seen in Table 8.3, between 2000 and 2011, the infant mortality rate has ranged from 7.3 in 2006 to a low of 4.7 in 2007. During this same time period, the infant mortality rate in DuPage County has consistently remained below the infant mortality rate for Illinois, but has been higher than the infant mortality rate for the United States in 2001, 2005, and 2006 (2,9).



Table 8.3: DuPage County Infant Mortality Statistics, 2000-2011

Year	Number of Live Births	Number of Infant Deaths	Infant Mortality Rate (per 1,000 Births)	Neonatal Mortality Rate (per 1,000 Births)	Postneonatal Mortality Rate (per 1,000 Births)
2000	13,528	84	6.2	5.0	1.3
2001	13,393	93	6.9	5.2	1.7
2002	12,811	76	5.9	4.5	1.4
2003	12,894	87	6.7	5.0	1.8
2004	12,613	85	6.7	4.4	2.3
2005	12,376	89	7.2	5.6	1.6
2006	11,868	87	7.3	6.2	1.2
2007	11,640	55	4.7	3.5	1.2
2008	11,312	71	6.3	4.9	1.4
2009	10,820	57	5.3	3.7	1.6
2010	10,783	63	5.8	4.5	1.4
2011	10,767	57	5.3	4.3	1.0

Source: Illinois Department of Public Health (2,8)



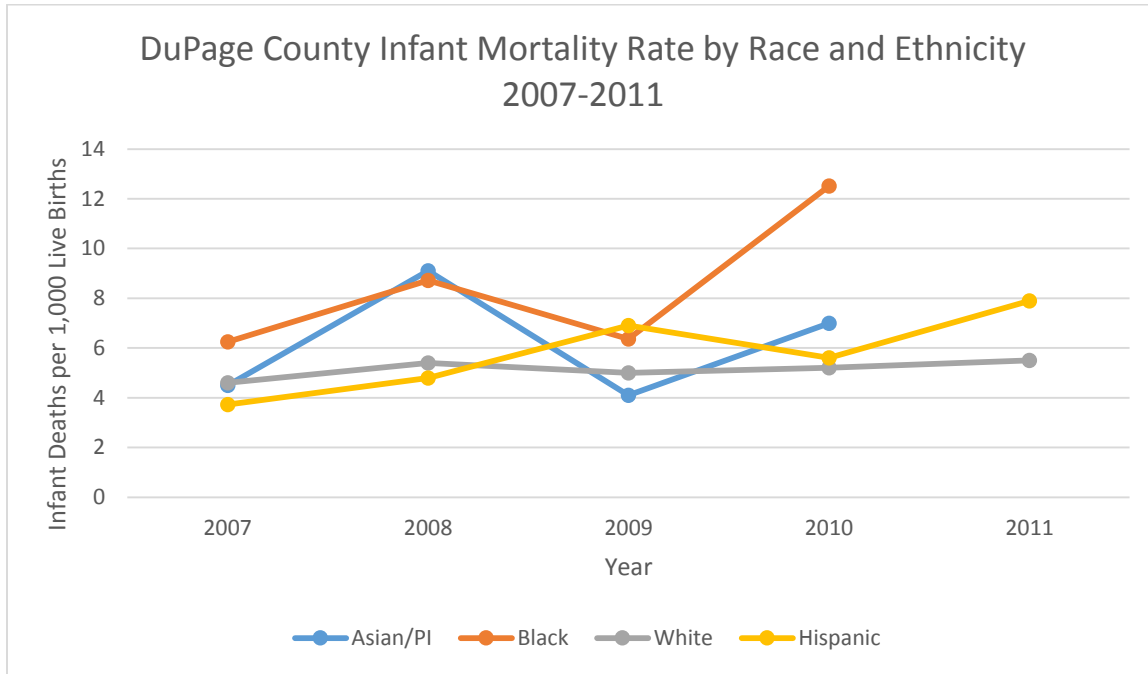
Graph 8.3

U.S. data for 2011 unavailable.

Source: Illinois Department of Public Health (2); U.S. Department of Health & Human Services (9)



Graph 8.4 displays infant mortality rates for DuPage County by race and ethnicity for 2007 to 2011. The infant mortality rate for black infants was higher than white, Asian, or Hispanic infants in 2007 and 2010.



Graph 8.4

Data points based on less than 5 deaths are not statistically reliable and have been omitted.

Source: Illinois Department of Public Health (5,8)

Prenatal Care

Healthy People 2020 Objective MICH-10: Increase the proportion of pregnant women who receive early and adequate prenatal care.

National Baselines and Targets:

Objective	Increase in Prenatal Care	2007 Baseline	2020 Target
		Percent of Live Births	
MICH 10.1	Care beginning in first trimester of pregnancy	70.8	77.9
MICH 10.2	Early and adequate prenatal care	70.5	77.6

Data Sources: National Vital Statistics System – Natality (NVSS-N), CDC/NCHS

Early and adequate prenatal care is an important component of maternal health. However, some mothers may be unable to access needed prenatal care as a result of not knowing they are pregnant or lack of health insurance coverage or transportation (10). As seen in Table 8.4, the percentage of women who receive prenatal care in their first trimester



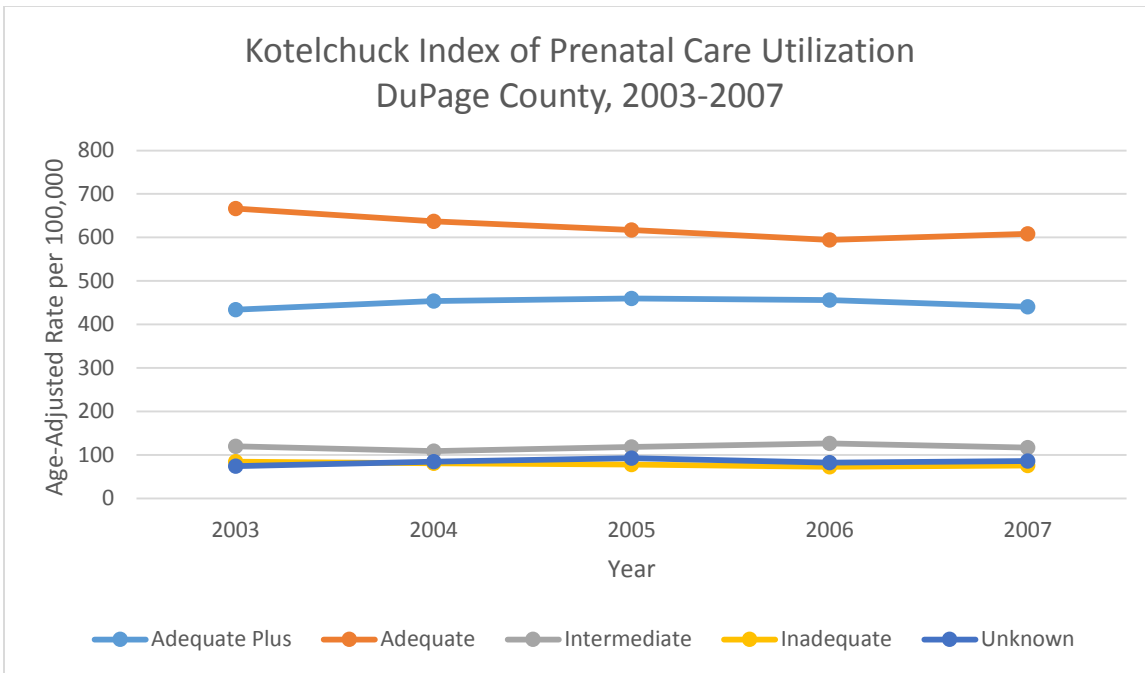
rose with maternal age in 2009, the most recent year available. Women who are married and have some level of college education were also more likely to receive prenatal care in the first trimester. With regard to race and ethnicity, white and non-Hispanic or Latino mothers had higher percentages of prenatal care in the first trimester. These trends were similar for mothers receiving adequate prenatal care.

Table 8.4: Levels of First Trimester and Adequate Care, 2009

Demographics	Maternal Prenatal Care	
	First Trimester n=9,584	Adequate n=8,735
	Percent	
Total	88.58	80.73
Mother's Race		
American Indian	85.71	64.29
Asian	87.24	79.23
Black	80.79	69.05
White	89.38	81.83
Mother's Ethnicity		
Hispanic or Latino	81.99	71.16
Not Hispanic or Latino	90.52	83.56
Mother's Education Level		
Less than high school	76.49	65.25
High school graduate	83.72	73.84
1-5 years college	91.93	85.57
Marital Status		
Married	91.55	84.36
Not married	79.27	69.41
Mother's Age		
15 to 19 years	71.90	61.28
20 to 24 years	80.64	70.68
25 to 29 years	88.96	80.74
30 to 34 years	91.66	84.82
35 years and older	91.28	84.14

Source: Illinois Department of Public Health (5)

The Kotelchuck Index of Prenatal Care Utilization characterizes the adequacy of prenatal care based on the timing of the initiation of prenatal care services and number of prenatal care visits that a woman receives throughout her pregnancy. The categories are defined as follows: inadequate care: prenatal care begun after the 4th month or under 50% of expected visits were received; intermediate care: prenatal care begun by the 4th month and 50-79% of expected visits were received; adequate care: prenatal care begun by the 4th month and 80-109% of expected visits were received; adequate plus (intensive) care: prenatal care begun by the 4th month and 110% of expected visits were received (11). Figure 8.5 shows that rates of prenatal care utilization were consistently higher for mothers receiving adequate or adequate plus care between 2003 and 2007 (12).



Graph 8.5

Source: Illinois Department of Public Health (12)

Risk Factors

Low Birth Weight and Very Low Birth Weight

Healthy People 2020 Objective MICH-8: Reduce low birth weight (LBW) and very low birth weight (VLBW) National Baselines and Targets:

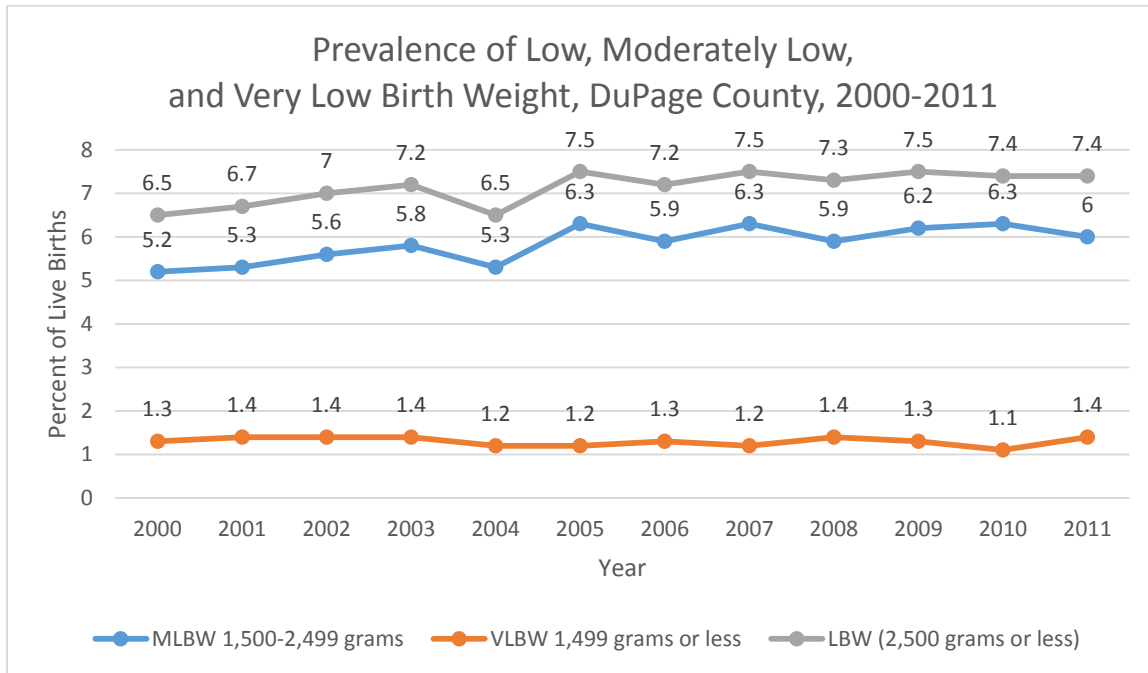
Objective	Reduction in LBW and VLBW	2007 Baseline	2020 Target
Percent of Live Births			
MICH 8.1	Reduce low birth weight (LBW)	8.2	7.8
MICH 8.2	Reduce very low birth weight (VLBW)	1.5	1.4

Data Sources: National Vital Statistics System – Natality (NVSS-N), CDC/NCHS

Low birth weight is defined as a weight of less than 2,500 grams (5lbs, 8oz) and can be subdivided into moderately low birth weight, between 1,500 and 2,499 grams, and very low birth weight, 1,499 grams or less (12). Risk factors for low birth weight include premature birth, chronic health conditions in the mother, birth defects, infections, and tobacco, alcohol, and other substance use during pregnancy (13). Infants that are born with low birth weight may be at greater risk of chronic conditions later, such as diabetes, heart disease, high blood pressure, and obesity (13). Graph 8.6 below shows the prevalence of low, moderately low, and very low birth weight in DuPage County between 2000 and 2011. The prevalence of very low birth weight births remained relatively constant over that time period, and the prevalence of



moderately low birth weight increased from 5.2 percent in 2000 to 6 percent in 2011, with a high of 6.3 percent in 2005, 2007, and 2010 (2,12).



Graph 8.6

Source: Illinois Department of Public Health (2,12)

Table 8.5 displays the prevalence of low birth weight and very low birth weight births by select maternal and infant characteristics in DuPage County in 2011. These characteristics are given as row percentages. Examination of the data show that 8.91 percent of black mothers gave birth to a baby with low birth weight, the highest percentage by race (5).



Table 8.5: Prevalence of Low Birth Weight and Very Low Birth Weight Births by Select Maternal and Infant Characteristics, DuPage County, 2011

n=794	Low Birth Weight	Very Low Birth Weight
	Percent	
Total	5.96	1.41
Mother's Race and Ethnicity		
Asian	6.96	1.46
Black	8.91	2.97
White	5.55	1.28
Hispanic or Latino	5.31	1.58
Not Hispanic or Latino	6.09	1.36
Infant's Gender		
Female	6.83	1.58
Male	5.14	1.25
Mother's Education Level		
Less than high school	5.66	1.30
High school graduate	5.69	1.45
At least some college	6.01	1.38
Marital Status		
Married	5.85	1.27
Not married	6.34	1.88
Mother's Age		
19 years and younger	5.88	0.80
20 to 24 years	6.01	1.44
25 to 29 years	5.62	1.27
30 to 34 years	5.59	1.35
35 years and older	6.97	1.76

Source: Illinois Department of Public Health (5)

Postpartum Depressive Symptoms

Postpartum depression is characterized by symptoms, such as depressed mood, sadness, crying, and loss of interest in activities, which are severe and occur for longer than two weeks during the first year after childbirth (14). According to the Illinois Pregnancy Risk Assessment Monitoring System, nine percent of Illinois women surveyed in 2010 reported often or always feeling down, depressed, or sad, and nine percent were also told by a health care professional that they had depression (15). In a 2009-2010 survey of a 30-state area, mothers with at least 16 years of education were less likely to report postpartum depressive symptoms than mothers of other levels of education (14).



Adolescent Pregnancy

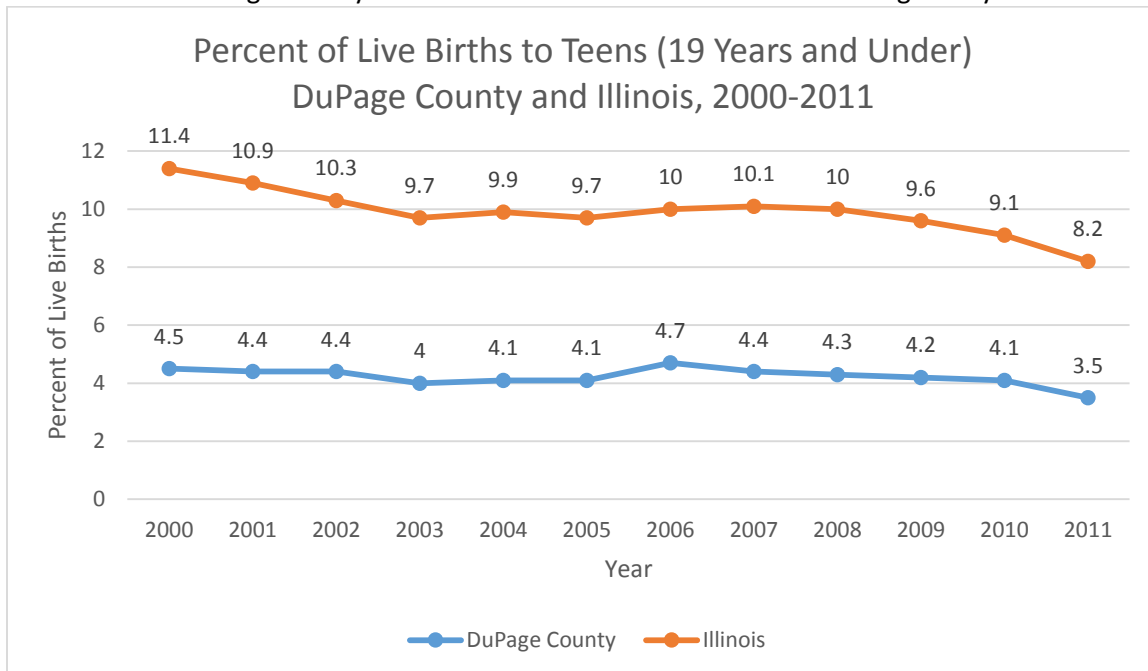
Healthy People 2020 Objective FP-8: Reduce pregnancies among adolescent females

National Baselines and Targets:

Objective	Reduce pregnancies among adolescents	2005 Baseline	2020 Target
		Pregnancies per 1,000 females in each age group	
FP 8.1	Among adolescent females aged 15 to 17	40.2	36.2
FP 8.2	Among adolescent females aged 18 to 19	116.2	104.6

Data Sources: National Survey of Family Growth (NSFG), CDC/NCHS; National Vital Statistics System-Nativity (NVSS-N), CDC/NCHS; Surveillance Data for Abortion, CDC/NCCDPHP; Guttmacher Institute Abortion Provider Survey (APS), Guttmacher Institute; Population Estimates

Adolescent pregnancy, or teen pregnancy, refers to pregnancies in women aged nineteen and younger. As noted above, it is a Healthy People 2020 objective to reduce pregnancies in this age group. Adolescent mothers are less likely to complete high school, and children of adolescent mothers have higher rates of incarceration (16). Birth rates for adolescents fell 6 percent in the United States between 2011 and 2012 (16). As seen in Graph 8.7 below, birth rates for adolescents in DuPage County and the state of Illinois have been decreasing each year since 2007 (2).



Graph 8.7

Source: Illinois Department of Public Health (2)



Table 8.6 show the maternal and infant characteristics of births to teens in 2010. These data are displayed as column percentages. The majority of babies born to teens were born to white mothers and Hispanic or Latino mothers (5). There was a higher prevalence of moderately low birth weight babies born to teens aged seventeen and younger, 7.50 percent, compared to 5.12 percent of babies born to mothers aged eighteen to nineteen (5).

Table 8.6: Characteristics of DuPage County Births to Teens, 2011

n=374	Ages 17 and younger	Age 18-19
	Percent	
Total	32.09	67.91
Mother's Race and Ethnicity		
Asian	0.00	2.76
Black	27.50	20.08
White	72.50	77.17
Hispanic or Latino	54.17	53.15
Not Hispanic or Latino	45.83	46.85
Marital Status		
Married	0.83	14.57
Not married	99.17	85.43
Infant Weight		
Normal Birth Weight > 2,500g	91.67	94.09
Moderately Low Birth Weight 1,500-2,499g	7.50	5.12
Very Low Birth Weight <1,500g	0.83	0.79

Source: Illinois Department of Public Health (5)

Preterm Birth

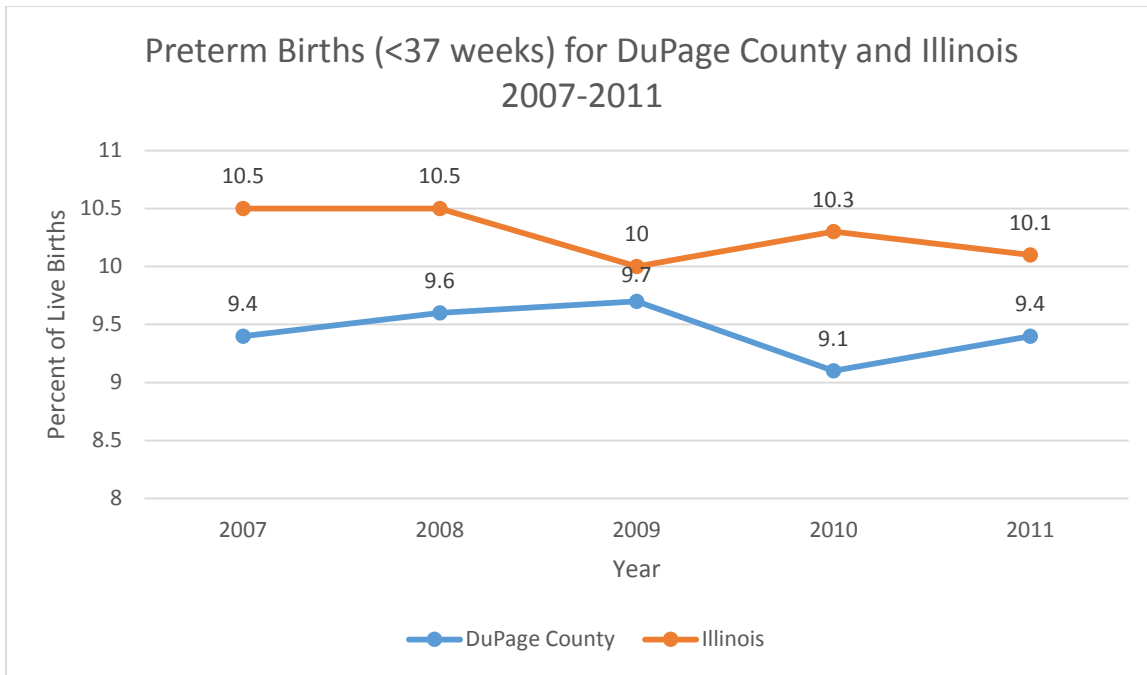
Healthy People 2020 Objective MICH-9.1: Reduce total preterm births

National Baseline: 12.7 percent of live births were preterm in 2007

Target: 11.4 percent

Data Source: National Vital Statistics System – Natality (NVSS-N), CDC/NCHS

Preterm or premature birth is birth that takes place before 37 weeks gestation. Babies born prematurely are at a higher risk for issues such as low birth weight, respiratory problems, and retinopathy (13). As seen in Graph 8.8 below, the rate of premature births for every 100 live births was lower in DuPage County compared to the state of Illinois for 2007 to 2011 and was lower than the Healthy People 2020 target. The percent of births that occur before 37 weeks gestation in DuPage County fluctuated between nine and ten percent, with a low of 9.1 percent in 2010 and a high of 9.7 percent in 2009.



Graph 8.8

Source: Illinois Department of Public Health (2,12)



Breastfeeding

Healthy People 2020 Objective MICH-21: Increase the proportion of infants who are breastfed National Baselines and Targets:

Objective	Increase breastfeeding	2006 Baseline	2020 Target
		Percent	
MICH 21.1	Infants who are ever breastfed	74.0	81.9
MICH 21.2	Infants who are breastfed at 6 months	43.5	60.6
MICH 21.3	Infants who are breastfed at 1 year	22.7	34.1

Data Sources: National Immunization Survey (NIS), CDC/NCIRD and CDC/NCHS

Breastfeeding has numerous benefits. Breast milk contains nutrients and antibodies that are important for the baby's health and may lower the baby's risk of diseases such as asthma and sudden infant death syndrome (SIDS) (17). Breastfeeding also has health benefits for the mother, including a lower risk of type II diabetes and certain types of breast and ovarian cancer (17). Because infants who are breastfed are less likely to be sick, breastfeeding may lead to lower medical costs and less missed work for the mother (17). According to surveys in 2011 and 2012 by the Centers for Disease Control and Prevention, 75.2 percent of Illinois women reported ever breastfeeding (18). Forty-nine percent of Illinois women reported breastfeeding at six months, and 21.0 percent reported breastfeeding at one year (18). These numbers are below Healthy People 2020 targets, and below the 2011-2012 national data of 76.5 percent ever breastfed, 49.0 percent breastfeeding at six months, and 27 percent breastfeeding at one year.

In DuPage County, 89.17 percent of mothers of births in 2011 reported that they were breastfeeding at discharge after delivery (6). As seen in Table 8.7, the percentage is lower for black mothers, mothers with a high school diploma or less education, unmarried mothers, and mothers under age twenty-four (5). DuPage County WIC clients, participants in a nutrition assistance program for women, infants, and children, reported a cumulative breastfeeding initiation rate of 82 percent between July 1, 2014 and November 30, 2014 (7). The rate for breastfeeding at six months dropped to 33 percent and was 18 percent at 12 months of age (7).



Table 8.7: DuPage County Infants Being Breastfed at Discharge, 2011

	DuPage County Infants Being Breastfed at Discharge n=9,601
	Percent of Total
Total	89.17
Mother's Race	
Asian	95.20
Black	74.22
White	89.36
Mother's Ethnicity	
Hispanic or Latino	87.57
Not Hispanic or Latino	89.65
Mother's Education Level	
Less than high school	79.85
High school graduate	83.79
At least 1 year of college	91.72
Marital Status	
Married	91.75
Not married	80.59
Mother's Age Group	
19 years and younger	74.87
20 to 24 years	82.05
25 to 29 years	90.99
30 to 34 years	91.15
35 years and older	89.72

Source: Illinois Department of Public Health (6)



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Section 9: Chronic Conditions

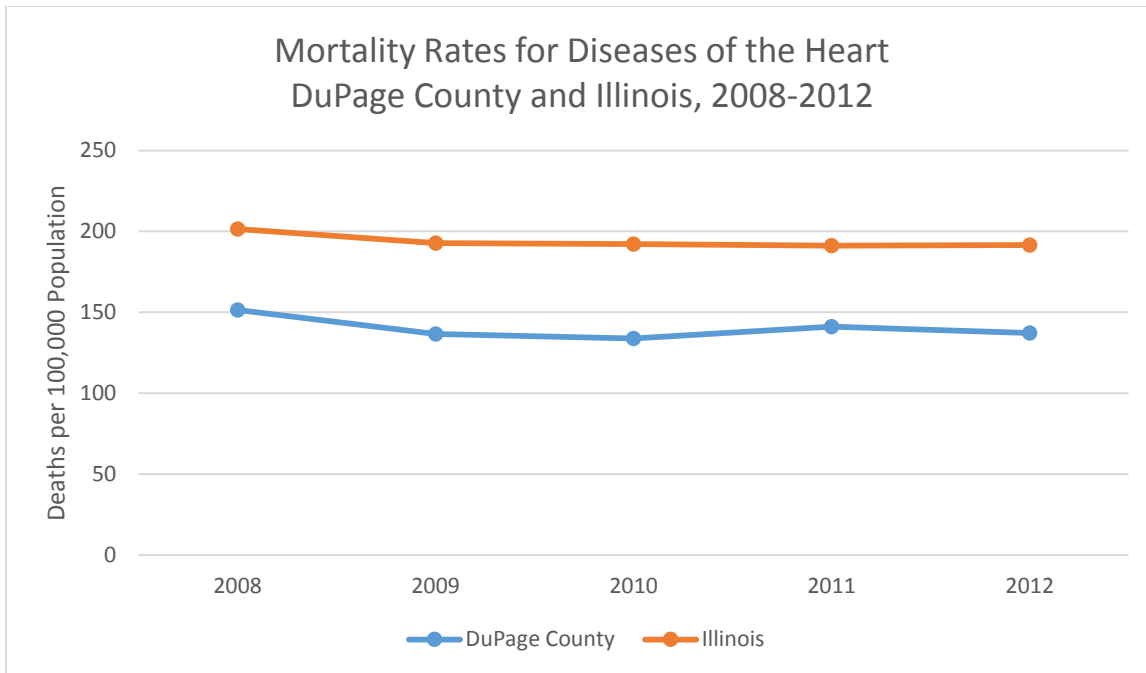
Chronic diseases are the leading cause of death and disability in our nation and place huge economic demands on our health system (1). These conditions, such as heart disease, stroke, cancer, diabetes, arthritis, osteoporosis and respiratory diseases, can significantly impair one's quality of life and are the leading causes of hospitalizations and mortality in our country (1). Seven out of ten deaths in the United States are due to chronic illnesses, and in 2012, an estimated one out of every two adults had at least one chronic condition, impacting a total of 117 million Americans (2). Eighty-six percent of health care dollars in the United States are spent on the treatment of chronic conditions (2). As the county's population of individuals age 65 and older continues to increase, the burden of these chronic conditions will be felt by the local public health system.

Key Findings

- ❖ The percent of DuPage County residents with high blood pressure exceeds the Healthy People 2020 target and the national baseline, and has been increasing over time.
- ❖ Approximately half of the 1,469 deaths caused by cancer in DuPage County in 2011 were attributable to the following five cancers: lung, female breast, pancreatic, colorectal, and prostate.
- ❖ Breast cancer incidence in DuPage County has remained higher than the Illinois and U.S. five-year averages since 1991.
- ❖ It is estimated that 24.7 percent of the DuPage County adult population in 2013 had been told they had arthritis by a health professional.
- ❖ The prevalence of osteoporosis among Medicare beneficiaries in DuPage County was 7.5 percent in 2012, higher than Illinois and the United States, both 6.4 percent.
- ❖ The prevalence of DuPage County adults reporting a diagnosis of diabetes has increased from 3 percent in 1998 to 10 percent in 2013.

Diseases of the Heart

Heart disease is a broad term that is used to describe a range of diseases that affect the heart and the blood vessels of the heart (2). Nationally, heart disease is the leading cause of death and is responsible for 30 percent of all mortality (1). In DuPage County, heart disease is the second leading cause of death, and in 2011, accounted for 22 percent of all deaths (3). Coronary heart disease, also called coronary artery disease, is the most common type of heart disease in the United States (2). This occurs when the arteries of the heart become hardened and narrowed due to the buildup of cholesterol and plaque, impeding blood flow and oxygen to the heart muscle (1). This can lead to heart attack, heart failure, arrhythmias, and sudden cardiac arrest (1). In the United States in 2012, 11 percent of adults had ever been told by a doctor or health professional that they had heart disease, and 6 percent had ever been told that they had coronary heart disease (4). This disease continues to be a major cause of disability and a significant contributor to increases in healthcare costs.



Graph 9.1

Source: Illinois Department of Public Health (5)

As shown in Graph 9.1, the DuPage County and Illinois rates of mortality due to diseases of the heart have been relatively consistent over time. Moreover, the mortality rate for DuPage County is consistently below the rate for Illinois.

Hospitalizations

Table 9.1 Hospitalizations for Heart Disease, Rate per 100,000 Population

Year	DuPage County	Illinois
2005	1,049.2	1,309.9
2006	1,029.7	1,270.9
2007	1,001.3	1,205.5
2008	982.8	1,173.6
2009	928.0	1,125.1
2010	937.6	1,109.4
2011	903.7	1,049.9
2012	852.9	1,020.4

Source: Illinois Department of Public Health (6)



Table 9.2 Hospitalizations for Hypertension (High Blood Pressure), Rate per 100,000

Year	DuPage County	Illinois
2005	38.7	78.0
2006	43.0	80.2
2007	39.3	79.1
2008	38.5	79.1
2009	36.2	77.7
2010	43.7	75.4
2011	37.7	69.6
2012	34.5	68.2

Source: Illinois Department of Public Health (6)

Table 9.3 DuPage County 7-Year Average of Hospitalizations, 2005-2012

Age Group	Percent of Hospitalizations for Heart Disease	Percent of Hospitalizations for Hypertension
35 to 44	3.5%	9.7%
45 to 54	10.6%	16.0%
55 to 64	18.4%	17.1%
65 to 74	21.7%	19.3%
75+	43.7%	31.5%

Source: Illinois Department of Public Health (6)

Hypertension has shown to be a significant risk factor for heart disease (7). Using a seven-year average of hospitalizations in DuPage County from 2005 through 2012, in Table 9.3 we find that the majority (approximately 65 percent) of hospitalizations for heart disease occurred in residents aged 65 and older. However, with hypertension, we find hospitalizations began at a much younger age and continued to increase until peaking at the 75 years or older age group. This illustrates that one possibility of reducing heart disease prevalence may be to address hypertension in younger populations.

Risk Factors

Table 9.4 Risk Factors for Heart Disease, DuPage County and Illinois, 2013

Risk Factor	DuPage County 2013	Illinois 2013
High Blood Pressure		
Told BP is high	30.7%	30.1%
High Cholesterol		
Told cholesterol high	37.0%	36.6%
Overweight and Obese		
Overweight adults	33.5%	35.3%
Obese adults	26.4%	29.4%

Source: Illinois Department of Public Health (8)



Some lifestyle factors and health conditions have the ability to put individuals at higher risk for developing heart disease. These include things such as hypertension, high cholesterol levels, diabetes, tobacco use, obesity, having a diet low in fruit and vegetable consumption and high in saturated fat and cholesterol, among others (7). In 2003, it was estimated that 37 percent of adults experienced two or more of these risk factors (1). By making changes to one's lifestyle regarding these factors, assumptions can be made that heart disease risk will decrease.

Healthy People 2020 Objective HDS-5.1: Reduce the proportion of adults with hypertension

National Baseline: 29.9 percent of adults aged 18 years and older in 2005–08 (age adjusted to the year 2000 standard population)

Target: 26.9 percent

Data Sources: National Health and Nutrition Examination Survey (NHANES), CDC/NCHS

Table 9.5 Percent of DuPage County Adults Told They Have High Blood Pressure

2003	2006	2009	2013
22.2%	23.4%	25.8%	30.7%

Source: Illinois Department of Public Health (8)

High blood pressure, or hypertension, is defined as systolic pressure of 140 systolic or higher and/ or diastolic pressure of 90 or higher that stays high over time and is a major risk factor for a number of adverse health conditions (9). In fact, 74 percent of individuals with congestive heart failure, 77 percent of individuals who have a first stroke, and 69 percent of people who have a first heart attack have high blood pressure (9). In 2013, 30.7 percent of DuPage County adults were ever told by a health care professional that their blood pressure was high (8). Of these individuals, 72.7 percent were currently taking medication (8). DuPage percentages are close to the 2013 state of Illinois findings where 30.1 percent of adults had ever been told they have high blood pressure and below the 77.6 percent who were taking medication to aid this problem (8). Nationally in 2012, 24 percent of adults had been told by a doctor or health professional on two or more visits that they had hypertension (4). The percent of DuPage County residents with high blood pressure exceeds the Healthy People 2020 target and the national standings, as shown in Table 9.5, and has been increasing over time.

Healthy People 2020 Objective HDS-6: Increase the proportion of adults who have had their blood cholesterol checked within the preceding 5 years

National Baseline: 74.6 percent of adults aged 18 years and older in 2008 (age adjusted to the year 2000 standard population)

Target: 82.1 percent

Data Source: National Health Interview Survey (NHIS), CDC/NCHS

In 2009, 79.1 percent of DuPage County adults had their blood cholesterol checked within the preceding five years, which does not meet the HP 2020 target of 82.1 percent of adults having their blood cholesterol measured within the preceding five years (10). Despite not meeting the Healthy People 2020 goal, the percentage of DuPage County adults who had their blood cholesterol checked within the preceding five years increased from 74.1 percent in 2007 (10).



Healthy People 2020 Objective HDS-7: Reduce the proportion of adults with high total blood cholesterol levels

National Baseline: 15 percent of adults aged 20 years and older had total blood cholesterol levels of 240 mg/dL or greater in 2005-08 (age adjusted to the year 2000 standard population)

Target: 13.5 percent

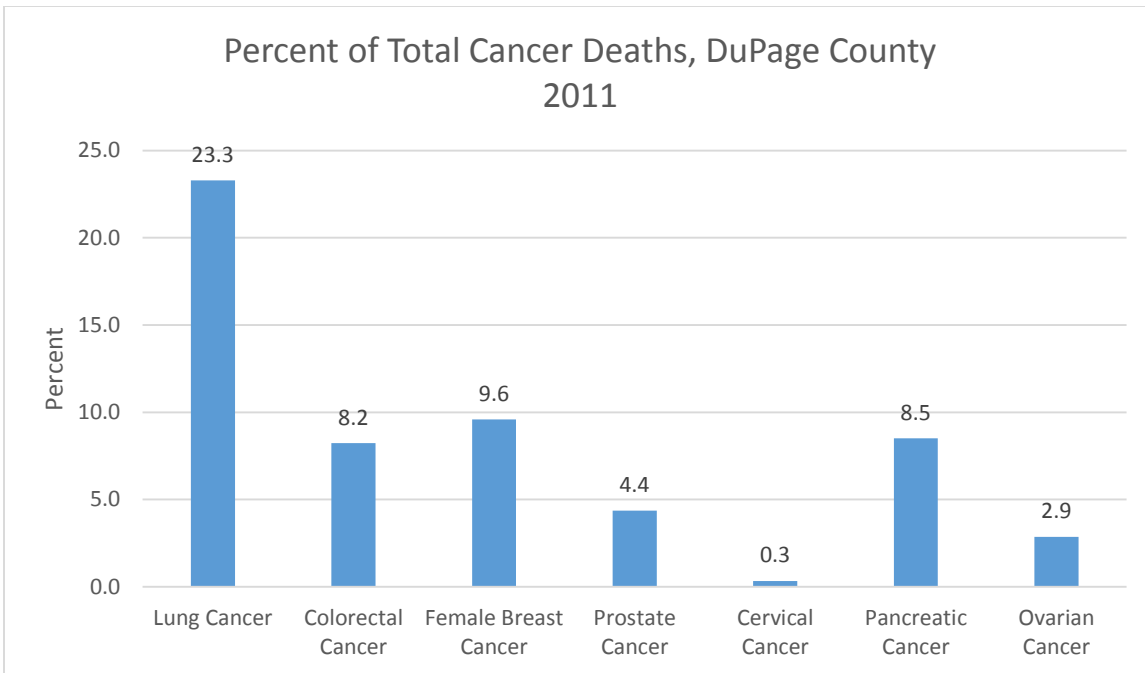
Data Source: National Health and Nutrition Examination Survey (NHANES), CDC/NCHS

Cholesterol is a waxy substance that is needed by the body and is produced by the liver and consumed in certain foods (7). There may be too much cholesterol in the body due to diet or the rate at which cholesterol is processed, and excess can be deposited in the arteries leading to a narrowing of the arteries, heart disease, stroke, among other harmful health conditions (7). In 2013, 37 percent of DuPage County residents had ever been told by a healthcare professional that their cholesterol reading was high; a figure that greatly exceeds the Healthy People 2020 target (8).

Cancer

Cancer is the major leading cause of death in DuPage County and the second leading cause of death in Illinois and the United States (5)(11). One out of two men and one out of three women in the United States will develop some type of cancer during their lifetime, and in 2014, it was estimated that 1,665,540 Americans would be diagnosed with cancer (12). In 2007, seven percent of U.S. adults had ever been told by a doctor or health professional that they had some form of cancer, though nationally, about 77 percent of all cancers are diagnosed in people age 55 and older (4).

One-third of all cancer deaths are related to overweight or obesity, physical inactivity, and poor nutrition, and consequently, could be prevented (13). Moreover, at least half of all new cancer cases could be prevented or detected earlier through screening (13).



Graph 9.2

Source: Illinois Department of Public Health (3)

Cancer caused 1,469 deaths in DuPage County in 2011 (14). Just over half of these deaths were attributable to the following five cancers (3):

- ❖ Lung Cancer - 342 deaths
- ❖ Female Breast Cancer - 141 deaths
- ❖ Pancreatic Cancer - 125 deaths
- ❖ Colorectal Cancer - 121 deaths
- ❖ Prostate Cancer - 64 deaths

Healthy People 2020 Objective C-1: Reduce the overall cancer death rate

National Baseline: 179.3 deaths per 100,000 population in 2007 (age adjusted to the year 2000 standard population)

Target: 161.4 deaths per 100,000 population

Data Sources: National Vital Statistics System-Mortality (NVSS-M), CDC/NCHS; Population Estimates, Census

For the entire United States population in 2007-2011, the death rate due to cancer was 173.8 deaths per 100,000 population, though there were significant differences among genders (12). For this same time period, the cancer death rate for males was 211.6 deaths per 100,000 population, while women had a mortality rate of 147.4 deaths per 100,000 individuals (12). The rates for the state of Illinois were above national data, with a mortality rate of 181.1 deaths per 100,000 population due to cancer in 2007-2011 (12). Again there was a difference among rates for men and women. For men, the cancer mortality rate was 218.9 deaths per 100,000 population, while it was 156.4 deaths per 100,000 population for women in Illinois (12).



In 2011, the DuPage County cancer mortality rate was 160 deaths per 100,000 population, which is below the state, national, and the Healthy People 2020 target of 161.4 deaths per 100,000 population (12). The 2011 cancer mortality rate differs among genders in DuPage County, with the female mortality rate at 142.3 deaths per 100,000 population and males at 190.0 deaths per 100,000 population (12).

Lung Cancer

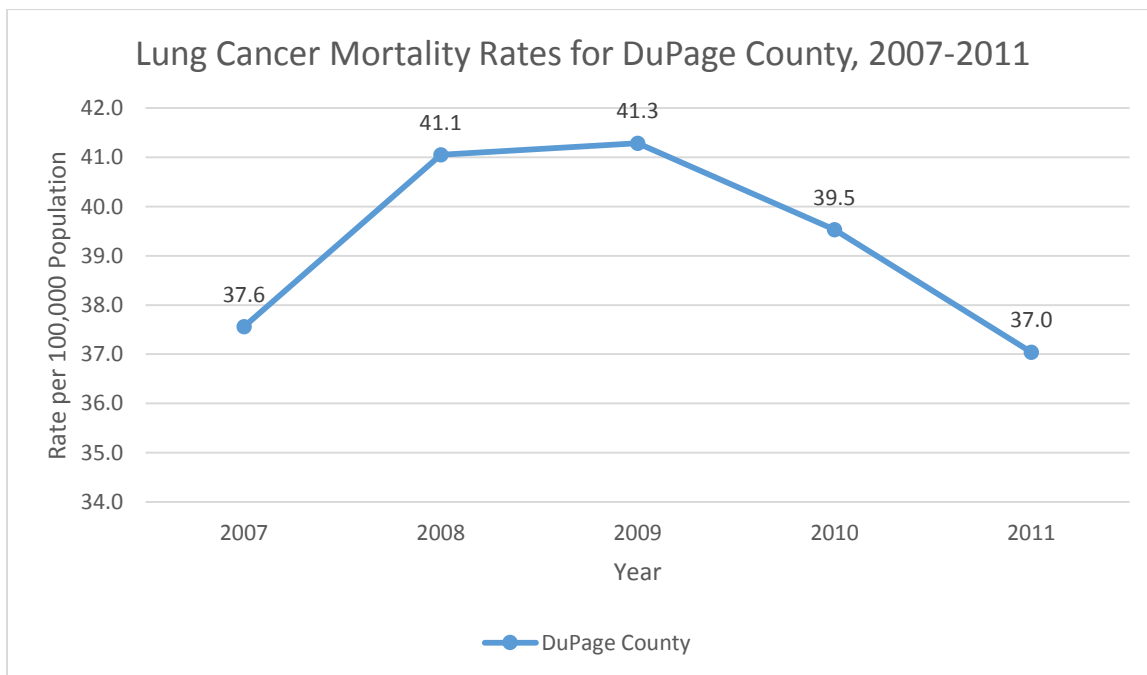
Healthy People 2020 Objective C-2: Reduce the lung cancer death rate

National Baseline: 50.6 deaths per 100,000 population in 2007 (age adjusted to the year 2000 standard population)

Target: 45.5 deaths per 100,000 population

Data Sources: National Vital Statistics System-Mortality (NVSS-M), CDC/NCHS; Population Estimates, Census

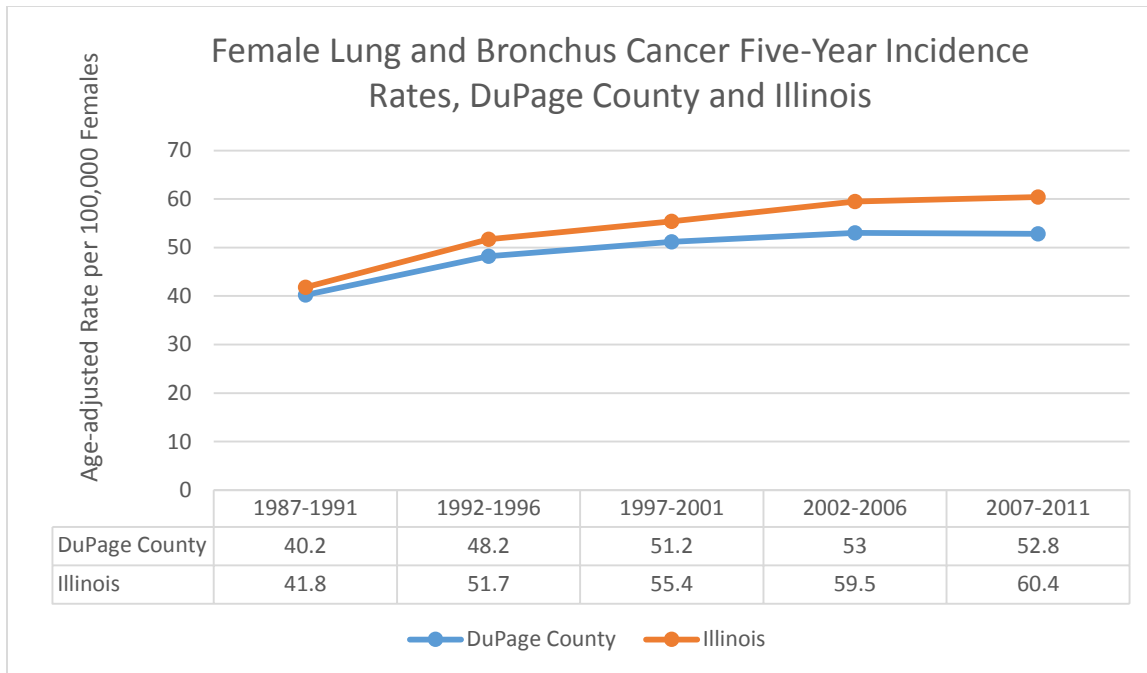
Lung cancer is the most common cause of cancer death among both females and males. In 2014, it was estimated that 30 percent of all cancer deaths would be caused by tobacco use (13). Cigarette smoking is the most significant risk factor for lung cancer, though other risk factors include environmental sources such as tobacco smoke and air pollution, radiation exposures, and occupational exposures to organic chemicals such as radon and asbestos (13). When an individual is diagnosed with lung cancer, treatment is determined by type and the stage of the cancer and can include surgery, radiation therapy, chemotherapy, targeted therapy, or any combination of the aforementioned (13).



Graph 9.3

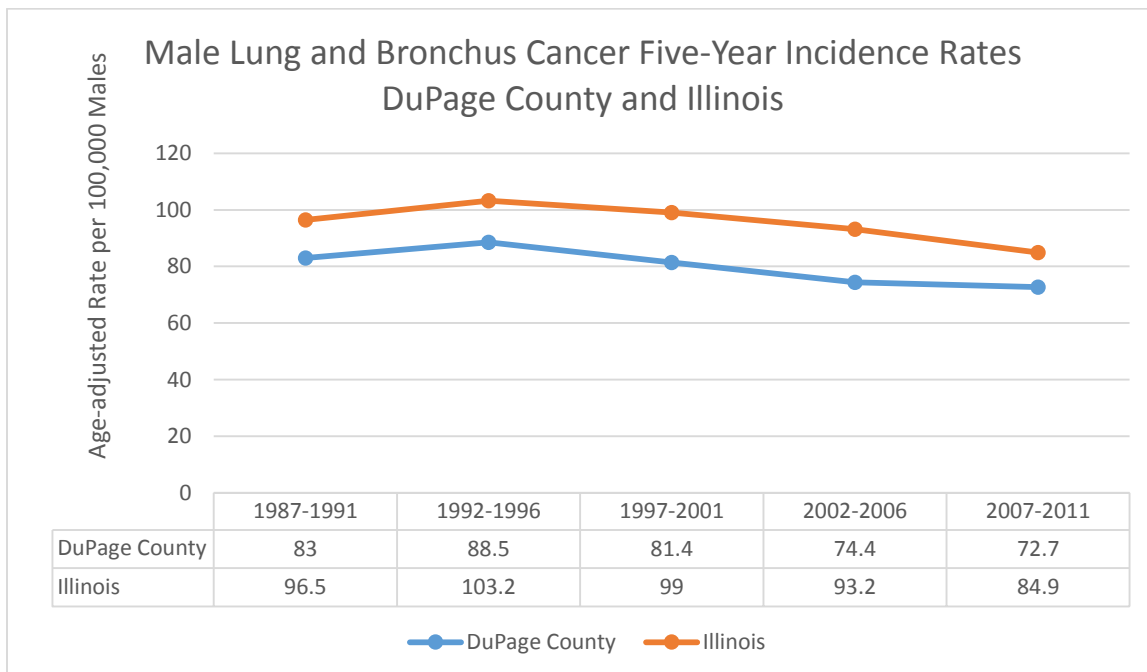
Source: Illinois Department of Public Health (3)

Graph 9.3 shows the DuPage County rate of lung cancer mortality, which decreased from 2009 to 2011.



Graph 9.4

Source: Illinois Department of Public Health (15)



Graph 9.5

Source: Illinois Department of Public Health (15)



Since 1991, lung cancer incidence among women has shown an overall increase, as can be seen in Graph 9.4. However, as shown in Graph 9.5, incidence among men is decreasing. The incidence of lung cancer in both men and women in DuPage County is lower than the rate for Illinois overall.

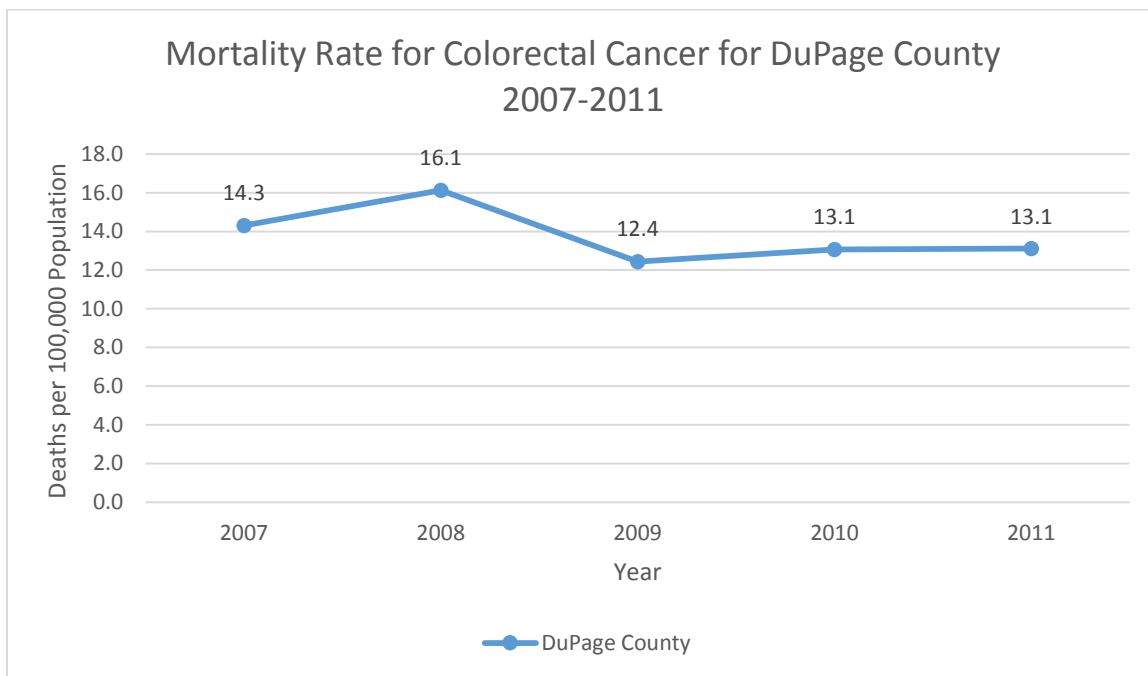
Colorectal Cancer

Healthy People 2020 Objective C-5: Reduce the colorectal cancer death rate

National Baseline: 17.1 deaths per 100,000 population in 2007 (age adjusted to the year 2000 standard population)

Target: 14.5 deaths per 100,000 population

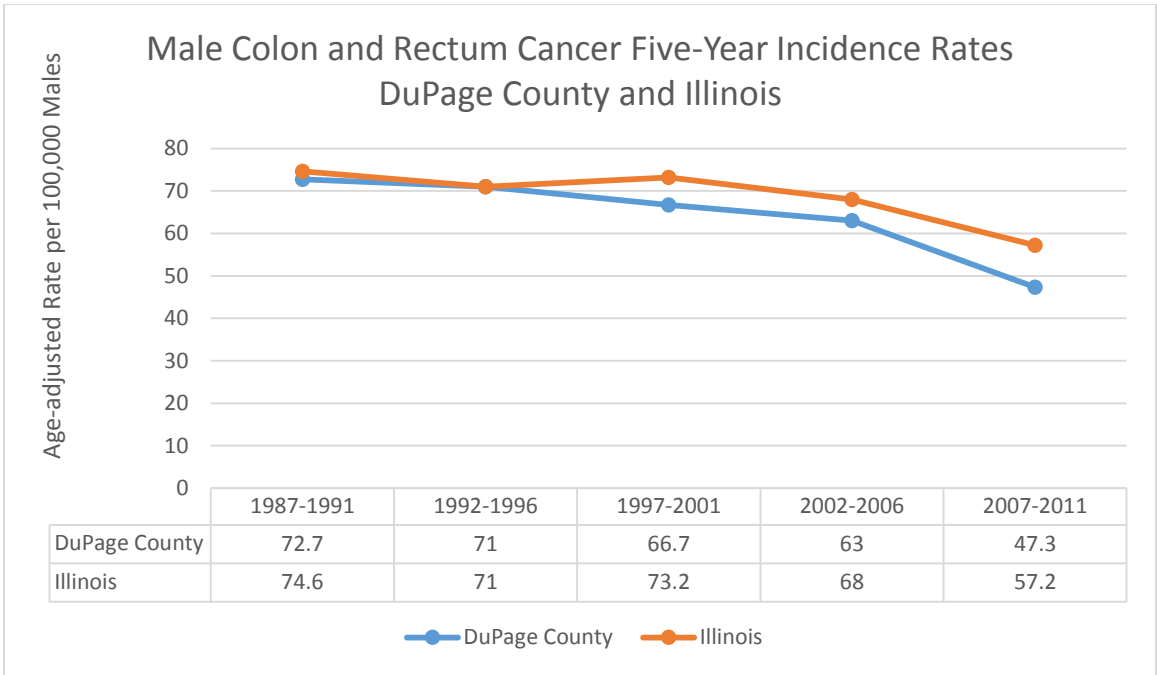
Data Sources: National Vital Statistics System-Mortality (NVSS-M), CDC/NCHS; Population Estimates, Census



Graph 9.6

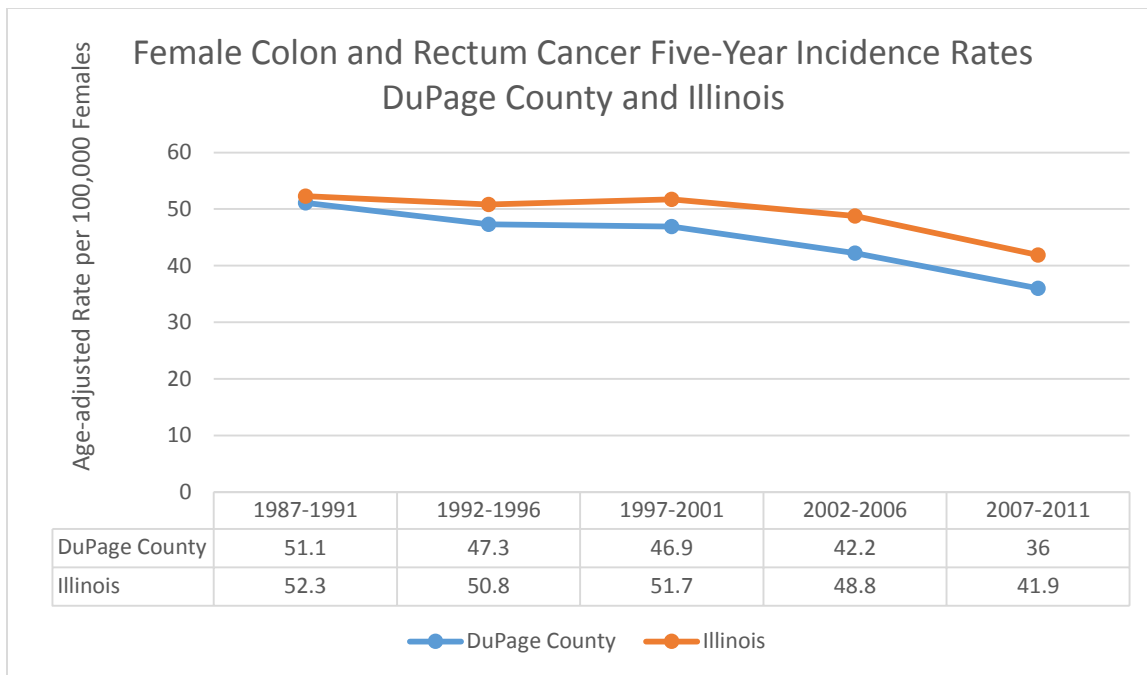
Source: Illinois Department of Public Health (3)

Colorectal cancer is the third most commonly diagnosed cancer among men and women, as well as the third leading cause of cancer deaths among both genders (16). As seen in Graph 9.6, the colorectal cancer mortality rate in DuPage County increased to 16.1 in 2008, but decreased to 13.1 in both 2010 and 2011.



Graph 9.7
Source: Illinois Department of Public Health (15)

Colorectal cancer incidence rates for males are shown in Graph 9.7. Rates for Illinois males have decreased since the rate for the five-year period of 1997-2001 (15). Incidence of colon and rectum cancer for DuPage County males has remained equal or below Illinois rates over the examined time period of 1987-2011 (15).



Graph 9.8

Source: Illinois Department of Public Health (15)

As seen in Graph 9.8, incidence rates for colorectal cancer have been decreasing over time for DuPage and Illinois females. Risk factors for colorectal cancer include age, family history, physical inactivity, obesity, alcohol use and a diet high in fat and low in fruits and vegetables (16). Treatments for colorectal cancer include early detection and removal of pre-cancerous colorectal polyps, surgery, radiation therapy and chemotherapy (16).

Breast Cancer

Healthy People 2020 Objective C-3: Reduce the female breast cancer death rate

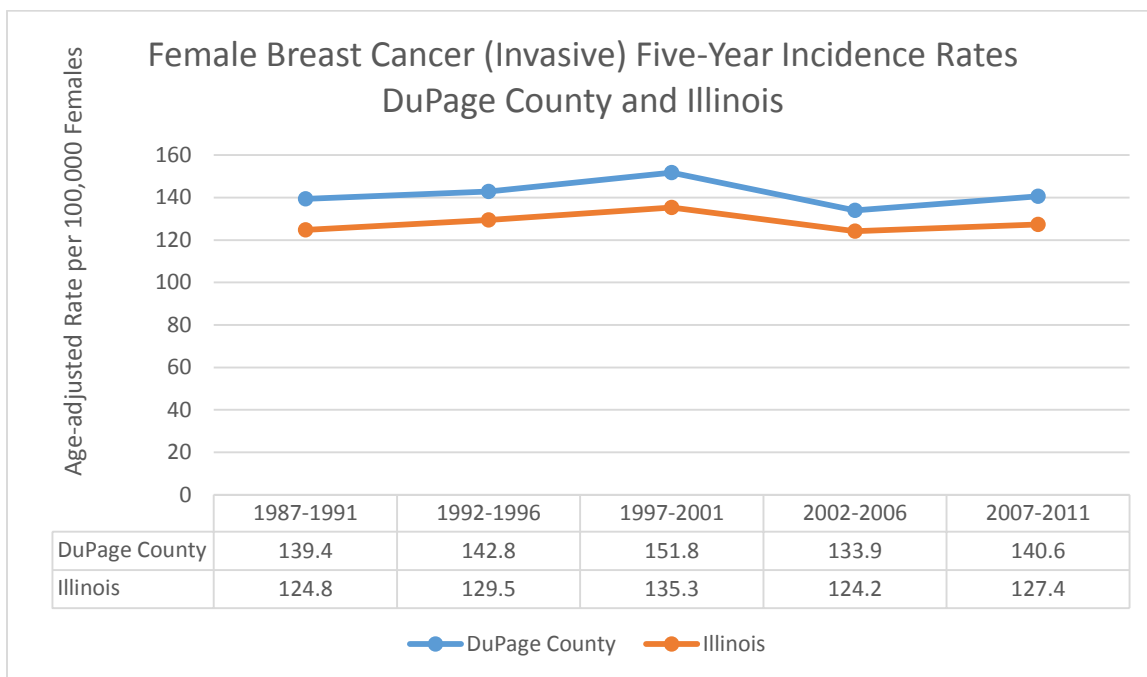
National Baseline: 23 deaths per 100,000 females occurred in 2007 (age adjusted to the year 2000 standard population)

Target: 20.7 deaths per 100,000 females

Data Sources: National Vital Statistics System-Mortality (NVSS-M), CDC/NCHS; Population Estimates, Census

Aside from cancers of the skin, breast cancer is the most common type of cancer among women and accounts for 29 percent of newly diagnosed cancers (17). Mortality from breast cancer can be reduced substantially if the tumor is discovered at an early stage, and mammography is the most effective method for detecting these early malignancies, though clinical breast exams and monthly breast self-examination also prove beneficial in early detection (17).

In 2011, the national mortality rate due to female breast cancer was 22.2 deaths per 100,000 women (12). The rate for the state of Illinois was similar to this at 23.4 deaths per 100,000 women (12). In DuPage County, the 2011 breast cancer mortality rate was 22.5 deaths per 100,000 women (12).



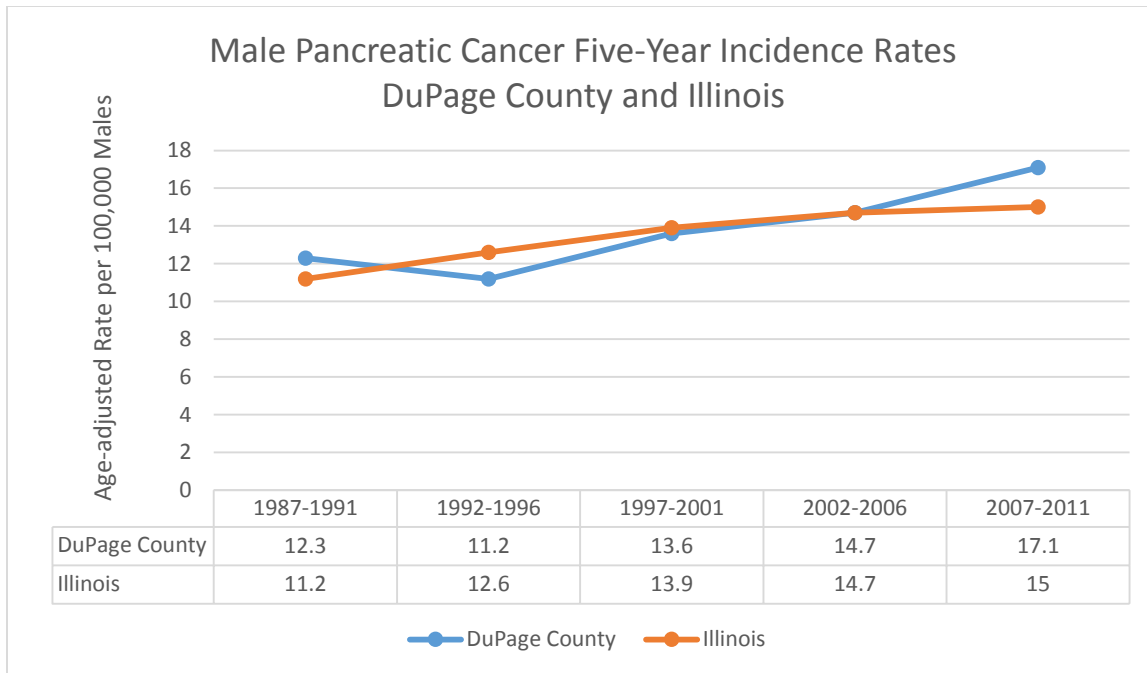
Graph 9.9

Source: Illinois Department of Public Health (15)

As shown in Graph 9.9, five-year cumulative rates of breast cancer incidence in DuPage County have remained higher than Illinois five-year rates since 1987. Many breast cancer risk factors, such as age, family history of breast cancer, long menstrual history, mammographic densities, previous breast disease, and race and ethnicity, are unchangeable (17). However, obesity and smoking are well-established breast cancer risks for women that can be addressed through smoking cessation, a healthy diet, vigorous physical activity and maintaining a healthy body weight (17).

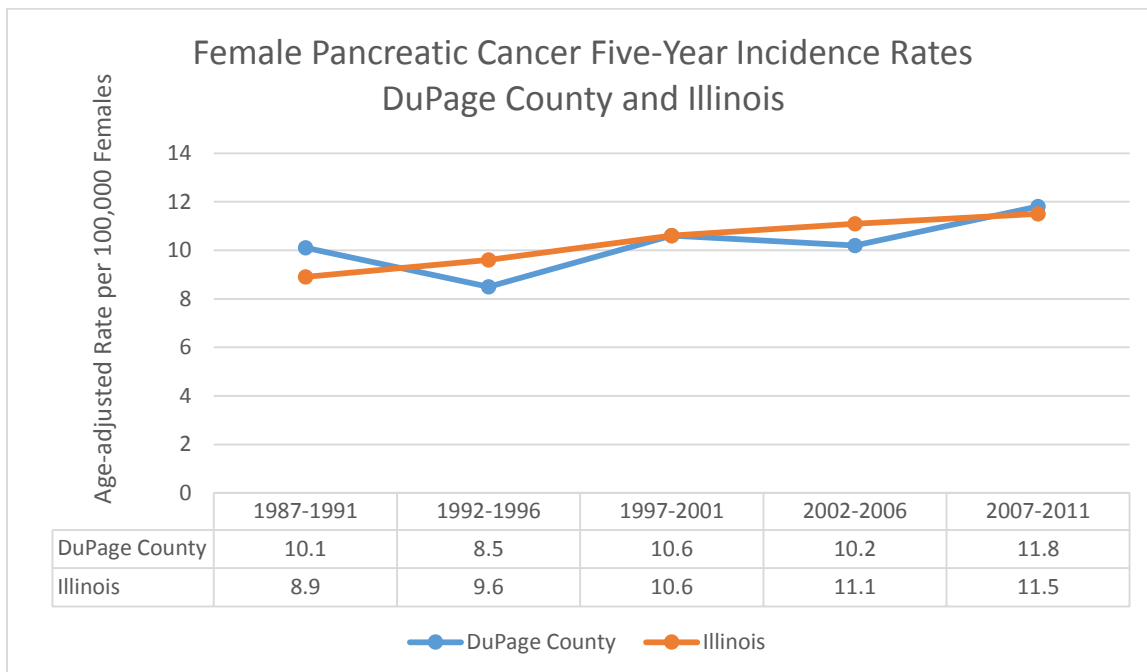
Pancreatic Cancer

Pancreatic cancer rates are slightly higher among men nationwide, compared to women (13). In 2011, there were 125 pancreatic cancer deaths in DuPage County for a crude rate of 13.5 deaths per 100,000 population (3). As shown in Graph 9.10 and 9.11, five-year incidence rates for pancreatic cancer increased in DuPage County for both men and women between 1987 and 2011 (15).



Graph 9.10

Source: Illinois Department of Public Health (15)



Graph 9.11

Source: Illinois Department of Public Health (15)



Prostate Cancer

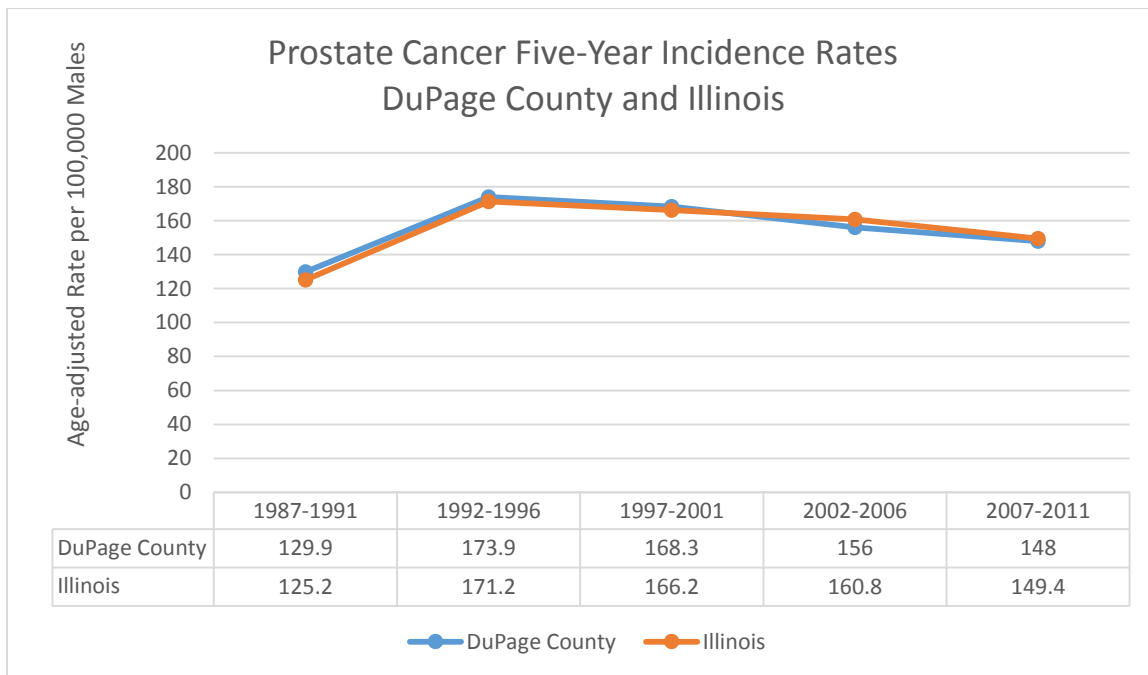
Healthy People 2020 Objective C-7: Reduce the prostate cancer death rate

National Baseline: 24.2 deaths per 100,000 males in 2007 (age adjusted to the year 2000 standard population)

Target: 21.8 deaths per 100,000 males

Data Sources: National Vital Statistics System-Mortality (NVSS-M), CDC/NCHS; Population Estimates, Census

Prostate cancer is the most commonly diagnosed cancer among men, and is the second leading cause of male cancer death (13). In 2011, there were 64 prostate cancer deaths in DuPage County for a rate of 14.1 prostate cancer deaths per 100,000 males (3).



Graph 9.12

Source: Illinois Department of Public Health (15)

As evident in Graph 9.12, the prostate cancer incidence rate for DuPage County and Illinois has shown an overall decrease since the 1992-1996 five-year period. Moreover, the rate for DuPage County fell below the Illinois rate for 2002-2006 and 2007-2011. The digital rectal exam (DRE) and the prostate-specific antigen (PSA) blood test are two methods used for the early detection of prostate cancer (13). Studies regarding these tests continue, and presently, there is insufficient data to recommend for or against routine testing, therefore the benefits and limitations of these tests must be considered (13).



Risk factors for prostate cancer include age, ethnicity, family history and dietary fat (13). Sixty-three percent of all prostate cancer occurs in men aged 65 years and older, and African American men have the highest incidence rates of prostate cancer in the world, significantly higher than white men (13).

Cervical Cancer

Healthy People 2020 Objective C-4: Reduce the death rate from the cancer of the uterine cervix

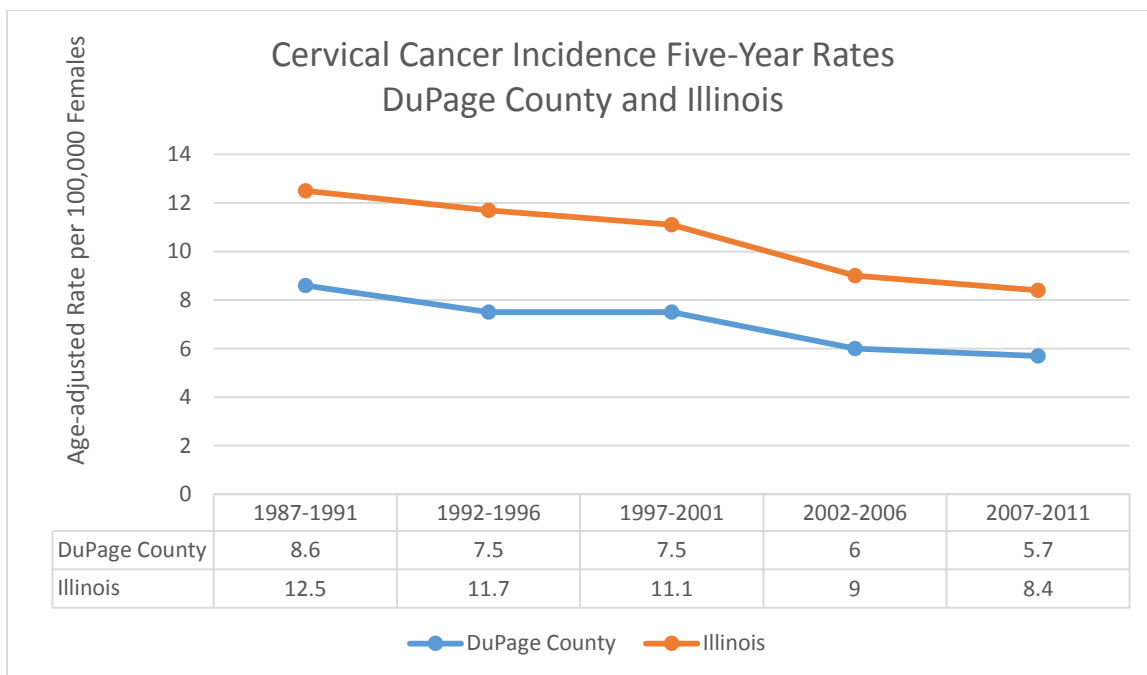
National Baseline: 2.4 deaths per 100,000 females occurred in 2007 (age adjusted to the year 2000 standard population)

Target: 2.2 deaths per 100,000 females

Data Sources: National Vital Statistics System-Mortality (NVSS-M), CDC/NCHS; Population Estimates, Census

Once the most common cause of cancer deaths in women, over the last 30 years, the cervical cancer death rate has gone down by more than 50 percent (18). The main reason for the drop in mortality rates from cervical cancer was the increased use of the Pap test, which can detect changes in the cervix before cancer develops, or can discover cancer in its earliest, most curable stage (18).

In Illinois in 2011, the cervical cancer mortality rate was 2.6 deaths per 100,000 females (12). For DuPage County, in 2004, there were 5 cervical cancer deaths (3). There were less than 10 deaths per year from cervical cancer in DuPage County between 2007 and 2011, and the mortality rate from cervical cancer in DuPage County in 2011 was 1.06 deaths per 100,000 females (3).



Graph 9.13

Source: Illinois Department of Public Health (15)



As shown in Graph 9.13, cervical cancer incidence rates have decreased over time. The primary cause of cervical cancer is infection of certain types of human papillomavirus (HPV); risk factors include having sex at an early age, having many sexual partners or having sexual partners who have had many sexual partners (13). One form of prevention is to receive a vaccination for HPV. These vaccines are recommended for females aged 9 to 26 years of age which protects against the two types of HPV that cause most cervical cancers (13).

The Pap test is a simple screening procedure that can be used to detect precancerous lesions, and DNA tests can also be used in conjunction with the Pap test in order to detect HPV strains associated with cervical cancer (13). As most cervical precancers are slow to develop, nearly all cases can be prevented through regular screening. Cervical screening should begin at age 21. For women ages 21-29, screening should be done every 3 years with conventional or liquid-based Pap tests. For women ages 30-65 screening should be done every 5 years with both the HPV test and the Pap test, which is preferred, or every 3 years with the Pap test alone (13).

Stroke

Stroke is the fourth leading cause of death in the United States and DuPage County, accounting for five percent of all DuPage County deaths (3,19). Despite the fact that a number of risk factors for stroke are preventable, such as tobacco use, alcohol use, and physical inactivity, stroke continues to be a leading cause of serious long-term disability in our nation (20). Every 40 seconds in the United States, someone has a stroke, and this issue is a significant contributor to increases in health care costs, costing an estimated \$73.7 billion in indirect and direct health care costs in 2010 (9,20).

Healthy People 2020 Objective HDS-3: Reduce stroke deaths

National Baseline: 43.5 deaths per 100,000 population in 2007 (age adjusted to the year 2000 standard population)

Target: 34.8 deaths per 100,000 population

Data Sources: National Vital Statistics System-Mortality (NVSS-M), CDC/NCHS; Population Estimates, Census

Table 9.6 Stroke Mortality Rate per 100,000 for DuPage County and Illinois, 2001-2011

Year	DuPage County	Illinois
2001	45.0	46.8
2002	48.4	46.5
2003	45.2	44.6
2004	41.7	41.9
2005	42.0	40.3
2006	37.6	38.6
2007	34.7	37.7
2008	37.1	37.0
2009	32.8	40.6
2010	33.4	41.2
2011	32.4	41.4

Source: Illinois Department of Public Health (5,14)



In 2010, three percent of the United States population had ever been told by a health care professional that they had experienced a stroke, according to the National Health Interview Survey (4). For DuPage County, this figure was 1.2 percent for 2013 (8). As shown in Table 9.6, the stroke mortality in 2011 for DuPage County was 32.4 deaths per 100,000 population.

Hospitalizations

Table 9.7 Hospitalizations for Stroke Rate per 100,000 for DuPage County and Illinois, 2005-2012

Year	Hospitalizations for Stroke per 100,000	
	DuPage County	Illinois
2005	277.5	294.3
2006	286.5	306.7
2007	278.5	307.6
2008	277.1	291.9
2009	271.3	286.5
2010	272.0	286.8
2011	287.8	282.9
2012	288.1	283.6

Source: Illinois Department of Public Health (6)

Table 9.8 DuPage County Eight Year Average Hospitalizations for Stroke by Age Group (2005-2012)

Age Group	Percent of Hospitalizations
25 to 34	1%
35 to 44	3.3%
45 to 54	8.9%
55 to 64	16.3%
65 to 74	20.6%
75+	49%

Source: Illinois Department of Public Health (6)

With stroke, we find that the majority (69.6 percent) of hospitalizations occur in residents aged 65 and older, as presented in Table 9.8. If risk factors for stroke are addressed in younger populations, it may be possible to reduce the incidence of stroke in older populations.



Chronic Obstructive Pulmonary Disease

Healthy People 2020 Objective RD-10: Reduce deaths from chronic obstructive pulmonary disease (COPD) among adults
National Baseline: 113.9 COPD deaths per 100,000 adults aged 45 years and older occurred in 2007 (age adjusted to the year 2000 standard population)

Target: 102.6 deaths per 100,000 adults

Data Source: National Vital Statistics System-Mortality (NVSS-M), CDC/NCHS; Population Estimates, Census

Chronic Obstructive Pulmonary Disease (COPD) is a progressive disease and the third leading cause of death in the United States (19). This disease develops slowly over time and while the leading cause is cigarette smoking, other risk factors include long-term exposure to lung irritants, such as air pollution, chemical fumes, or dust (21). Chronic Lower Respiratory Disease, a category which includes COPD, asthma, bronchitis, and emphysema, was the fourth leading cause of death in DuPage County in 2012 (5).

Table 9.9 Number of Chronic Lower Respiratory Disease Deaths in DuPage County, 2007-2012

Year	Chronic Lower Respiratory Disease		Chronic Obstructive Pulmonary Disease	
	Number of Deaths	Rate per 100,000 Population	Number of Deaths	Rate per 100,000 Population
2007	259	27.9	251	27.0
2008	324	34.8	315	33.9
2009	290	31.1	282	30.2
2010	282	30.0	274	29.1
2011	292	31.6	285	30.9
2012	269	29.0	N/A	N/A

Data on Number of COPD Deaths for 2012 Unavailable

Source: Illinois Department of Public Health (5,14)

Arthritis

The various forms of arthritis affect more than 22.7 percent of the U.S. adult population—52.5 million people—making arthritis one of the most common conditions in the United States (22). If current trends continue, it is estimated that by 2030, 67 million adults will suffer from doctor-diagnosed arthritis (22). In 2013, it is estimated that 24.7 percent of the DuPage County adult population had been told they had arthritis by a health professional (8).

The significant public health impact of arthritis is reflected in a variety of measures. First, arthritis is the most common cause of disability in the United States (22). This condition limits the usual activities, such as working and housekeeping, of nearly 10 percent of the U.S. adult population, which is 22.7 million persons (22). Disability limits the independence of affected persons and disrupts the lives of family members and other caregivers. Second, health-related quality-of-life measures are consistently worse for persons with arthritis, whether the measure is healthy days in the past 30 days, days without severe pain, “ability days” (that is, days without activity limitations), or difficulty in performing personal



care activities (23). Lastly, there are economic demands placed on our nation by this condition. In 2003, the direct annual medical expenditure for our nation on arthritis was \$80.8 billion, and \$47 billion in indirect costs, for a total of almost \$128 billion, of which, Illinois was responsible for \$2.67 billion (23).

Osteoporosis

Osteoporosis is a disease that is characterized by low bone mass and structural deterioration of bone tissue (26). The major health consequence of osteoporosis is an increased susceptibility to fractures, and nationally, approximately two million fractures per year are attributed to the disease (24). One in two women and one in four men aged 50 years and older will experience an osteoporotic-related fracture in their lifetime (24). Nationally, health care costs for these fractures were an estimated \$19 billion every year, and it is estimated that this amount will increase to around \$25.3 billion by 2025 (24).

Osteoporosis is a disease that disproportionately affects women. Of the estimated ten million Americans that have the disease, 80 percent, or eight million, are females (24). Besides being female, other risk factors include old age, family history of the disease, low levels of sex hormones, diet, inactive lifestyle, and smoking, among others (24). While this disease is often thought to impact older individuals, 85 to 90 percent of bone mass is acquired by age 18 for girls and 20 for boys, so the building of strong bones is important for prevention of osteoporosis during childhood and adolescence (24).

In an individual with osteoporosis, the risk of any fracture is increased, though hip fractures represent the most serious impact in terms of health care costs and consequences for the individual. In the United States in 2005, there were 297,000 hospital discharges for hip fracture due to osteoporosis, with women having a rate of hip fracture two to three times higher than men (24). An average of 24 percent of hip fracture patients aged 50 years and older die in the year following fracture, with death rates among men nearly twice as high as that for women (24). Sustaining a hip fracture is more likely to lead to functional impairment compared to individuals who suffer other serious medical conditions, including heart attack, stroke, and cancer (24). For example, only 15 percent of hip fracture patients will be able to walk across a room unaided six months after the injury, and only 25 percent of patients will return to their pre-injury level of activity (24).

Healthy People 2020 Objective AOCBC-10: Reduce the proportion of adults with osteoporosis

National Baseline: 5.9 percent of adults aged 50 years and older had osteoporosis in 2005-08 (age adjusted to the year 2000 standard population)

Target: 5.3 percent

Data Sources: National Health and Nutrition Examination Survey (NHANES), CDC/NCHS

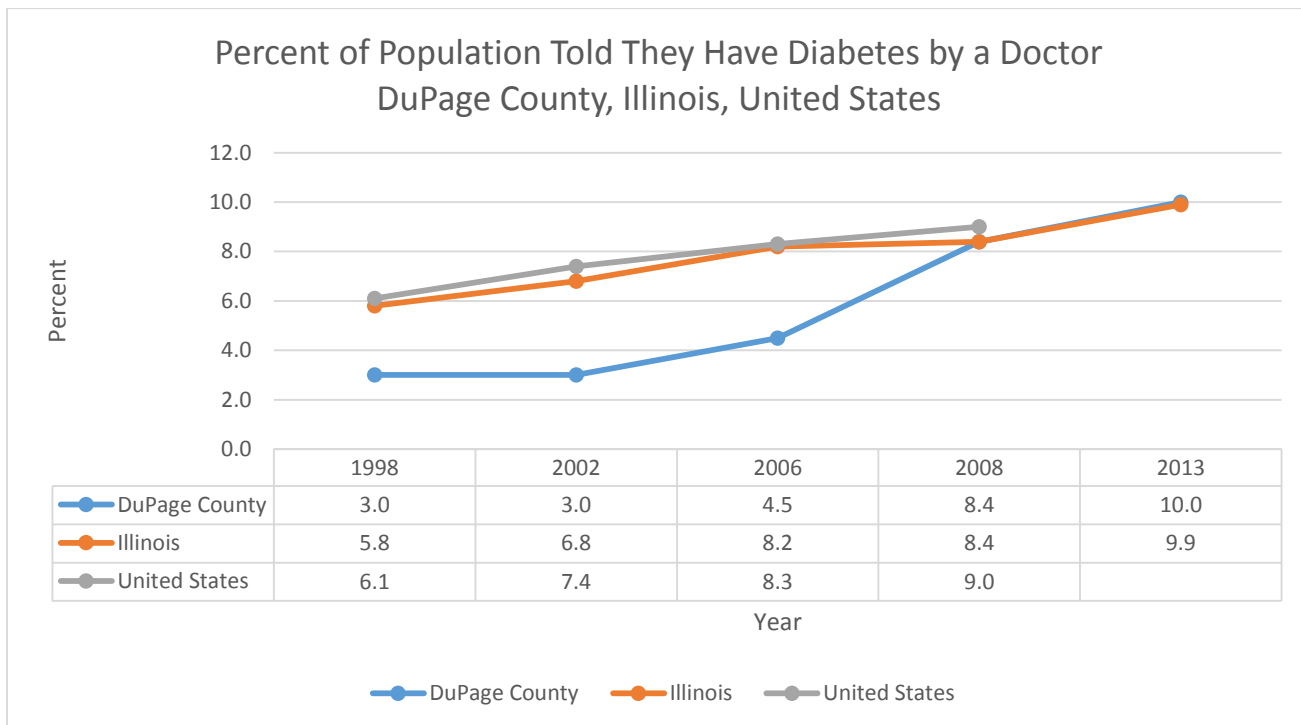
According to the Centers for Medicare and Medicaid, the prevalence of osteoporosis among Medicare beneficiaries in DuPage County in 2012 was 7.5 percent (25). This is higher than the prevalence of osteoporosis among Medicare beneficiaries in Illinois and nationally, both 6.4 percent (25).



Diabetes

Diabetes poses a significant public health challenge for the United States. The rates of individuals at risk for the disease and those eventually diagnosed with diabetes continue to increase yearly, in part due to the changing demographic patterns in the United States. Diabetes is a chronic disease that usually manifests itself as one of two major types: type 1, mainly occurring in children and adolescents 18 years and younger, in which the body does not produce insulin and thus insulin administration is required to sustain life; or type 2, occurring usually in adults over 30 years of age, in which the body's tissues become unable to use its own limited amount of insulin effectively (26). While all persons with diabetes require self-management training, treatment for type 2 diabetes usually consists of a combination of physical activity, proper nutrition, oral tablets, and insulin (26).

The occurrence of diabetes, especially type 2 diabetes, as well as associated complications, is on the rise. The number of persons with diabetes has increased unabated over the past decade; nationally in 2007, 17.9 million persons had been diagnosed with diabetes, while 5.7 million persons were estimated to have the disease but were undiagnosed (26). An estimated 57 million individuals in the United States have prediabetes, placing them at an increased risk of developing type 2 diabetes, and if these trends continue, one in three Americans who were born in the year 2000 will develop diabetes during their lifetime (1).



Graph 9.12

National data unavailable for 2013.

Sources: Illinois Department of Public Health (8,27) U.S. Department of Health and Human Services (10)



According to estimates from the national and Illinois Behavioral Risk Factor Surveillance Systems, DuPage County and the state of Illinois have followed the national trends for the prevalence of diabetes and have been increasing over time, as shown in Graph 9.12.

Healthy People 2020 Objective D-3: Reduce the diabetes death rate

National Baseline: 74.0 deaths per 100,000 population were related to diabetes in 2007 (age adjusted to the year 2000 standard population)

Target: 66.6 deaths per 100,000 population.

Data Sources: National Vital Statistics System-Mortality (NVSS-M), CDC/NCHS; Population Estimates, Census

Table 9.10 Number of Diabetes Deaths and Mortality Rates in DuPage County, 2007-2012

Year	Number of Deaths from Diabetes	Mortality Rate from Diabetes per 100,000 Population
2007	103	11.1
2008	98	10.5
2009	98	10.5
2010	102	10.8
2011	122	13.2
2012	80	8.6

Source: Illinois Department of Public Health (5,14)

Over the past decade, diabetes has remained the seventh leading cause of death in the United States, and the eighth leading cause of death in DuPage County (3,19). Table 9.10 shows deaths in DuPage County as a result of diabetes, though diabetes is likely to be underreported as a cause of death. Studies have found that only 35 to 40 percent of decedents with diabetes have the disease listed anywhere on the death certificate and only about 10 to 15 percent have it listed as the underlying cause of death (26). The rates of death for an individual with diabetes is 1.5 times that of an individual without the disease (26).

Hospitalizations

Table 9.11 Diabetes Hospitalization Rates per 100,000 Population, 2009-2012

Year	DuPage County	Illinois
2009	113.6	169.1
2010	104.6	168.4
2011	105.1	168.5
2012	109.8	164.5

Source: Illinois Department of Public Health (6)

Table 9.11 shows hospitalization rates per 100,000 population for diabetes hospitalizations for both DuPage County and Illinois. Rates of hospitalization per 100,000 remained consistently lower in DuPage County compared to Illinois.



Asthma

Healthy People 2020 Objective RD-1: Reduce asthma deaths.

National Baselines and Targets:

Objective	Reduce asthma deaths	2007 Baseline	2020 Target
<i>Number of Deaths per Million</i>			
RD 1.2	Adults 35 to 64 years	11.0	4.9
RD 1.3	Adults 65 years and older	43.4	21.5

Data Sources: National Vital Statistics System-Mortality (NVSS-M), CDC/NCHS; Population Estimates, Census

Table 9.12 Number of Asthma Deaths in DuPage County

Year	Number of Deaths Caused by Asthma
2007	*
2008	8
2009	7
2010	5
2011	5

*Years with less than 5 deaths have been omitted.

Source: Illinois Department of Public Health (3)

Hospitalizations

Healthy People 2020 Objective RD-2: Reduce hospitalizations for asthma

National Baselines and Targets:

Objective	Reduce asthma hospitalizations	2007 Baseline	2020 Target
<i>Hospitalizations per 10,000</i>			
RD 2.1	Children under age 5 years	41.4	18.2
RD 2.2	Persons aged 5 to 64	11.1	8.7
RD 2.3	Adults aged 65 years and older	25.3	20.1

Data Sources: National Hospital Discharge Survey (NHDS), CDC/NCHS; Population Estimates, Census



Table 9.13 Number of Hospitalizations for Asthma by Age Group in DuPage County, 2008-2012

Year	Children under 5 years	Persons age 5 to 64 years	Adults 65 years and older
2008	158	588	241
2009	148	713	240
2010	192	552	225
2011	152	558	231
2012	163	592	252

Source: Illinois Department of Public Health (6)

Asthma can occur in people of all ages, impacting an estimated 22.9 million people in the United States (29). According to the 2013 Illinois Behavioral Risk Factor Survey, approximately 7.8 percent of DuPage County adults reported currently having asthma, while 2.6 percent reported formerly having asthma (8). This is similar to data for the state of Illinois; 7.6 percent of Illinois adults are estimated to currently have asthma, while 4.3 percent are estimated to formerly have asthma in 2013 (27). Data from the Centers for Medicare and Medicaid show that 4.1 percent of Medicare beneficiaries in DuPage County in 2012 had asthma (25). Table 9.13 shows the number of hospitalizations due to asthma in DuPage County by age group.

End-stage Renal Disease

End-stage renal disease occurs when one's kidneys are not able to function at the level necessary to sustain day-to-day life, and diabetes is the most common cause in the United States (29). In most cases, it occurs when kidney failure has progressed to the point that kidney function is under 10 percent of normal (29).

Healthy People 2020 Objective CKD-1: Reduce the proportion of the U.S. population with chronic kidney disease

National Baseline: 15.1 percent of the U.S. population in 1999-2004 (age adjusted to the year 2000 standard population)

Target: 13.6 percent

Data Source: National Health and Nutrition Examination Survey (NHANES), CDC/NCHS

According to the Illinois Behavioral Risk Factor Surveillance System, an estimated 2.1 percent of DuPage County adults have kidney disease (8). This is similar to the estimated Illinois prevalence of 2.4 percent (27). The percentage of Medicare beneficiaries in DuPage County with chronic kidney disease in 2012 was 14.6 percent, slightly lower than Illinois and the United States, 15.8 percent and 15.5 percent respectively (25).



Table 9.14 Number of Deaths in DuPage County from Nephritis, Nephrotic Syndrome, and Nephrosis, 2008-2012

Year	Number of Deaths from Kidney Disease
2008	160
2009	162
2010	138
2011	122
2012	121

Source: Illinois Department of Public Health (14)

Table 9.14 shows the number of deaths due to kidney disease for DuPage County from 2008 through 2012. In 2012, the mortality rate for DuPage County due to nephritis, nephrotic syndrome, and nephrosis was 13.0 deaths per 100,000 population (14).



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Section 10: Death, Injury, and Violence

Studying the leading causes of death, injury, and violence related factors are necessary to understanding the health status of the population. Presenting, ranking, and comparing leading causes of death is a common method of showing mortality statistics, and is useful for illustrating the relative burden of disease-specific mortality. Although many people sustain significant injuries at some time during their lives, most unintentional injuries are predictable and preventable. Injury deaths can be a result of a variety of causes, including motor vehicle crashes, firearms, poisonings, suffocations, falls, fires, and drowning. Violence, such as homicides, suicides, and domestic and child abuse, are also a serious public health concern that affect people at all stages of life. This issue is detrimental to community functioning and can reduce productivity, decrease property values and disrupt social services. The information presented in this section will help us better understand the leading causes of death, injury, and violence faced by DuPage County residents.

Key Findings

- ❖ In DuPage County, cancer has remained the leading cause of death from 2009 to 2011. In Illinois and the U.S., diseases of the heart have consistently remained the leading cause of death.
- ❖ The top three leading causes of death in DuPage are cancer, diseases of the heart, and stroke.
- ❖ In 2011, the rate of deaths from unintentional injuries in DuPage County was 17.3.
- ❖ The number of DuPage County motor vehicle traffic (MVT) deaths has declined overall since 2004.
- ❖ In 2012, the rate of child abuse or neglect was 3.8 cases per 1,000 children, less than half the Healthy People 2020 target of 8.5 victims per 1,000 children.

Leading Causes of Death

In 2011, there were 5,976 deaths in DuPage County and 101,291 deaths in Illinois (1). See Table 1.1 for a comparison of the 2011 Top Ten Leading Causes of Death in DuPage County and Illinois (1).



Table 10.1 Top Ten Leading Causes of Death in DuPage County with Illinois Comparison, 2011

Rank	Causes of Death	DuPage County			Illinois		
		Number of Deaths	Percent of Deaths	Mortality Rate per 100,000	Number of Deaths	Percent of Deaths	Mortality Rate per 100,000
	All Causes	5,976	100.0		101,291	100.0	
1	Cancer	1,469	24.6	159.1	23,852	23.5	185.3
2	Diseases of the Heart	1,304	21.8	141.2	24,607	24.3	191.2
3	Cerebrovascular Disease (Stroke)	299	5.0	32.4	5,324	5.3	41.4
4	Chronic Lower Respiratory Disease	292	4.9	31.6	5,369	5.3	41.7
5	Alzheimer's Disease	216	3.6	23.4	2,896	2.9	22.5
6	Accidents	160	2.7	17.3	3,510	3.5	27.3
7	Influenza and Pneumonia	152	2.5	16.5	2,394	2.4	18.6
8	Diabetes Mellitus	122	2.0	13.2	2,658	2.6	20.7
9	Nephritis and Nephrosis	122	2.0	13.2	2,361	2.3	18.3
10	Septicemia	103	1.7	11.2	1,828	1.8	14.2

Source: Illinois Department of Public Health (1)



Table 10.2 Top Ten Leading Causes of Death, DuPage County, 2009-2011

	2009 DuPage Deaths	2009 Percent of Total Deaths	2010 DuPage Deaths	2010 Percent of Total Deaths	2011 DuPage Deaths	2011 Percent of Total Deaths
All causes	5,632	100.0	5,643	100.0	5,976	100.0
Cancer	1,482	26.3	1,413	25.0	1,469	24.6
Diseases of the Heart	1,275	22.6	1,260	22.3	1,304	21.8
Cerebrovascular Disease (Stroke)	306	5.4	314	5.6	299	5.0
Chronic Lower Respiratory Disease	290	5.1	282	5.0	292	4.9
Alzheimer's Disease	218	3.9	217	3.8	216	3.6
Accidents	174	3.1	195	3.5	160	2.7
Influenza and Pneumonia	125	2.2	101	1.8	152	2.5
Nephritis and Nephrosis	162	2.9	138	2.4	122	2.0
Diabetes Mellitus	98	1.7	102	1.8	122	2.0
Septicemia	85	1.5	93	1.6	103	1.7

Source: Illinois Department of Public Health (1)

Since 1921, Diseases of the Heart has remained the number one cause of death in the United States. Diseases of the Heart also remains constant as the number one cause of death in Illinois. This is in contrast to DuPage County where, as Table 10.2 shows, the leading cause of death has remained Cancer from 2009 to 2011 (1).



Leading Causes of Death by Gender

Table 10.3: Top Ten Leading Causes of Death by Gender, Counts and Mortality Rate per 100,000, 2011

Females					Males				
Rank	Cause	Count	Percent of Deaths	Mortality Rate	Rank	Cause	Count	Percent of Deaths	Mortality Rate
1	Malignant Neoplasms	763	24.1	162.1	1	Malignant Neoplasms	706	25.2	156.0
2	Heart Disease	640	20.2	136.0	2	Heart Disease	664	23.7	146.7
3	Cerebrovascular Diseases	188	5.9	40.0	3	Chronic Lower Respiratory Diseases	130	4.6	28.7
4	Chronic Lower Respiratory Diseases	162	5.1	34.4	4	Cerebrovascular Diseases	111	4.0	24.5
5	Alzheimer's	151	4.8	32.1	5	Unintentional Injuries (Accidents)	100	3.6	22.1
6	Influenza and Pneumonia	78	2.5	16.6	6	Influenza and Pneumonia	74	2.6	16.3
7	Nephritis, Nephrotic Syndrome, Nephrosis	64	2.0	13.6	7	Diabetes Mellitus	70	2.5	15.5
8	Septicemia	62	2.0	13.2	8	Alzheimer's	65	2.3	14.4
9	Unintentional Injuries (Accidents)	60	1.9	12.8	9	Nephritis, Nephrotic Syndrome, Nephrosis	58	2.1	12.8
10	Diabetes Mellitus	52	1.6	11.1	10	Intentional Self-Harm	49	1.7	10.8

Source: Illinois Department of Public (2)

The 2011 top ten leading causes of death are slightly different between males and females, with septicemia among the top ten leading causes for females and intentional self-harm among the top ten leading causes for males. The ranking of causes varies by gender as well. The top two leading causes of death for males and females are the same, while the third leading cause for females is cerebrovascular disease, followed by chronic lower respiratory diseases. This order is reversed for males. Alzheimer's disease is the 5th leading cause for females, but the 8th leading cause of males. Unintentional Injuries are the 5th leading cause of death for males, but the 9th leading cause for females. This category includes motor vehicle accidents and any other unintentional injury death that occurs as a result of a fall, drowning, firearm or other accidental cause (2).



Leading Causes of Death by Age Groups

Leading causes of death vary considerably by age. Generally, young people are more likely to die from unintentional injuries than chronic conditions, while older adults have a higher prevalence of mortality caused by chronic diseases, such as cancer or heart disease (3). This trend is evident both nationally and in DuPage County (4).

In DuPage County, the leading causes of death in infants were perinatal conditions and congenital anomalies. Perinatal conditions are those conditions existing five months before and one month after birth, such as disorders related to short gestation and low birth weight, complications of placenta or labor and delivery, birth injuries, hypoxia, asphyxia, respiratory distress, etc. (5). Unintentional injuries are the leading cause of death in ages 1 to 24 years, while congenital anomalies are the second leading cause of death in infants to 14 years of age. Congenital anomalies include congenital malformations, deformations, and chromosomal abnormalities. Cancers are the leading cause of death among ages 25 to 64 years, while heart disease is the leading cause among ages 65 and above.

Table 10.4: DuPage County Leading Causes of Death and Counts, by Age Group, 2011

Rank	Cause of Death (Number of Deaths)						
	<1 Year	1 to 4 Years	5 to 14 Years	15 to 24 Years	25 to 44 Years	45 to 64 Years	65 or more Years
1	Perinatal Conditions (35)	Unintentional Injuries (2)	Unintentional Injuries (1)	Unintentional Injuries (14)	Malignant Neoplasms (37)	Malignant Neoplasms (407)	Heart Disease (1089)
2	Congenital Anomalies (12)	Congenital Anomalies (1)	Congenital Anomalies (1)	Intentional Self-Harm (9)	Unintentional Injuries (31)	Heart Disease (193)	Malignant Neoplasms (1015)
3	Septicemia (3)	Cerebrovascular Diseases (1)	Malignant Neoplasms (1)	Malignant Neoplasms (9)	Heart Disease (18)	Unintentional Injuries (44)	Chronic Lower Respiratory Diseases (274)
4	Unintentional Injuries (1)	In situ, benign, or neoplasms of uncertain or unknown behavior (1)		Homicide (4)	Intentional Self-Harm (16)	Intentional Self-Harm (37)	Cerebrovascular Diseases (273)
5	Heart Disease (1)			Heart Disease (3)	Chronic Liver Disease and Cirrhosis (8)	Chronic Liver Disease and Cirrhosis (35)	Alzheimer's (214)

Source: Illinois Department of Public Health (2)



Unintentional Injuries, Death

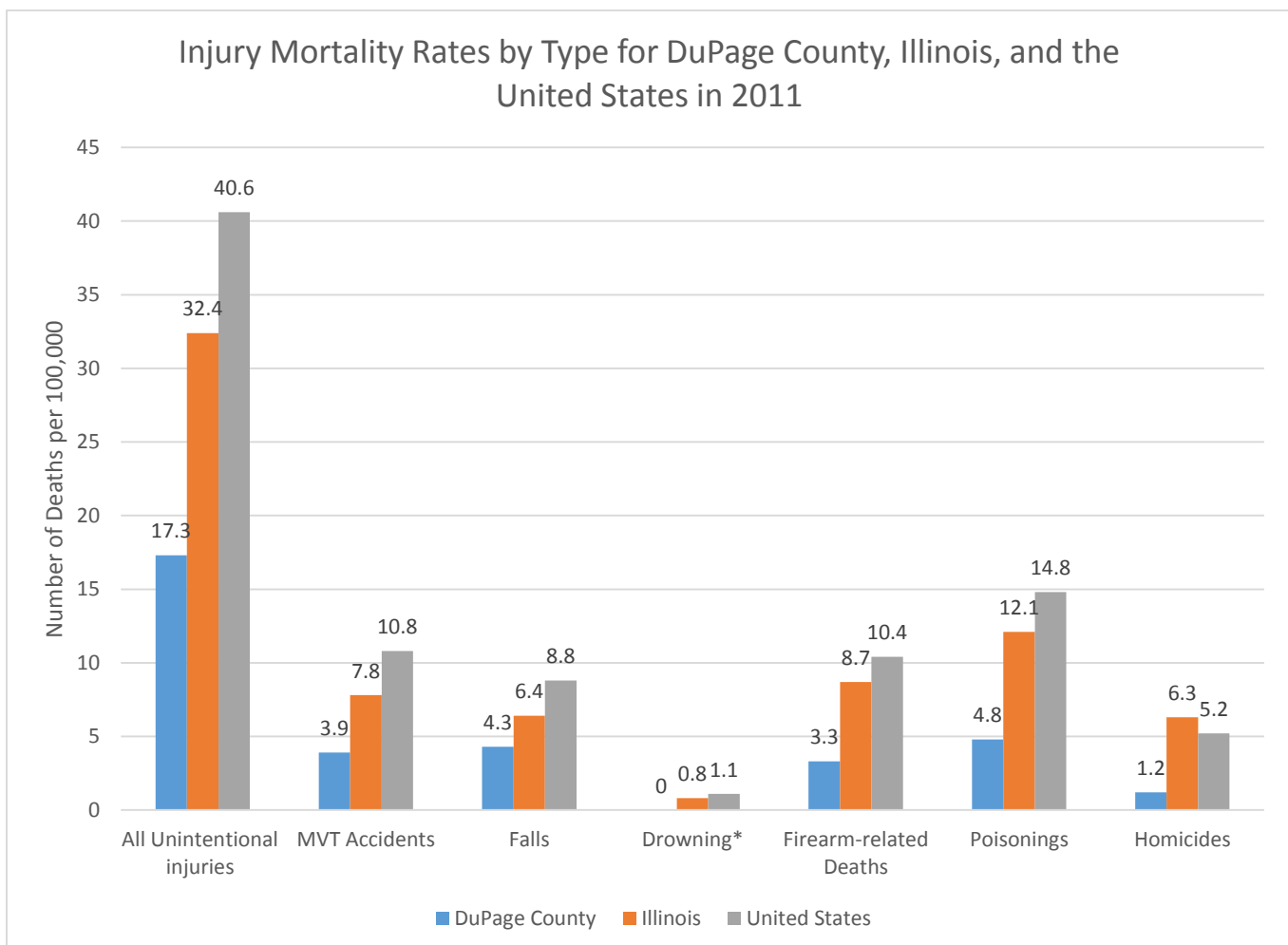
Healthy People 2020 Objective IVP-11: Reduce unintentional injury deaths

National Baseline: 40.0 deaths per 100,000 population in 2007 (age adjusted to the year 2000 standard population)

Target: 36.0 deaths per 100,000 population

Data Source: National Vital Statistics System-Mortality (NVSS-M), CDC/NCHS

Nationally, unintentional injuries are the leading cause of death for individuals aged 1 to 42 years old. Unintentional injuries cause 2.9 million years of potential life lost before age 75. Even when non-fatal, millions of persons are incapacitated by unintentional injuries and can suffer from lifelong disability, chronic pain, and a severe change in lifestyle (6). In 2011, the crude rate of deaths from unintentional injuries in DuPage County was 17.3 per 100,000 population (2). In Illinois, this rate was 32.4, while the national rate was 40.6 (7).



Graph 10.1

*Rates for less than 5 cases are not statistically reliable and have been omitted.

Source: Illinois Department of Public (2) U.S. Department of Health and Human Services (7)



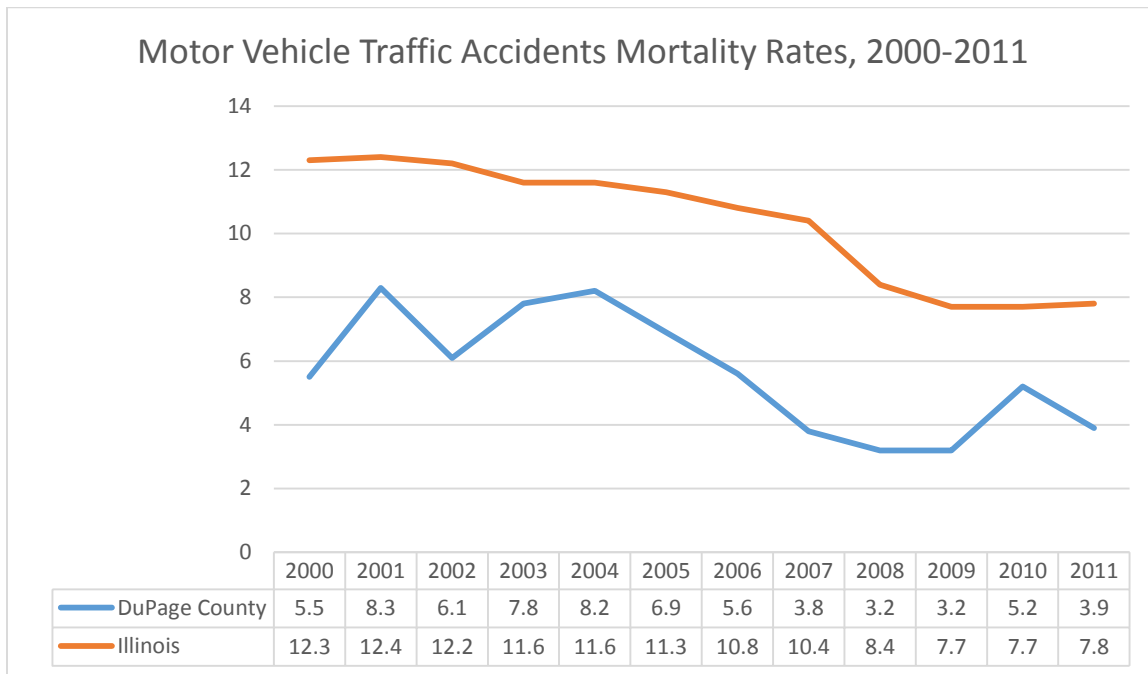
Motor Vehicle Deaths

Healthy People 2020 Objective IVP-13.1: Reduce motor vehicle crash-related deaths per 100,000 population

National Baseline: 13.8 deaths per 100,000 population in 2007 (age adjusted to the year 2000 standard population)

Target: 12.4 deaths per 100,000 population

Data Source: National Vital Statistics System-Mortality (NVSS-M), CDC/NCHS



Graph 10.2

Source: Illinois Department of Public (2), U.S. Department of Health and Human Services (7)

The number of DuPage County motor vehicle traffic (MVT) deaths fluctuated prior to 2004, but has declined overall since then, with a small increase in 2010 (2). In Illinois, the MVT mortality rates have decreased significantly in the past 10 years. Both the DuPage County and Illinois MVT death rates remain below the national rate of 10.8 per 100,000 (7).

Falls

Healthy People 2020 Objective IVP-23.1: Prevent an increase in fall-related deaths among all persons

National Baseline: 7.2 deaths per 100,000 population in 2007 (age adjusted to the year 2000 standard population)

Target: 7.2 deaths per 100,000 population

Data Source: National Vital Statistics System-Mortality (NVSS-M), CDC/NCHS

When looking at all unintentional injury mortality rates, falls rank as the second leading cause of these deaths overall in DuPage (2), and the leading cause of injury death nationally for those aged 65 years and older (8). Falls can increase the



likelihood of early death and can result in injuries ranging from moderate to severe, such as hip fractures and head traumas (9). In 2012, the direct medical costs of falls were \$30 billion (9).

In 2011, the Illinois mortality rate due to unintentional falls was 6.4 deaths per 100,000 population, which is below the national rate of 8.8 deaths per 100,000 (7). Among Illinois adults 65 and older in 2009, the rate of deaths due to falls was 40.5 deaths per 100,000 (7). In DuPage, the mortality rate of 4.3 deaths per 100,000 population due to falls was below the rates for Illinois and the nation (2).

Drowning

Healthy People 2020 Objective IVP-25: Reduce drowning deaths

National Baseline: 1.2 deaths per 100,000 population in 2007 (age adjusted to the year 2000 standard population)

Target: 1.1 deaths per 100,000 population

Source: National Vital Statistics System-Mortality (NVSS-M), CDC/NCHS; Population Estimates, Census

From 2005-2009, unintentional drowning accounted for an average of 3,533 deaths in the United States. About 10 people die from unintentional drowning daily, and of these, two are aged 14 or younger. Moreover, for every child who dies from drowning, another five receive emergency department care for nonfatal drowning injuries. Children ages 1 to 4 have the highest drowning rates. Drowning injuries can cause severe brain damage that can result in long-term issues such as memory problems, learning disabilities, and permanent loss of basic functioning (10).

Nationally, the rate of unintentional deaths from drowning was 1.1 per 100,000 population in 2011, while the rate in Illinois was 0.8 deaths per 100,000 (7). In DuPage County in 2011, there were less than 5 deaths from drowning.

Firearm-related Injuries / Deaths

Healthy People 2020 Objective IVP-30: Reduce firearm-related deaths

National Baseline: 10.3 firearm-related deaths per 100,000 population in 2007 (age adjusted to year 2000 standard population)

Target: 9.3 deaths per 100,000 population

Data Source: National Vital Statistics System-Mortality (NVSS-M), CDC/NCHS

The rates of firearm related deaths in the United States, including deaths from homicides, suicides, and unintentional deaths, are far higher than deaths in 23 other industrialized countries. When compared with these nations, the rates of firearm homicides are 19.5 times higher in the U.S., firearm suicides are 5.8 times higher, and unintentional firearm deaths are 5.2 times higher (11).

Nationally, the rate of firearm deaths in 2011 was 10.4 per 100,000, while the Illinois rate was 8.7 per 100,000 (7). In DuPage County, the rate was 3.3 per 100,000 (2).

Poisonings

In 2011, the rate of accidental poisoning deaths in DuPage County was 4.77 deaths per 100,000 (2). This includes poisoning from prescription and illegal drugs, as well as exposure to noxious substances such as herbicides or carbon



monoxide. In the same year, the mortality rate in Illinois from unintentional poisoning was 9.97 per 100,000 population, while the national rate was 11.64 per 100,000 population (7).

Homicides

Healthy People 2020 Objective IVP-29: Reduce homicides

National Baseline: 6.1 homicides per 100,000 population - 2007 (age adjusted to the year 2000 standard population)

Target: 5.5 homicides per 100,000 population

Data Source: National Vital Statistics System-Mortality (NVSS-M), CDC/NCHS; Population Estimates, Census

In 2011, the rate of homicides in the United States was 5.2 deaths per 100,000 (7). In 2010, homicide was the second leading cause of death among young people aged 15 to 24 years old (12). Among victims aged 10 to 24 years old, 86 percent (4,171) of deaths were males, while 14 percent (657) were females (12). Among this age group, 82.8 percent were killed by a firearm. Homicide is the leading cause of death for African Americans aged 10 to 24 years old nationally and the second leading cause for Hispanics (12).

The Healthy People 2020 target for homicide rates is 5.5 deaths per 100,000 population (7). In 2011, the DuPage County homicide rate was 1.2 deaths per 100,000 (2), which is below the Illinois rate of 6.3 homicides per 100,000 (7).

Child Abuse

Healthy People 2020 Objective IVP-38: Reduce nonfatal child maltreatment

National Baseline: 9.4 victims of nonfatal child maltreatment per 1,000 children under age 18 years (2008)

Target: 8.5 maltreatment victims per 1,000 children

Data Sources: National Child Abuse and Neglect Data System (NCANDS), ACF

Any type of abuse or neglect that occurs among children under the age of 18 is considered child maltreatment. Inclusive in this definition is both acts of omission, typically neglect, as well as acts of commission, such as physical, sexual, or emotional abuse (13). Statistics on rates of child maltreatment are often misleading and laws defining child abuse and neglect vary among states, making it difficult to compile and compare U. S. statistics. There are minimum standards that states must incorporate into their statutory definitions of child abuse and neglect, and these are defined in the Child Abuse Prevention and Treatment Act (CAPTA) (13). As set forth by CAPTA, "any recent act or failure to act on the part of a parent or caretaker which results in death, serious physical or emotional harm, sexual abuse or exploitation; or act or failure to act, which presents an imminent risk of serious harm," is considered child abuse or neglect (13). However, child maltreatment rates depend on how the definition of maltreatment is operationalized by individual states, and the lack of consistent information limits the ability of the public health community to respond.

Child abuse is a significant social and public health problem facing our nation, and research has discovered a number of developmental problems suffered by child victims. It has been found that children who suffer maltreatment are more likely to have academic problems, suffer from anxiety, conduct disorder, childhood aggression, delinquency, posttraumatic stress disorder, and youth violence, among others (14). What's more, children who are abused or neglected are often at a higher risk of suffering from adverse health problems as adults, including alcoholism, depression, drug abuse, eating disorders, obesity, sexual promiscuity, suicide, as well as certain chronic diseases (14).



In DuPage County, the number of children under 18 years that experienced abuse or neglect in 2012 was 3.8 cases per 1,000 children (15). This is below the Healthy People 2020 target of 8.5 victims per 1,000 children, the Illinois rate of 9.0 victims per 1,000, and the national rate of 9.2 per 1,000 children (13).

Domestic Violence

According to the Illinois Domestic Violence Act (IDVA), domestic violence is defined as “physical abuse, harassment, intimidations of a dependent, interference with personal liberty or willful deprivation” (16). Domestic violence occurs between family or household members, and can include spouses, parents, children, stepchildren, other family relatives, people who share a home, and people who share a child (17). More than 1 in 4 women and more than 1 in 10 men have experienced contact sexual violence, physical violence, or stalking by an intimate partner (18). Victims of intimate partner violence often have low self-esteem, suffer from anger and stress that can lead to eating disorders and depression, and some victims may even contemplate suicide (19). What’s more, intimate partner violence has been linked to a number of harmful health behaviors, including smoking, alcohol abuse, drug use, and risky sexual activity (19).

In an effort to curb domestic violence, Orders of Protection can be authorized, and in 2012, 202.6 per 100,000 population Orders of Protection were obtained in DuPage County. In 2011, the rate of domestic offenses reported to the police was 304.9 per 100,000 people in DuPage County (17).



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Section 11: Infectious Diseases

Infectious diseases are a leading cause of illness throughout the world. The rate at which these diseases evolve and adapt to changing populations, environments, practices, and technologies creates ongoing threats to health. Strong public health fundamentals at the local, state, and national levels—including disease surveillance, laboratory detection, and epidemiologic investigation—are the bedrock of U.S. capacity to protect the public from infectious diseases and to save lives during outbreaks and other unusual health events. These three core activities create and sustain a flexible, multi-purpose U.S. public health system that reduces endemic diseases and is ready and able to respond to new threats (1).

Key Findings

- ❖ DuPage County experienced an increase in the number of reported cases of pertussis in 2011.
- ❖ In 2013, an estimated 44.9 percent of DuPage County adults received a flu shot within the preceding 12 months and an estimated 30.2 percent had ever received a pneumonia vaccination, both well below Healthy People 2020 targets.
- ❖ Though infection rates for chlamydia are lower for DuPage County than for Illinois or the United States, there was a 21.2 percent increase in chlamydia rates and a 14.9 percent increase in gonorrhea rates between 2009 and 2013.
- ❖ The rate of tuberculosis cases per 100,000 in DuPage County increased above the Illinois rate in 2012 and above the Illinois and United States rates in 2013.

Vaccine-Preventable Diseases

Infectious diseases remain major causes of illness, disability, and death. Many of these are preventable through the appropriate and timely use of readily available vaccines. Vaccines protect more than the vaccinated individuals, they protect the entire community. By raising immunity levels in the majority of the population, the risk posed by unvaccinated individuals is greatly reduced.



Healthy People 2020 Objective IID-1: Reduce, eliminate, or maintain elimination of cases of vaccine-preventable diseases.

National Baselines and Targets:

Objective	Reduction in Vaccine-Preventable Diseases	2008 Baseline	2020 Target
		Number of Cases	
IID 1.2	<i>Haemophilus influenza</i> type B (children < 5 years)	0.30 per 100,000	0.27 per 100,000
IID 1.3	Hepatitis B (persons aged 2 to 18 years)	0.1 per 100,000	0 per 100,000
IID 1.4	Measles (all ages)	115	30
IID 1.5	Mumps (all ages)	421	500
IID 1.7	Pertussis (adolescents 11 to 18 years)	3,995	2,000
IID 1.8	Polio (all ages)	0	0
IID 1.9	Rubella (all ages)	10	10
IID 1.10	Varicella (Persons under 18)	586,000	100,000

Data source: Active Bacterial Core Surveillance, CDC/NCIRD, Population Estimates/Census; National Notifiable Diseases Surveillance System, CDC/PHSIPO



Table 11.1 Vaccine Preventable Diseases, Number of cases in DuPage County

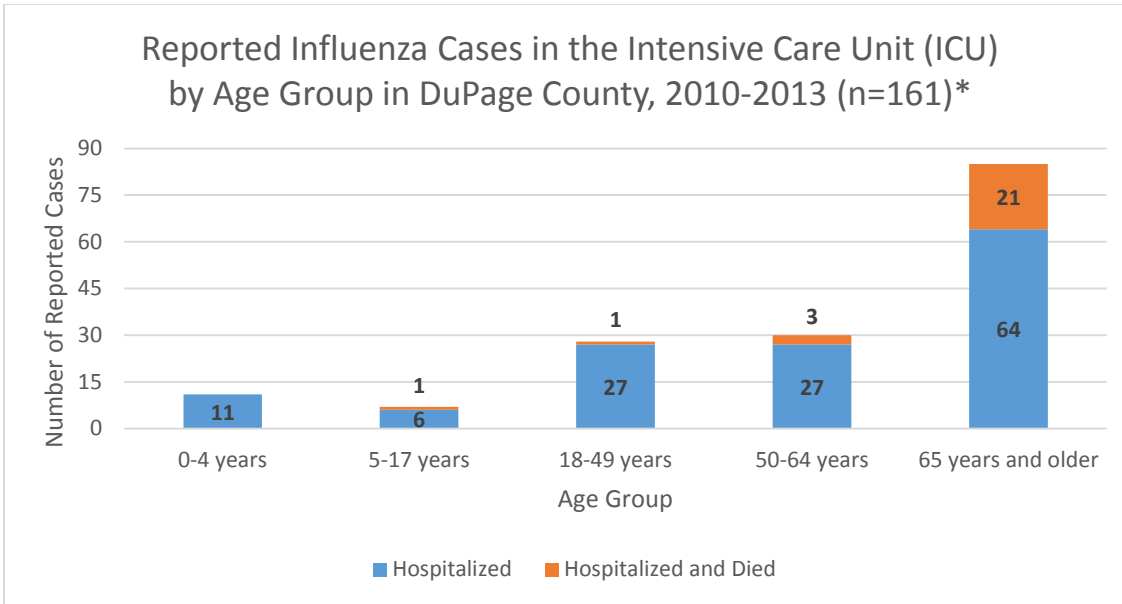
Disease	2009	2010	2011	2012	2013
Chickenpox (Varicella)	146	95	82	93	78
<i>Haemophilus influenza</i> , invasive	11	7	15	11	10
Hepatitis A	6	3	8	8	4
Hepatitis B	8	4	1	5	3
Hepatitis B (Carriers)	127	108	113	101	110
Measles	1	0	0	0	0
Mumps	2	2	3	1	0
<i>N. meningitidis</i> , invasive	6	1	2	0	0
Pertussis (whooping cough)	26	92	268	195	43
<i>Streptococcus pneumonia</i> , invasive (<5 yrs old)	8	8	13	5	4
Diphtheria	0	0	0	0	0
Polio	0	0	0	0	0
Rubella	0	0	0	0	0
Tetanus	0	0	0	0	0
Influenza, deaths in <18 yrs old	1	0	0	0	1
Influenza, ICU admissions	NR	3	24	64	78

NR = Not reported

Source: Illinois Department of Public Health (2)

Influenza

Influenza is a disease caused by influenza viruses, and can range from mild to severe illness, hospitalization, and death. These viruses are spread through droplets made when someone who is infected sneezes or coughs that then land in mouths or noses of others (3). Symptoms of the flu include fever, cough, sore throat, nasal congestion, body aches, headaches, and fatigue (3). Flu vaccines are developed each season, and are recommended by the Centers for Disease Control and Prevention for everyone six months of age and older (3).



Graph 11.1

*Reports do not include deceased cases not admitted to the ICU.

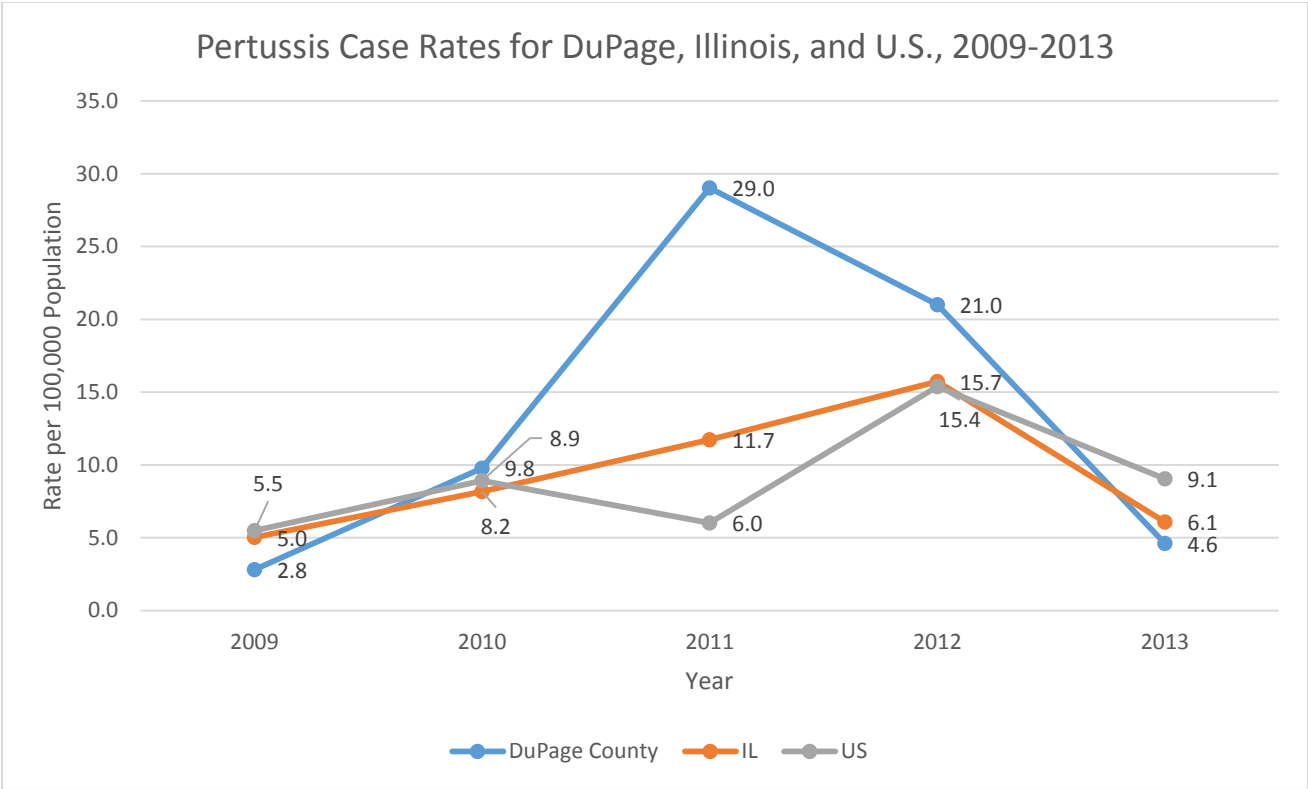
Source: Illinois Department of Public Health (2)

The graph above illustrates the number of influenza cases in DuPage County between 2010 and 2013 that resulted in hospitalization in the Intensive Care Unit (ICU) or hospitalization in the ICU and death by age group. The majority of hospitalizations and deaths occurred in the 65 years and older age group, one of the populations most vulnerable to complications from influenza (2,3).

Pertussis

Pertussis (whooping cough) is a highly contagious, vaccine-preventable respiratory disease caused by a bacteria that spreads through direct contact with discharges from respiratory mucous membranes of infected persons (4). Symptoms of pertussis usually develop within 5-10 days of being exposed, and symptoms can last many weeks (4). Symptoms of severe coughing or whooping can last many weeks and commonly presents in children. Pertussis is endemic in the United States where epidemics occur every 3-5 years (4). The most recent epidemic occurred in 2012 (48,277 reported cases) (4). Major complications most frequently occur in infants and young children, in whom the disease can be fatal (4). In 2013, 13 deaths were reported in the United States, 12 of which were infants (4). Adolescents and adults become susceptible when immunity wanes, but can receive a booster shot of the combination vaccine (called Tdap) (4).

Graph 11.2 shows recent trends in case rates for DuPage County, Illinois, and the United States, including an increase in the number of reported cases of pertussis in 2011 (2). Some factors that may have contributed to the increase include increased awareness about the disease, increased access to testing, and decreased immunity (5). Boosters of the vaccine are recommended to maintain immunity (5).



Graph 11.2
Source: Illinois Department of Public Health (2)(6), U.S. Department of Health and Human Services (7)



Vaccination Coverage

Vaccination Coverage among Adults

Healthy People 2020 Objectives IID-12,13: Increase the proportion of adults who are vaccinated annually against influenza and ever vaccinated against pneumococcal disease.

National Baselines and Targets:

Objective	Increase in Adults Vaccinated	2008 Baseline (unless noted)	2020 Target
		<i>Percent</i>	
IID 12.12	Percentage of adults aged 18 and older vaccinated annually against seasonal influenza	38.1*	70.0
IID 13.1	Percentage of noninstitutionalized aged 65 years and older vaccinated against pneumococcal disease	60.0	90.0
IID 13.2	Percentage of noninstitutionalized high-risk adults aged 18 to 64 years who are vaccinated against pneumococcal disease	16.6	60.0

*2010-11 influenza season

Data source: National Health Interview Survey, CDC/NCHS

Immunizations against influenza and pneumococcal disease can prevent serious illness and death. In 2011, influenza and pneumonia deaths together constituted the seventh leading cause of death in DuPage County and the 8th leading cause of death in Illinois (8). In 2013, an estimated 44.9 percent of DuPage County adults received a flu shot within the preceding 12 months and an estimated 30.2 percent had ever received a pneumonia vaccination (9). Both influenza and pneumonia vaccination rates are below the HP 2020 targets and indicate areas for improvement and opportunity.



Vaccination Coverage among Children

Healthy People 2020 Objective IID-10: Maintain vaccination coverage levels for children in kindergarten

National Baselines and Targets:

Objective	Maintain Kindergarten Vaccination Levels	2009-10 Baseline	2020 Target
<i>Percent</i>			
IID 10.1	4 doses of diphtheria-tetanus-acellular pertussis (DTaP) vaccine	97.2	95.0
IID 10.2	2 doses of measles-mumps-rubella (MMR) vaccine	95.0	95.0
IID 10.3	3 doses of polio vaccine	96.2	95.0
IID 10.4	3 doses of hepatitis B vaccine	97.0	95.0
IID 10.5	2 doses of varicella vaccine	91.3	95.0

Data source: Annual School Assessment Reports, CDC/NCIRD

Healthy People 2020 Objective IID-11: Increase routine vaccination coverage levels for adolescents

National Baselines and Targets:

Objective	Increase vaccination coverage in 13-15 year olds	2008 Baseline	2020 Target
<i>Percent</i>			
IID 11.1	1 dose of tetanus-diphtheria-acellular pertussis (Tdap) booster vaccine	46.7	80.0
IID 11.2	2 doses of varicella vaccine (excluding children who have had varicella)	36.7	90.0
IID 11.3	1 dose meningococcal conjugate vaccine	43.9	80.0

Data source: National Immunization Survey – Teen, CDC/NCIRD and CDC/NCHS

The Illinois State Board of Education publishes vaccination compliance data annually for school age children in both public and private schools (10). Table 11.2 below shows vaccination rates for school-age students in DuPage County and Illinois for the 2013-14 school year. These data do not include children that are home schooled.



Table 11.2 Vaccination Rates for School-Age Students, DuPage County and Illinois 2013-14 School Year

Vaccine	DuPage County	Illinois
Polio	98.47	98.37
Diphtheria, Pertussis, Tetanus (DTP/DTap/Td)	98.51	98.21
Measles	98.38	98.32
Rubella	98.59	98.62
Mumps	98.59	98.62
Hepatitis B	N/A†	98.66*
<i>Haemophilus influenzae</i> type b	N/A†	96.96**
Varicella/Chickenpox	N/A†	98.55***
Total Students	177,842	2,269,921

*PreK and Grades 5-12 **PreK ***PreK-Grade 11

† State data has been corrected by filtering out unnecessary reporting by grades. DuPage data does not reflect grade-specific requirements of immunizations and cannot be calculated based on the available data.

Source: Illinois State Board of Education (10)

Sexually Transmitted Diseases

Sexually transmitted diseases (STDs) and sexually transmitted infections (STIs) refer to diseases and infections caused by pathogens transmitted primarily through sexual contact. These infections can be caused by bacteria, viruses, or parasites that can be transmitted through bodily fluids such as vaginal fluid, semen, or blood. Someone infected with one of these pathogens may not show symptoms. The most commonly reported STD in the United States is chlamydia (11).

Chlamydia

Chlamydia is caused by the bacterium *Chlamydia trachomatis*. Most people infected with chlamydia do not show symptoms, but can develop serious complications, such as pelvic inflammatory disease, ectopic pregnancy, and infertility, if the infection goes untreated. Chlamydia is most common among people under age 25, and yearly screening is recommended for all sexually active women in this age group (11).



Healthy People 2020 Objective STD-1: Reduce the proportion of adolescents and young adults with *Chlamydia trachomatis* infections.

National Baselines and Targets:

Objective	Reduction in <i>Chlamydia trachomatis</i> infections	2008 Baseline	2020 Target
<i>Percent</i>			
STD-1.1.	Females aged 15 to 24 years with <i>Chlamydia trachomatis</i> infections attending family planning clinics	7.4	6.7
STD-1.2.	Females aged 24 years and under with <i>Chlamydia trachomatis</i> infections enrolled in a National Job Training Program	12.8	11.5
STD-1.3.	Males aged 24 years and under enrolled in a National Job Training Program with <i>Chlamydia trachomatis</i> infections	7.0	6.3

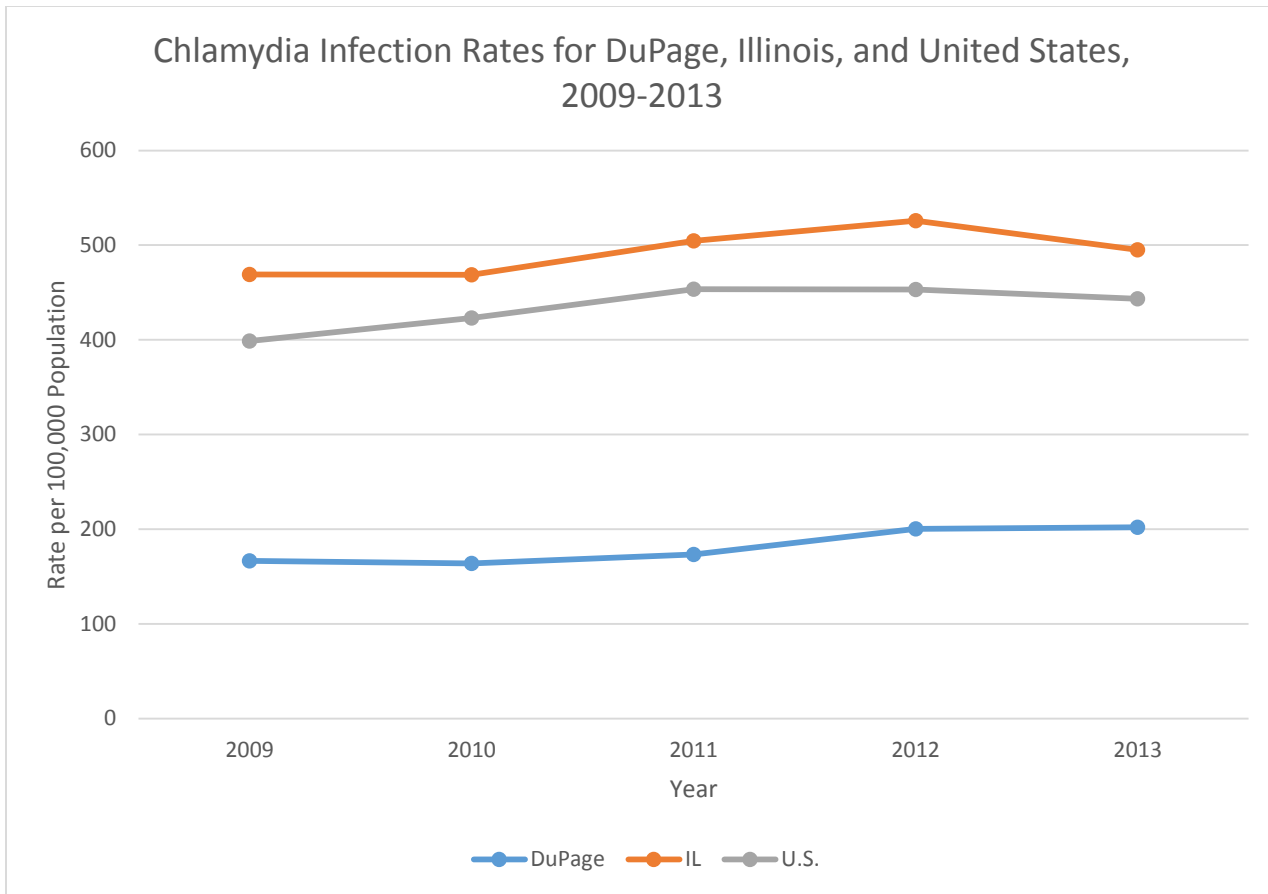
Data source: STD Surveillance System (STDSS), CDC/NCHHSTP

Table 11.3: *Chlamydia trachomatis* Infection Cases and Rate per 100,000, 2009-2013

Year	DuPage County		Illinois	
	Cases	Rate	Cases	Rate
2009	1,555	166.7	60,542	468.9
2010	1,542	163.9	60,672	468.7
2011	1,599	173.2	64,939	504.6
2012	1,861	200.5	67,701	525.8
2013	1,883	202.0	63,797	495.2

Source: Illinois Department of Public Health (2,12)

Though infection rates for chlamydia are lower for DuPage County than for Illinois or the United States, there was an overall increase in cases between 2009 and 2013 (2).



Graph 11.3

Source: Illinois Department of Public Health (2)(12), U.S. Department of Health and Human Services (13)

Gonorrhea

Gonorrhea is a common sexually transmitted infection (STI) caused by *Neisseria gonorrhoeae*. It is often asymptomatic in both men and women. The Centers for Disease Control and Prevention estimates that half of new gonorrheal infections in the United States are not detected or reported. If untreated, gonorrhea can lead to pelvic inflammatory disease in women, epididymitis in men, and infertility in both men and women. Like chlamydia, gonorrhea is more common in sexually active young adults and teenagers (11).



Healthy People 2020 Objective STD-6: Reduce gonorrhea rates

National Baselines and Targets:

Objective	Reduction in gonorrhea rates	2008 Baseline	2020 Target
		<i>Rate per 100,000</i>	
STD 6.1	Reduce gonorrhea rates among females aged 15 to 44 years	279.9 new cases	251.9 new cases
STD 6.2	Reduce gonorrhea rates among males aged 15 to 44 years	216.5 new cases	194.8 new cases

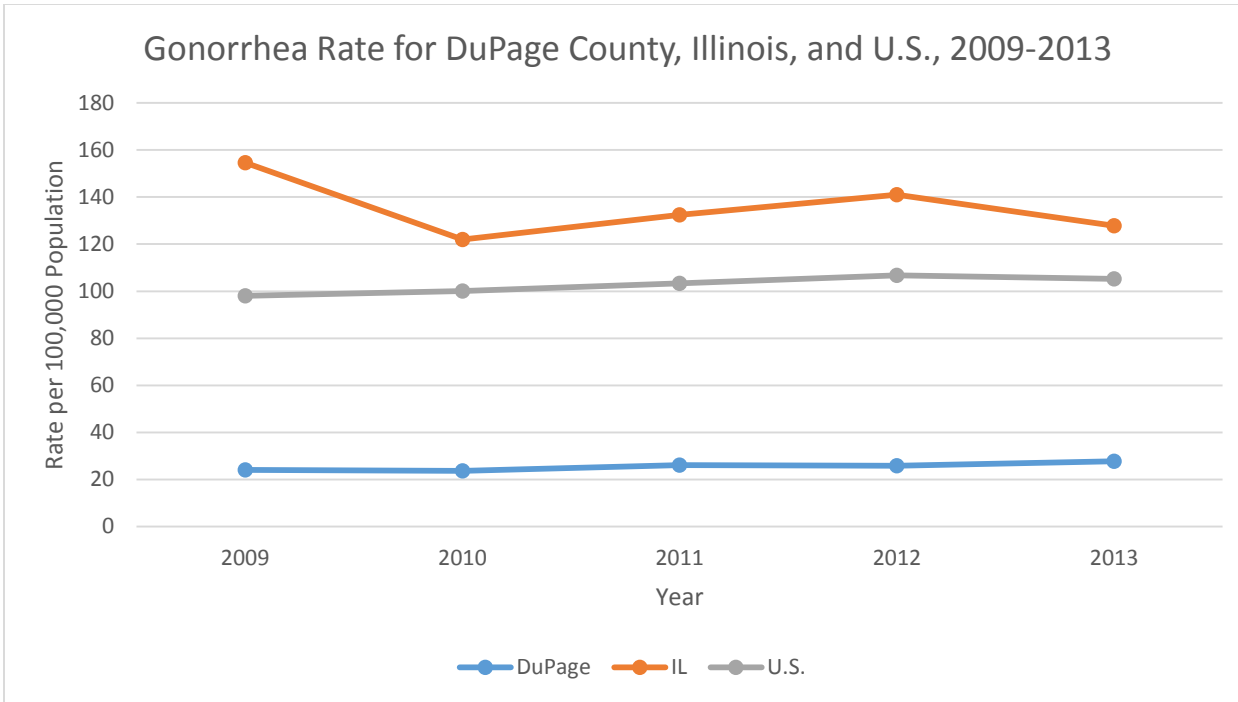
Data source: STD Surveillance System (STDSS), CDC/NCHHSTP; Bridged-Race Population Estimates for Census 2000 and 2010, CDC/NCHS and Census

Table 11.4: Gonorrhea Infection Cases and Rate per 100,000, 2009-2013

Year	DuPage		Illinois	
	Cases	Rate	Cases	Rate
2009	225	24.1	19,962	154.6
2010	223	23.7	15,777	121.9
2011	241	26.1	17,037	132.4
2012	239	25.8	18,149	141.0
2013	258	27.7	16,464	127.8

Source: Illinois Department of Public Health (2)(12)

As seen in Graph 11.4 below, case rates of gonorrhea in DuPage County remained relatively constant between 2009 and 2013. These rates were well below those for Illinois and the United States.



Graph 11.4

Source: Illinois Department of Public Health (2)(12), U.S. Department of Health and Human Services (13)

Syphilis

Syphilis is a sexually transmitted disease (STD) caused by a bacterium called *Treponema pallidum*. Syphilis symptoms occur in stages: primary stage, secondary stage, and latent and late stages, and the first symptom consists of a sore called a chancre (11). According to the CDC, men who have sex with men accounted for 75% of all primary and secondary syphilis cases in 2013 (11). Black Americans are also disproportionately affected (11).

Healthy People 2020 Objective STD-7: Reduce sustained domestic transmission of primary and secondary syphilis National Baselines and Targets:

Objective	Reduction in syphilis cases	2008 Baseline	2020 Target
<i>Rate per 100,000</i>			
STD-7.1.	Reduce domestic transmission of primary and secondary syphilis among females	1.4 new cases	1.3 new cases
STD-7.2.	Reduce domestic transmission of primary and secondary syphilis among males	7.4 new cases	6.7 new cases

Data source: STD Surveillance System (STDSS), CDC/NCHHSTP; Bridged-Race Population Estimates for Census 2000 and 2010, CDC/NCHS and Census

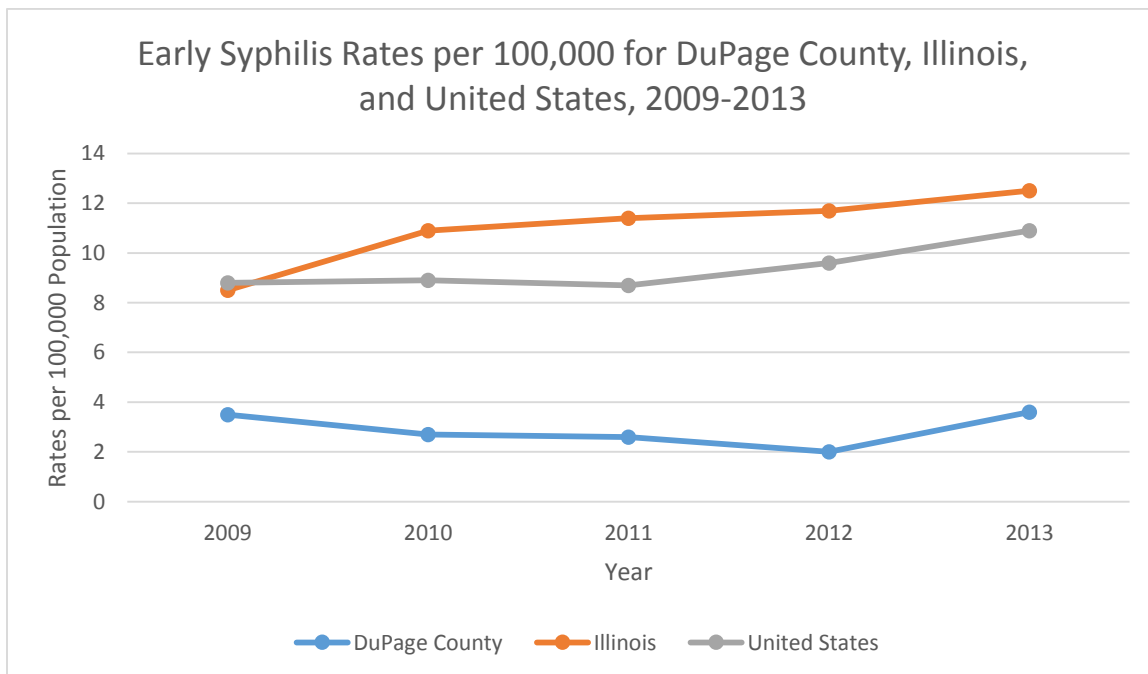


Table 11.5: Syphilis Infection Cases and Rate per 100,000, 2009-2013

Year	Early Syphilis (Primary, Secondary, and Early Latent Syphilis) Number of Reported Cases (Rates per 100,000)		
	DuPage County	Illinois	United States
2009	33 (3.5)	1,094 (8.5)	27,063 (8.8)
2010	25 (2.7)	1,410 (10.9)	27,378 (8.9)
2011	24 (2.6)	1,462 (11.4)	27,106 (8.7)
2012	19 (2.0)	1,500 (11.7)	30,170 (9.6)
2013	34 (3.6)	1,607 (12.5)	34,304 (10.9)

Source: Illinois Department of Public Health (2)(12), U.S. Department of Health and Human Services (13)

Rates of early syphilis, which includes primary, secondary, and early latent syphilis, are shown for DuPage County, Illinois, and the United States in Table 11.5 and Graph 11.5. DuPage County rates of early syphilis were relatively stable between 2009 and 2013, and, as seen with rates of chlamydia and gonorrhea, are below case rates for Illinois and the United States.



Graph 11.5

Source: Illinois Department of Public Health (2)(12), U.S. Department of Health and Human Services (13)



HIV/AIDS

The Centers for Disease Control and Prevention estimates that there are approximately 50,000 new HIV infections each year (14). Human immunodeficiency virus (HIV) is spread through certain body fluids such as blood, semen, vaginal fluids, and breast milk, and is often transmitted person to person by having sex or sharing injection drug equipment, such as needles (14). Of the 1.2 million people estimated to be living with HIV in the United States in 2011, 14 percent did not know they were infected (13). HIV destroys cells in the immune system, and can lead to acquired immunodeficiency syndrome (AIDS) (14). Table 11.6 shows the number of new HIV infections reported between 2009 and 2013, as well as new diagnoses of Stage 3 HIV infection (AIDS). In addition, the table shows deaths of people with a diagnosis of HIV or AIDS.

Healthy People 2020 Objective HIV-12: Reduce deaths from HIV infection.

National Baseline: 3.7 deaths due to HIV infection per 100,000 population in 2007

Target: 3.3 deaths per 100,000 population

Data Sources: National Vital Statistics System – Mortality (NVSS-M), CDC/NCHS

Table 11.6: DuPage County HIV, AIDS, and Mortality* 2009-2013

Year	HIV	AIDS	Mortality of HIV	Mortality of AIDS
2009	48	17	10	10
2010	44	31	9	9
2011	35	13	10	7
2012	33	16	5	<5
2013	47	24	<5	0

*Deaths of persons with a diagnosis of HIV infection or AIDS may be due to any cause (i.e., the death may or may not be related to HIV infection.

Source: Illinois Department of Public Health (15)

Selected Communicable Diseases

Tuberculosis

Healthy People 2020 Objective IID-29: Reduce tuberculosis (TB)

National Baseline: 4.8 confirmed new cases of tuberculosis per 100,000 population in 2005

Target: 1.0 new case per 100,000 population

Data Sources: National TB Surveillance System (NTBSS), CDC/NCHHSTP, Population Estimates, Census

Tuberculosis (TB), spread through the air by the bacterium *Mycobacterium tuberculosis*, is a disease that typically affects the lungs, but can affect other parts of the body (16). A person with a latent TB infection does not have any symptoms and is not infectious (16). However, this latent infection can become active TB disease which is infectious, and those with weakened immune systems are at higher risk of the infection becoming active (16). Table 11.7 shows the number of cases of tuberculosis in DuPage County, Illinois and the United States between 2009 and 2013. As illustrated in Graph 11.6 below, the rate of tuberculosis per 100,000 in DuPage County increased above the Illinois rate in 2012 and above

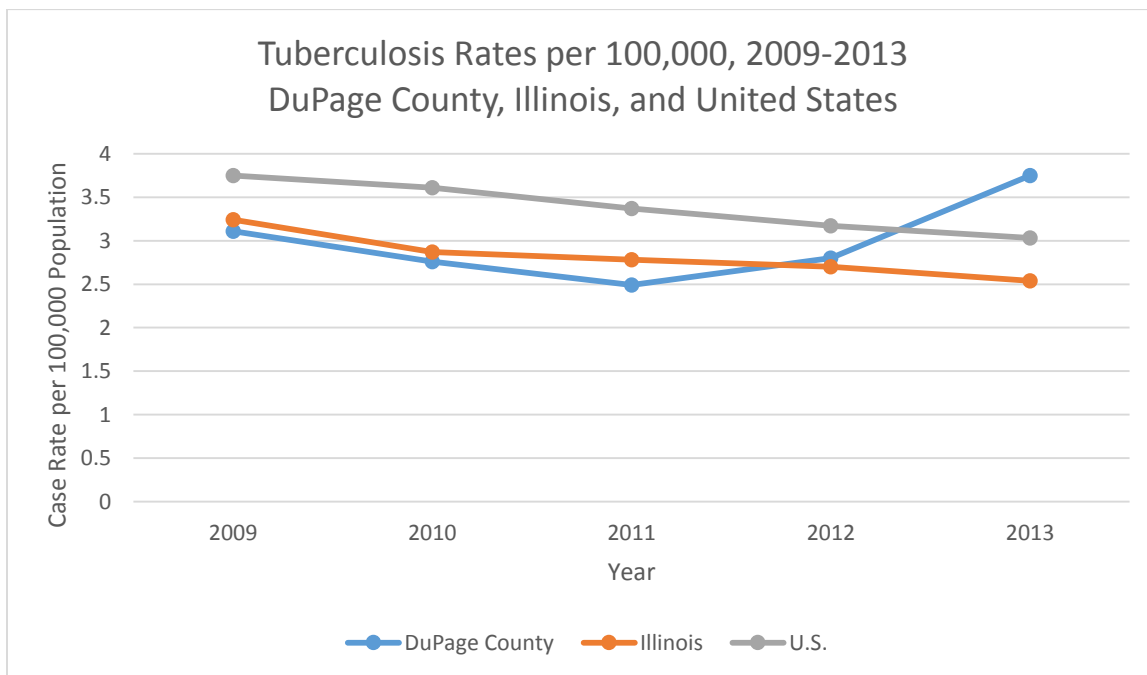


the Illinois and United States rates in 2013. Rates of tuberculosis in Illinois and the United States have decreased every year during that 5 year period, but increased in DuPage County during the last two years.

Table 11.7: Tuberculosis Cases and Rates per 100,000 for DuPage County, Illinois, United States 2009-2013

Region	2009	2010	2011	2012	2013
	Cases (Rates)	Cases (Rates)	Cases (Rates)	Cases (Rates)	Cases (Rates)
DuPage County	29 (3.11)	26 (2.76)	23 (2.49)	26 (2.8)	35 (3.75)
Illinois	418 (3.24)	372 (2.87)	358 (2.78)	347 (2.7)	327 (2.54)
United States	11,519 (3.75)	11,164 (3.61)	10,509 (3.37)	9,940 (3.17)	9,582 (3.03)

Source: Illinois Department of Public Health (6)(17), U.S. Department of Health and Human Services(18)



Graph 11.6

Source: Illinois Department of Public Health (6)(17), U.S. Department of Health and Human Services (18)

Rabies

Rabies is a disease caused by a virus that infects the central nervous system, usually transmitted through the bite of a rabid animal (19). Raccoons, skunks, foxes, coyotes, and bats can serve as reservoirs of the disease (19). Vaccinating pets and limiting their exposure to wild animals is important in preventing rabies in both pets and humans (19). Rabies can be prevented in humans through prompt medical care prior to development of symptoms (19). Table 11.8 shows the number of bats that tested positive for rabies in DuPage County and Illinois between 2009 and 2013, as well as the number of potential human exposure incidents in DuPage County.



Table 11.8: Number of Positive Bats and Reported Potential Human Exposure Incidents, DuPage County and Illinois, 2009-2013

Year	DuPage County		Illinois
	Positive Bats	Potential Human Exposure Incidents	Positive Bats
2009	8	15	83
2010	3	54	117
2011	3	30	50
2012	4	43	63
2013	3	44	55

Source: Illinois Department of Public Health (2)(20)

Other Communicable Diseases

Other communicable diseases continue to occur in our population. As seen in Table 11.9, unexpected outbreaks of these illnesses, or sentinel events, have occurred over the past few years. For example, there were 181 cases of influenza A in 2009, during the nationwide outbreak of H1N1 influenza. In early 2010, a shigellosis outbreak at a sandwich shop led to 135 cases, and there were 277 reported that year overall. There was an increase in West Nile virus cases in 2012, though due to the complex factors that contribute to West Nile virus outbreaks, including weather, West Nile virus activity in birds and mosquitoes, and human behavior, it is unclear what caused this increase in activity (21).

Table 11.9: Number of Reported Cases¹ of Other Communicable Diseases in DuPage County, 2009-2013

Disease	2009	2010	2011	2012	2013
Anaplasmosis ²	0	0	3	2	0
Anthrax	0	0	0	0	0
Botulism, foodborne	0	0	0	0	0
Botulism, other	0	0	0	0	0
California encephalitis ³	0	0	0	0	0
Cholera	0	0	0	0	0
Creutzfeldt-Jakob Disease	0	1	3	1	0
Cryptosporidiosis	5	5	5	2	7
Cyclosporiasis	1	0	0	0	4
Dengue fever ³	4	4	1	1	3
Ehrlichiosis ²	0	0	0	0	0
Enteric <i>E. coli</i> infections ⁴	12	19	22	19	54
Glomerulonephritis ⁵	0	0	0	0	0
Hantavirus pulmonary syndrome	0	0	0	0	0
Hemolytic uremic syndrome	0	0	1	1	0
Hepatitis C (cases & carriers)	213	187	189	171	182
Hepatitis D	0	0	1	0	0

Table 11.9: Number of Reported Cases¹ of Other Communicable Diseases in DuPage County, 2009-2013 (continued)



Disease	2009	2010	2011	2012	2013
Histoplasmosis	2	2	1	2	1
Influenza A, novel virus	181	11	0	0	0
Legionellosis	13	11	14	25	39
Leprosy	0	0	0	0	0
Leptospirosis	0	0	0	0	0
Listeriosis	3	6	2	2	2
Lyme disease ²	18	19	32	27	39
Malaria	4	4	7	2	7
Ophthalmia neonatorum	0	0	0	0	0
Plague	0	0	0	0	0
Psittacosis	0	0	0	0	0
Q fever	0	0	0	0	0
Reye syndrome	0	0	0	0	0
Rheumatic fever ⁵	0	0	0	0	0
Rocky Mountain spotted fever ²	0	0	0	1	0
Salmonellosis	89	136	95	123	128
Severe Acute Respiratory Syndrome	0	0	0	0	0
Shigellosis	12	277	22	20	18
Smallpox	0	0	0	0	0
Smallpox vaccination, complications	0	0	0	0	0
St. Louis encephalitis ³	0	0	0	0	0
<i>Staphylococcus aureus</i> , methicillin resistant (MRSA), in those <61 days old	6	6	3	7	3
<i>Staphylococcus aureus</i> , methicillin resistant (MRSA), community cluster ⁶	1	1	0	1	0
<i>Staphylococcus aureus</i> , (vancomycin-resistant)	0	1	1	0	0
Streptococcal infections, group A, invasive disease ⁷	14	20	30	20	21
Toxic shock syndrome ⁸	0	0	1	0	1
Trichinosis	0	0	0	0	0
Tularemia	0	0	0	1	0
Typhoid fever	5	3	3	2	2
Typhus	0	0	0	0	0
Vibriosis (non-cholera)	2	1	3	4	2
West Nile virus disease ³	0	17	2	56	6

Table 11.9: Number of Reported Cases¹ of Other Communicable Diseases in DuPage County, 2009-2013 (continued)



Disease	2009	2010	2011	2012	2013
Yersiniosis	5	0	3	3	2

¹Provisional cases, based on date of onset

²Listed in CD Rules and Regulations under “Tickborne Disease”

³Listed in CD Rules and Regulations under “Arboviral Infections”

⁴O157:H7, STEC, EIEC, ETEC, EPEC

⁵Listed in CD Rules and Regulations under “Streptococcal infections, group A invasive disease sequelae”

⁶Two or more laboratory-confirmed cases of community onset MRSA infection during a 14 day period

⁷Includes streptococcal toxic shock syndrome and necrotizing fasciitis

⁸Due to *Staphylococcus aureus*

Source: Illinois Department of Public Health (2)

Healthcare-Associated Infections

Healthcare-associated infections are infections that can occur as a result of devices or procedures used in healthcare settings (22). These infections, such as central line-associated infections and surgical site infections, are costly and affect patient safety (22).

Central Line-Associated Bloodstream Infections (CLABSIs)

Healthy People 2020 Objective HAI-1: Reduce central line-associated bloodstream infections (CLABSIs)

Target: 0.25 Standardized Infection Ratio (SIR) or 75 percent reduction

National Baseline: 1.00 SIR was reported in 2006-2008

Data Sources: National Healthcare Safety Network (NHSN), CDC/NCEZID

Central line-associated bloodstream infections (CLABSIs) are caused by an introduction of a pathogen into a patient’s bloodstream through a central line or catheter which is placed in a large vein to deliver medication or draw blood (23). It is estimated that these types of infections result in approximately 14,000 deaths annually in the United States (23). Hand washing and strict sterile technique are two prevention measures that can be taken to reduce CLABSIs (23). Table 11.10 below shows the standardized infection ratio (SIR) in 2013 for the Adult Medical/Surgical ICU of each of the six DuPage County Hospitals. Two DuPage County hospitals have SIRs statistically significantly better than the national average or are performing at the best possible rate (23). None of the six hospitals have SIRs that are statistically worse than the national average (23).



Table 11.10: Central Line Associated Bloodstream Infections in the Adult Medical/Surgical ICU, 2013

DuPage County Hospital	Standardized Infection Ratio (SIR) # Infections, # Central-Line Days
Adventist GlenOaks Hospital (Glendale Heights)	SIR = 0.48† 1 infections, 1381 central-line days
Adventist Hinsdale Hospital (Hinsdale)	SIR = 1.2† 5 infections, 2775 central-line days
Advocate Good Samaritan Hospital (Downers Grove)	SIR = 0* 0 infections, 3376 central-line days
Central DuPage Hospital (Winfield)	SIR = 0† 0 infections, 1563 central-line days
Edward Hospital (Naperville)	SIR = 0* 0 infections, 2210 central-line days
Elmhurst Memorial Hospital (Elmhurst)	SIR = 0.21† 1 infections, 3230 central-line days

*Statistically significantly better than national average or performing at the best possible rate

†Not statistically better or worse than the national average

Source: Illinois Department of Public Health (23)

Methicillin-Resistant *Staphylococcus aureus* (MRSA)

Healthy People 2020 Objective HAI-2: Reduce invasive healthcare-associated methicillin resistant *Staphylococcus aureus* (MRSA) infections

Target: 6.56 infections per 100,000 persons or 75 percent reduction

National Baseline: 27.08 infections per 100,000 persons were reported in 2007-2008

Data Sources: Active Bacterial Core Surveillance (ABCS), CDC/NCIRD

Methicillin-resistant *Staphylococcus aureus* is a drug-resistant bacteria that can occur in the community, usually as skin infections, and in hospitals as bloodstream/surgical site infections or pneumonia (24). The Illinois Hospital Report Card provides data from each of the six DuPage County hospitals on the Standardized Infection Ratio (SIR) based on positive lab culture results for MRSA occurring four or more days after a patient was admitted (23). All six hospitals have SIRs that are not statistically better or worse than the national average, and these data are captured in Table 11.11 below.



Table 11.11: DuPage County Healthcare Facility Onset Incidence Rate of MRSA bloodstream infections, 2013

DuPage County Hospital	Standardized Infection Ratio (SIR) # Infections, # Central-Line Days
Adventist Glenoaks Hospital (Glendale Heights)	SIR = 1.4† 2 infections, 20145 patient days
Adventist Hinsdale Hospital (Hinsdale)	SIR = 0† 0 infections, 58300 patient days
Advocate Good Samaritan Hospital (Downers Grove)	SIR = 0.28† 1 infections, 81830 patient days
Central DuPage Hospital (Winfield)	SIR = 0.49† 2 infections, 105730 patient days
Edward Hospital (Naperville)	SIR = 1.02† 4 infections, 92567 patient days
Elmhurst Memorial Hospital (Elmhurst)	SIR = 0.38† 1 infections, 59816 patient days

*Statistically significantly better than national average or performing at the best possible rate

†Not statistically better or worse than the national average

Source: Illinois Department of Public Health (23)



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