COUNTY OF LOS ANGELES
Public Health

Inglewood Oil Field Communities Health Assessment

Bureau of Toxicology and Environmental Assessment
Los Angeles County Department of Public Health
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EXECUTIVE SUMMARY

Methods

Mortality (Death)

The Toxics Epidemiology Program in the Bureau of Toxicology & Environmental Assessment obtained data on mortality rates for the leading causes of death and premature death. The data for the assessment of mortality rates were obtained from information recorded on death certificates for Los Angeles County residents. Death certificates are registered using the Electronic Death Registration System (EDRS), which is maintained by the Los Angeles County Department of Public Health, Data Collection and Analysis Unit. In order to enable meaningful comparisons of mortality rates between residents of the Inglewood Oil Field communities and Los Angeles County as a whole, we present mortality rates adjusted for age and race/ethnicity.

Death certificate data represent an important endpoint in the spectrum of disease and help us to better understand the burden of disease in our communities. State law requires that death certificates be filed on all deaths and include information on age at death and causes of death. Since registration of death certificates is required by law, the reporting of deaths to EDRS is nearly 100 percent complete.

Low-Birth-Weight Births

The Toxics Epidemiology Program in the Bureau of Toxicology & Environmental Assessment obtained data on rates of low-birth-weight births. The data for rates of low-birth-weight births were obtained from registered birth certificates entered into the Automated Vital Statistics System (AVSS) at the birth hospital or the office of the local registrar. Since registration of birth certificates is required by law, the data in the AVSS is nearly 100 percent complete. In order to address potential disparities in low birth weight births, we present rates of low birth weights by race/ethnicity and the overall rates adjusted for race/ethnicity.

Birth Defects

The California Birth Defects Monitoring Program (CBDMP) analyzed data on rates of birth defects for the communities near the Inglewood Oil Field compared to rates in Los Angeles County as a whole for all recent available data on birth defects reported in Los Angeles County starting in 1990. Due to budget constraints, not all of the birth defects were collected for all birth years. Vital statistics information on the total number of live births for the rate calculations was determined using the California Center for Health Statistics Office of Health Information and Research Vital Statistics data.

Cancer

The University of Southern California Cancer Surveillance Program (USC-CSP), the population-based cancer registry for Los Angeles County, analyzed data on cancer incidence for the communities near the Inglewood Oil Field compared to Los Angeles County as a whole. Data have been collected on all new cancer patients diagnosed in Los Angeles County since 1972. Since registration of cancer diagnoses is required by law, completeness of the reporting to the registry is over 95%. The expected and observed incidence of five blood-related cancers were examined since the risk of certain types of blood-related cancers has been linked to

exposure to petroleum products such as benzene (Linet et al. 2006). The rates of the five blood-related cancers were compared between the census tracts near the Inglewood Oil Field and the general Los Angeles County population for the years 1972-2005. In order to address potential disparities in cancer incidence, rates of cancer are presented stratified by race/ethnicity. The time period was divided into two time periods, 1972-1999 and 2000-2005, in order to capture a better understanding of the most recent trends.

Results

Mortality

From 2000-2007, the mortality rate for all causes of death was 731.9 deaths per 100,000 persons in the Inglewood Oil Field communities and 751.7 deaths per 100,000 persons in Los Angeles County, after adjusting for age and the racial/ethnic distribution of the underlying populations. Although the mortality rate appears lower in the Inglewood Oil Field communities, there was no statistically significant difference in the mortality rates for all causes of death, after adjusting for age and race/ethnicity.

African Americans and Hispanics in the Inglewood Oil Field communities had statistically significantly lower mortality rates for all causes of death compared to African Americans and Hispanics in Los Angeles County. From 2000-2007, mortality rates for all causes of death declined for all ethnic groups in the Inglewood Oil Field communities and in Los Angeles County.

After adjusting for race/ethnicity, there were no statistically significant differences in the mortality rates for any of the leading causes of death or premature death in the Inglewood Oil Field communities compared to Los Angeles County. Although there were no overall statistically significant differences in the mortality rates in the Inglewood Oil Field communities compared to Los Angeles County, the racial/ethnic disparities apparent in Los Angeles County are also reflected in the mortality rates found in these communities.

There were statistically significantly higher mortality rates for some of the leading causes of death and premature death in certain ethnic groups. In the Inglewood Oil Field communities and in Los Angeles County as a whole, African Americans had the highest mortality rates for all causes of death, colorectal cancer, coronary heart disease, diabetes, HIV, homicide, motor vehicle crashes, pancreatic cancer and stroke. Caucasians had the highest mortality rates for emphysema and chronic obstructive pulmonary diseases (COPD), while Hispanics had the highest mortality rates for chronic liver disease in both the Inglewood Oil Field communities and Los Angeles County.

For some of the leading causes of death and premature death, rates were statistically significantly different in the Inglewood Oil Field communities compared to Los Angeles County for certain ethnic groups. African Americans in the Inglewood Oil Field communities had statistically significantly lower mortality rates for coronary heart disease, diabetes, emphysema/COPD, homicide, chronic liver disease, lung cancer and stroke than African Americans in Los Angeles County. On the other hand, African Americans in the Inglewood Oil Field communities had statistically significantly higher mortality rates for HIV than African Americans in Los Angeles County. Caucasians in the Inglewood Oil Field communities had statistically significantly higher mortality rates for pneumonia/influenza than Caucasians in Los Angeles County.

The differences in mortality rates for the leading causes of death and premature death do not appear to be related to the geographic location of the Inglewood Oil Field communities. Many of the differences observed within these communities are common in Los Angeles County and represent a significant public health challenge throughout the county. The disparities in mortality rates can best be addressed by targeting the underlying causes of these disparities.

Low-Birth-Weight Births

After adjusting race/ethnicity, the rate of low-birth-weight births was 7.2 per 100 live births in the Inglewood Oil Field communities and 7.0 per 100 live births in Los Angeles County. There was no statistical difference in the rates of low-birth-weight births in the Inglewood Oil Field communities compared to Los Angeles County, after adjusting for race/ethnicity. There were differences in rates of low-birth-weight births among racial/ethnic groups with African Americans having the highest rates of low-birth-weight births in the Inglewood Oil Field communities as well as in Los Angeles County. These disparities in low-birth-weight births represent another significant public health challenge throughout the county.

Birth Defects

For 28 of the 29 categories of birth defects, there was no statistically significant difference in the Inglewood Oil Field communities compared to Los Angeles County as a whole. Babies born in the Inglewood Oil Field communities between 1990 and 1997 were slightly more likely (1.2 times as likely) to be born with a limb defect compared to babies countywide. Limb defects are not known to be caused by exposure to benzene or other petroleum products. Since multiple comparisons were made, the increase may be explained by statistical chance.

Cancer

The analysis found no evidence of elevated rates of acute myelogenous leukemia (AML), the type of cancer most definitively linked to petroleum products (benzene) or three of the other types of blood-related cancer for any of the race/ethnic groups examined. There was an excess risk of chronic myelogenous leukemia (CML) in non-Hispanic whites based on the occurrence of two (2) cases above the expected number in 2000 to 2005. CML has not been consistently linked with exposure to petroleum products from oil fields or refineries. These two additional cases of CML may be explained by statistical chance, because the analysis examined multiple comparisons. Furthermore, in most of the studies examining this issue, occupational exposure to specific petroleum-based chemicals, such as benzene, was measured, rather than residential proximity to oil wells. Very few, if any, well-conducted published studies exist on health effects in communities due to proximity of oil wells.

Limitations of These Analyses

These analyses cannot confirm whether exposures to chemicals from oil drilling activities at the Inglewood Oil Field may be associated with a small increase in the risk of mortality, low-birth-weight births, birth defects, or cancer among specific individuals living nearby, because these analyses cannot detect small increases in risk. Epidemiological investigations can be relatively conclusive when large, population-based samples are involved. On the other hand, analyses of data from local areas, such as the communities surrounding the Inglewood Oil Field, are limited by small samples sizes. Analyses such as this can detect large differences in risk, but are not able to reliably detect small increases. In addition, these analyses do not take into account other important determinants of health such as behavioral risk factors (such as smoking and physical

activity), social factors (such as community resilience, education, income, and access to health care) since these data were not available on the birth certificates, death records, or cancer registry records.

It is important to note that this type of analysis cannot establish causal relationships between emissions from oil drilling activities and specific causes of death because of the lack of information on the individual levels of exposure to emissions that could establish dose-response curves and temporal relationships as well as the multitude of other risk factors that influence these disease outcomes. For example, a high rate of mortality from asthma in the community adjacent to the Inglewood Oil Field would not prove that the oil field operations are causing asthma since there are many other potential causes, such as exposures to traffic-related air pollution, tobacco smoke, or adverse environmental conditions in the home. Alternatively, a normal or low rate of mortality from asthma would not prove that the oil field is safe, again because of the many other factors that influence the rate. Thus, these results should be interpreted with caution. Due to these limitations, the safety of the oil field would be more appropriately assessed by careful monitoring of the oil field operations to ensure compliance with regulations and standards.

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ANALYSIS OF MORTALITY (DEATH) RATES

The Toxics Epidemiology Program in the Bureau of Toxicology & Environmental Assessment obtained data on mortality rates for the leading causes of death and premature death. The data for the assessment of mortality rates were obtained from information recorded on death certificates for Los Angeles County residents. Death certificates are registered using the Electronic Death Registration System (EDRS), which is maintained by the Los Angeles County Department of Public Health, Data Collection and Analysis Unit. In order to enable meaningful comparisons of mortality rates between residents of the Inglewood Oil Field communities and Los Angeles County as a whole, we present mortality rates adjusted for age and race/ethnicity.

Death certificate data represent an important endpoint in the spectrum of disease and help us to better understand the burden of disease in our communities. State law requires that death certificates be filed on all deaths and include information on age at death and causes of death. Since registration of death certificates is required by law, the reporting of deaths to EDRS is nearly 100 percent complete.

Methods

The area representing the Inglewood Oil Field communities used in the analyses included the census tracts within 1.5 miles from the perimeter of the Inglewood Oil Field. The census tracts for the year 2000 are: 2199.00, 2201.00, 2351.00, 2360.00, 2361.00, 2362.01, 2362.02, 2364.00, 2699.01, 2701.00, 2702.00, 2751.00, 2761.00, 6009.02, 6009.11, 6009.12, 6013.01, 6013.02, 6013.03, 7024.00, 7025.01, 7025.02, 7026.00, 7027.00, 7028.01, 7030.01, 7030.02, 7031.00, and 7032.00. A map of the included census tracts is provided in Appendix A.

The mortality analysis was performed for overall mortality, the top ten leading causes of death, and premature death (death before age 75 years) during the period 2000-2007 for the communities near the Inglewood Oil Field compared to Los Angeles County as a whole (Fig. 1a). Mortality rates for asthma were also included even though it is not among the leading causes since residents expressed particular concerns about chronic respiratory diseases such as asthma. Information on the causes of death and premature death was obtained from death certificates for all Los Angeles County residents filed with the local registrar. Cause of death was determined by analyzing the underlying cause recorded in the medical portion of each death certificate. "Underlying cause of death" is defined as the disease or injury initiating the sequence of events leading directly to death.

Crude mortality rates are provided in Table 1 of Appendix A. Since crude rates are not suitable for comparisons among populations, the cumulative age-adjusted mortality rates were standardized to the population age distribution of the 2000 U.S. Census to eliminate differences in age as an explanation for differences in rates.

Fig. 1a: Ten leading causes of death and premature death for the Inglewood Oil Field communities in 2007

Leading causes of death		Leading causes of premature** death	
Rank	Cause of death	Rank	Cause of death
1	Coronary heart disease	1	Coronary heart disease
2	Lung cancer	2	Homicide
3	Stroke	3	Motor vehicle crash
4	Pneumonia/influenza	4	Lung cancer
5	Diabetes	5	HIV
6	Emphysema/COPD	6	Diabetes
7	Colorectal cancer	7	Colorectal cancer
8	Alzheimer's disease	8	Breast cancer
9	Breast cancer	9	Liver disease
10	Pancreatic cancer	10	Stroke

*Excludes infants less than 1 year of age and persons of unknown age
** Death before age 75 years

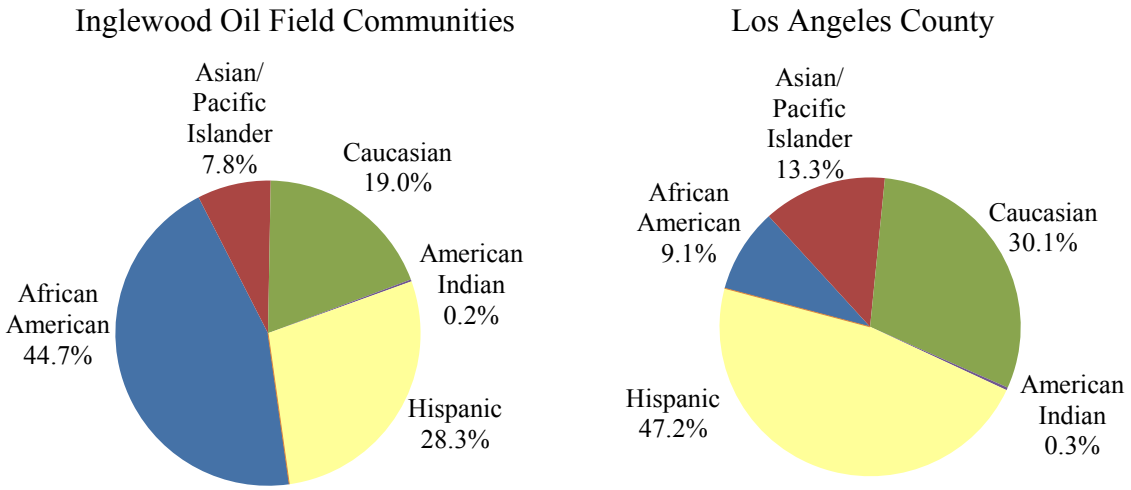
The data were analyzed for an eight year period, from 2000 to 2007, to increase the number of events available for analysis and thus increase the reliability of the findings and to assess trends. Rates based on small numbers of events can fluctuate widely from year to year for reasons other than a true change in the underlying frequency of occurrence of the event. Therefore, mortality rates were not reported when there were fewer than 20 deaths as this is too few to produce reliable rates.

Mortality rates for the Inglewood Oil Field communities and Los Angeles County were compared and a statistical test of the difference was done to determine if the rates were statistically different.[1] A p-value of less than 0.05 indicated that the two rates were statistically significantly different, while a p-value of greater than 0.05 indicated that the two rates were not statistically significantly different.

Since the racial/ethnic distribution of the underlying population in the Inglewood Oil Field communities differs from Los Angeles County, mortality rates were stratified to examine differences by racial/ethnic group for African Americans, Asian/Pacific Islanders, Caucasians and Hispanics (Fig. 1b). Mortality rates for American Indians/Alaska Natives were not reported since the numbers of deaths were too small to provide reliable rates. Age-adjusted mortality rates were additionally adjusted for race/ethnicity to account for the differences in the racial/ethnic distribution in the Inglewood Oil Field communities and Los Angeles County.

[1] Rothman KJ, Greenland S, Lash TL. Modern Epidemiology 3rd Ed. Philadelphia: Lippincott Williams & Wilkins; 2008 p.266-268.

Fig. 1b: Population distribution by race/ethnicity for the Inglewood Oil Field communities and Los Angeles County



Source: U.S. Bureau of the Census, Population Estimates Program (PEP), 2007

Results

Mortality from All Causes of Death:

There was no statistically significant difference in overall mortality rates for all causes of death in the Inglewood Oil Field communities compared to Los Angeles County as a whole, after adjusting for age and the racial/ethnic distributions of the underlying populations.

From 2000-2007, the mortality rate for all causes of death was 731.9 deaths per 100,000 persons in the Inglewood Oil Field communities and 751.7 deaths per 100,000 persons in Los Angeles County, after adjusting for age and race/ethnicity (Table 1a). African Americans and Hispanics in the Inglewood Oil Field communities had statistically significantly lower mortality rates for all causes of death than African Americans and Hispanics in Los Angeles County (Table 1b and Fig. 2a). From 2000-2007, mortality rates for all causes of death declined in both the Inglewood Oil Field communities and Los Angeles County for all ethnicities (Fig. 2b and 2c).

African Americans had the highest mortality rates for all causes of death in the Inglewood Oil Field communities and in Los Angeles County as a whole (Table 1b). There were proportionately more African Americans in the Inglewood Oil Field communities than in Los Angeles County (Fig. 1b) so there appeared to be a higher age-adjusted mortality rate for all causes of death in the Inglewood Oil Field communities (Table 1a), but after adjusting for race/ethnicity there was no statistically significant difference between the two populations.

Table 1a: Age- and race-adjusted mortality rates for all causes of death for the Inglewood Oil Field communities and Los Angeles County from 2000-2007

	Inglewood Oil Field Communities		Los Angeles County		
Cause of Death	No. of deaths	Rate*	No. of deaths	Rate*	p-value‡
All Causes	8,708	731.9	476,493	751.7	NS

* Rate per 100,000 persons, age/race-adjusted, cumulative over years 2000-2007, ‡NS indicates not statistically significant at a p-value of 0.05

Table 1b: Age-adjusted mortality rates for all causes of death for the Inglewood Oil Field communities and Los Angeles County from 2000-2007, by race/ethnicity

	Inglewood Oil Field Communities		Los Angeles County		
Race/Ethnicity	No. of deaths	Rate*	No. of deaths	Rate*	p-value‡
African American	4,697	860.0	66,697	1,033.0	<0.001
Asian/Pacific Islander	427	465.5	43,862	474.2	NS
Caucasian	2,849	746.6	263,057	746.4	NS
Hispanic	709	499.1	101,176	570.5	0.002

* Rate per 100,000 persons, age-adjusted and cumulative over years 2000-2007, ‡NS indicates not statistically significant at a p-value of 0.05

Fig. 2a: Age-adjusted mortality rates for all causes of death for the Inglewood Oil Field communities and Los Angeles County from 2000-2007, by race/ethnicity

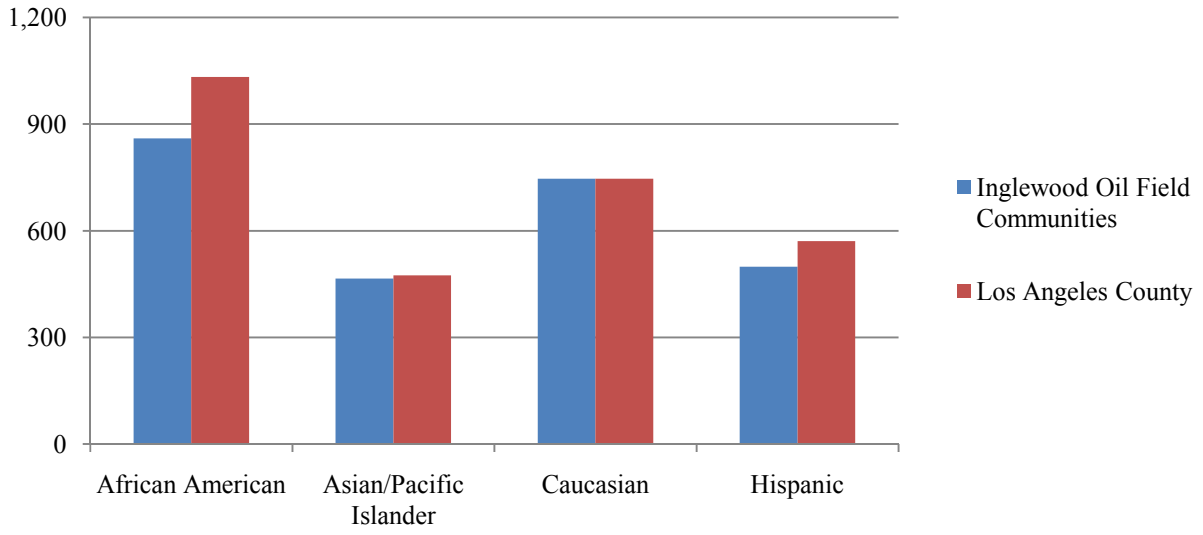
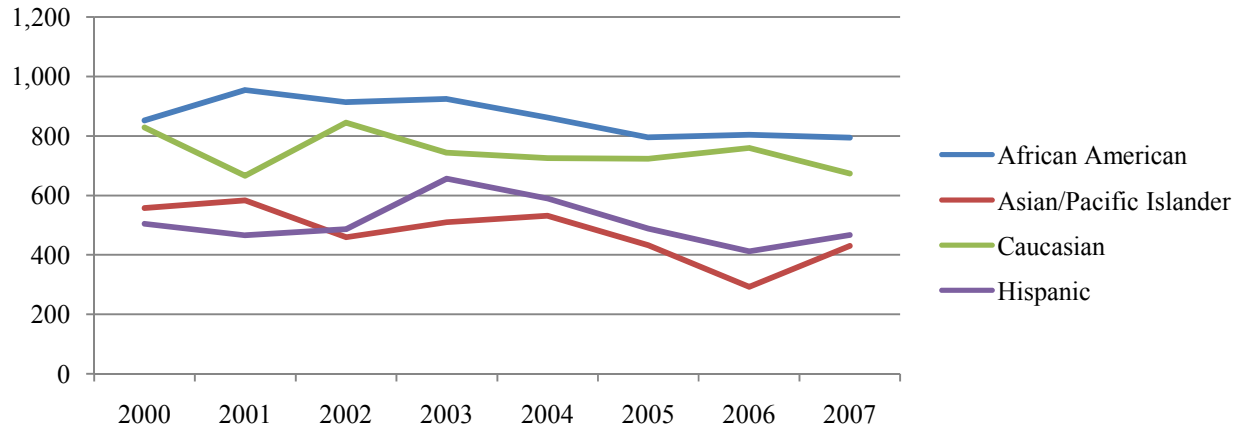
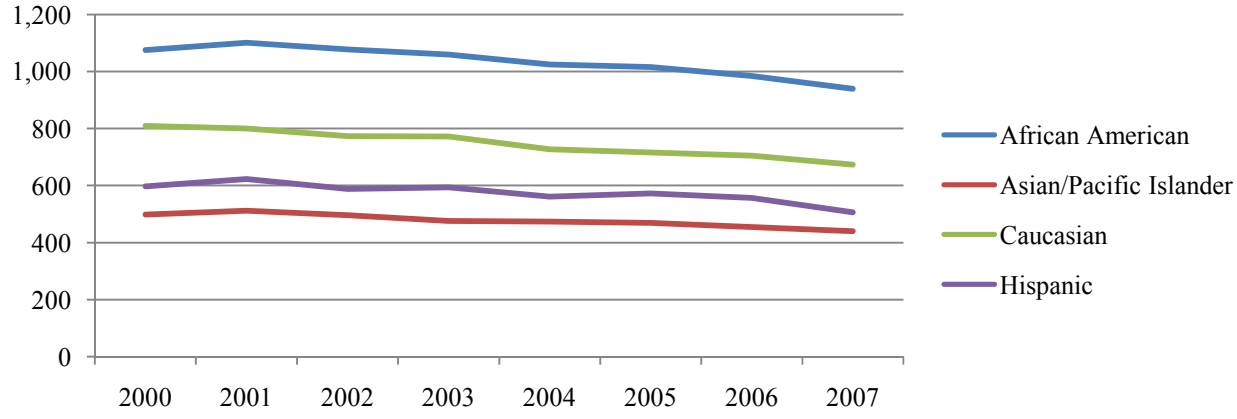


Fig. 2b: Age-adjusted mortality rates for all causes of death for the Inglewood Oil Field communities from 2000-2007, by race/ethnicity



Data Source for Fig. 2b: Table 2 in Appendix A

Fig. 2c: Age-adjusted mortality rates for all causes of death for Los Angeles County from 2000-2007, by race/ethnicity



Data Source for Fig. 2c: Table 2 in Appendix A

Results

Mortality from Specific Causes of Death:

There were no statistically significant differences in mortality rates for asthma or any of the leading causes of death and premature death in the Inglewood Oil Field communities compared to Los Angeles, after adjusting for age and race/ethnicity (Table 2b).

There appeared to be higher age-adjusted mortality rates in the Inglewood Oil Field communities compared to Los Angeles County for some causes of death (asthma, breast cancer, colorectal cancer, coronary heart disease, HIV, homicide, hypertension, cancers of the lung, bronchus and trachea, pneumonia and influenza, prostate cancer and stroke) and lower age-adjusted mortality rates for other causes of death (emphysema/chronic obstructive pulmonary diseases (COPD) and chronic liver disease) (Table 2a), however after adjusting for the differences in the racial/ethnic distributions of the two populations there were no statistically significant differences for any cause of death.

Table 2a: Age-adjusted mortality rates for the Inglewood Oil Field communities and Los Angeles County from 2000-2007

	Inglewood Oil Field Communities		Los Angeles County		
Cause of Death	No. of deaths	Rate*	No. of deaths	Rate*	p-value‡
All Causes	8,708	752.9	476,493	697.9	<0.001
Alzheimer's	160	14.1	10,200	15.3	NS
Asthma	30	2.5	1,028	1.4	0.002
Breast Cancer (females)	186	26.7	8,774	12.7	<0.001
Colorectal Cancer	237	20.3	11,056	16.4	0.001
Coronary Heart Disease	2,251	196.2	125,526	187.6	0.035
Diabetes	310	26.8	16,890	25.2	NS
Emphysema/COPDŧ	322	28.5	21,484	32.8	0.012
HIV	96	7.6	3,804	4.9	<0.001
Homicide	202	17.3	8,352	10.0	<0.001
Liver Disease	103	8.5	8,600	11.9	<0.001
Lung Cancer£	501	43.6	24,654	37.2	<0.001
Motor Vehicle Crash	101	8.5	6,931	8.9	NS
Pancreatic Cancer	134	11.5	6,597	9.9	NS
Pneumonia/Influenza	373	32.8	18,883	28.4	0.006
Stroke	600	52.4	31,928	47.8	0.026

* Per 100,000 persons, age-adjusted and cumulative over years 2000-2007 ‡NS indicates not statistically significant at a p-value of 0.05
ŧ Chronic obstructive pulmonary diseases (COPD) include chronic lower respiratory diseases such as chronic bronchitis, bronchiectasis, and other chronic obstructive pulmonary diseases
£Lung cancer includes cancers of the lung, bronchus and trachea
Source: Linked Death Files 2000-2007, Los Angeles County Department of Health Services, Data Collection and Analysis Unit
Population: July 1, 2007 population estimates prepared by WRMA for Urban Research, Los Angeles County ISD, released June 27, 2008

Table 2b: Age- and race-adjusted mortality rates for the Inglewood Oil Field communities and Los Angeles County from 2000-2007

	Inglewood Oil Field Communities		Los Angeles County		
Cause of Death	No. of deaths	Rate*	No. of deaths	Rate*	p-value‡
All Causes	8,708	731.9	476,493	751.7	NS
Alzheimer's	160	9.4	10,200	18.0	NS
Asthma	30	1.4	1,028	1.5	NS
Breast Cancer (females)	186	28.6	8,774	26.1	NS
Colorectal Cancer	237	19.5	11,056	17.7	NS
Coronary Heart Disease	2,251	192.0	125,526	205.0	NS
Diabetes	310	22.0	16,890	21.8	NS
Emphysema/COPDŧ	322	36.7	21,484	39.6	NS
HIV	96	3.0	3,804	5.6	NS
Homicide	202	9.3	8,352	9.2	NS
Liver Disease	103	9.1	8,600	10.8	NS
Lung Cancer£	501	46.4	24,654	43.5	NS
Motor Vehicle Crash	101	6.2	6,931	9.5	NS
Pancreatic Cancer	134	9.2	6,597	10.5	NS
Pneumonia/Influenza	373	33.7	18,883	29.3	NS
Stroke	600	48.4	31,928	48.3	NS

* Per 100,000 persons, age/race-adjusted and cumulative over years 2000-2007 ‡NS indicates not statistically significant at a p-value of 0.05
ŧ Chronic obstructive pulmonary diseases (COPD) include chronic lower respiratory diseases such as chronic bronchitis, bronchiectasis, and other chronic obstructive pulmonary diseases
£Lung cancer includes cancers of the lung, bronchus and trachea
Source: Linked Death Files 2000-2007, Los Angeles County Department of Health Services, Data Collection and Analysis Unit
Population: July 1, 2007 population estimates prepared by WRMA for Urban Research, Los Angeles County ISD, released June 27, 2008

For each of the top ten causes of death and premature death, mortality rates stratified by race/ethnicity are presented for the Inglewood Oil Field communities and Los Angeles County.

Alzheimer's Disease

There was no statistically significant difference in overall mortality rates for Alzheimer's disease in the Inglewood Oil Field communities compared to Los Angeles County, after adjusting for age and race/ethnicity. Alzheimer's disease is the eighth leading cause of death in the Inglewood Oil Field communities. From 2000-2007, the mortality rate for Alzheimer's was 9.4 deaths per 100,000 persons in the Inglewood Oil Field communities and 18.0 deaths per 100,000 persons in Los Angeles County, after adjusting for age and race/ethnicity (Table 3a). The mortality rates for Alzheimer's were not statistically significantly different in the Inglewood Oil Field communities compared to Los Angeles County for any ethnicity (Table 3b and Fig. 3). Caucasians had the highest mortality rates for Alzheimer's in the Inglewood Oil Field communities as well as in Los Angeles County as a whole.

Table 3a: Age- and race-adjusted mortality rates for Alzheimer's disease for the Inglewood Oil Field communities and Los Angeles County from 2000-2007

	Inglewood Oil Field Communities		Los Angeles County		
Cause of Death	No. of deaths	Rate*	No. of deaths	Rate*	p-value‡
Alzheimer's	160	9.4	10,200	18.0	NS

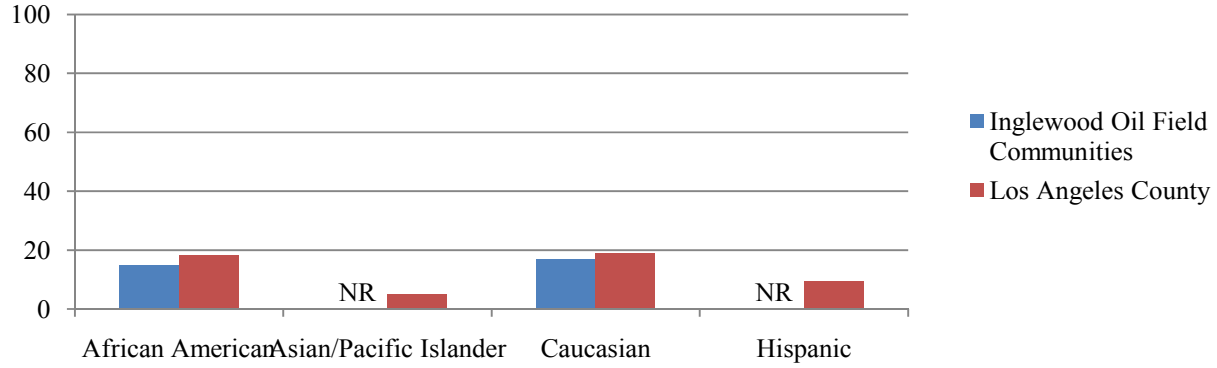
* Rate per 100,000 persons, age/race-adjusted, cumulative over years 2000-2007, ‡NS indicates not statistically significant at a p-value of 0.05

Table 3b: Age-adjusted mortality rates for Alzheimer's disease for the Inglewood Oil Field communities and Los Angeles County from 2000-2007, by race/ethnicity

	Inglewood Oil Field Communities		Los Angeles County		
Race/Ethnicity	No. of deaths	Rate*	No. of deaths	Rate*	p-value‡
African American	73	14.6	1,036	18.2	NS
Asian/Pacific Islander	<20	NR	407	4.9	-----
Caucasian	75	16.8	7,558	19.0	NS
Hispanic	<20	NR	1,178	9.5	-----

* Rate per 100,000 persons, age-adjusted and cumulative over years 2000-2007, ‡NS indicates not statistically significant at a p-value of 0.05

Fig. 3: Age-adjusted mortality rates for Alzheimer's disease for the Inglewood Oil Field communities and Los Angeles County, by race/ethnicity



Risk Factors for Alzheimer's Disease:

Risk factors for Alzheimer's disease include age and family history of the disease. Scientists are exploring possible connections between Alzheimer's disease and high cholesterol, high blood pressure, physical inactivity and serious head injury.

Individual opportunities for prevention:

- Maintain good overall health by staying physically active, and controlling high blood pressure and cholesterol
- Keep the brain active by playing puzzle games, reading and other mentally stimulating activities
- Slow the progression of symptoms through early diagnosis and treatment of Alzheimer's disease symptoms

Community opportunities for intervention:

- Develop community support networks for caregivers
- Assist persons with early Alzheimer's disease to plan for their future needs

Breast Cancer (Females)

There was no statistical difference in overall mortality rates for breast cancer among women in the Inglewood Oil Field communities compared to Los Angeles County, after adjusting for age and race/ethnicity. Breast cancer is the ninth leading cause of death and eight leading cause of premature death among women in the Inglewood Oil Field communities. From 2000-2007, the mortality rate for breast cancer was 28.6 deaths per 100,000 women in the Inglewood Oil Field communities and 26.1 deaths per 100,000 women in Los Angeles County, after adjusting for age and race/ethnicity (Table 4a). The mortality rates for breast cancer were not statistically significantly different in the Inglewood Oil Field communities and Los Angeles County for any ethnicity (Table 4b and Fig. 4). African Americans had the highest mortality rates for breast cancer in the Inglewood Oil Field communities as well as in Los Angeles County.

Table 4a: Age- and race-adjusted mortality rates for breast cancer among women for the Inglewood Oil Field communities and Los Angeles County from 2000-2007

	Inglewood Oil Field Communities		Los Angeles County		
Cause of Death	No. of deaths	Rate*	No. of deaths	Rate*	p-value‡
Breast Cancer	186	28.6	8,774	26.1	NS

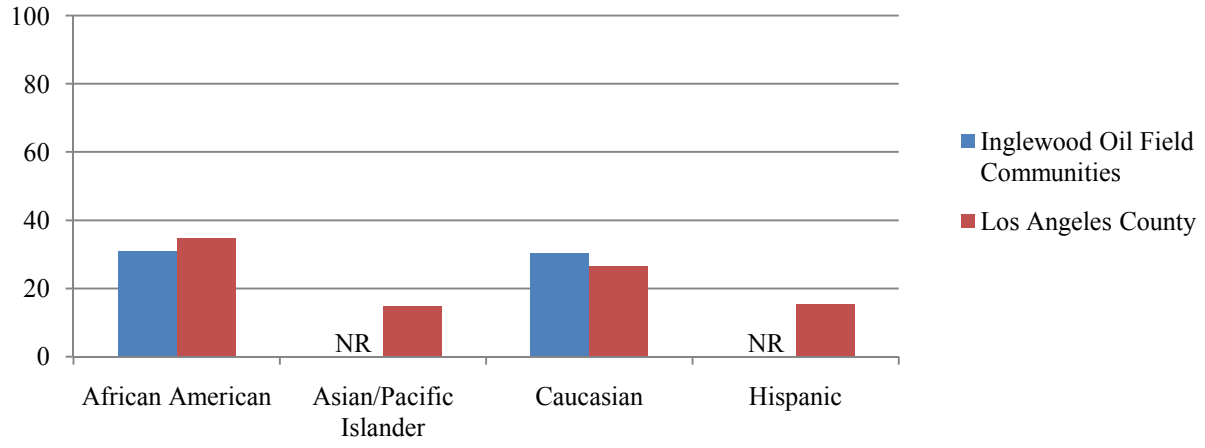
* Rate per 100,000 persons, age/race-adjusted, cumulative over years 2000-2007, ‡NS indicates not statistically significant at a p-value of 0.05

Table 4b: Age-adjusted mortality rates for breast cancer among women for the Inglewood Oil Field communities and Los Angeles County from 2000-2007, by race/ethnicity

	Inglewood Oil Field Communities		Los Angeles County		
Race/Ethnicity	No. of deaths	Rate*	No. of deaths	Rate*	p-value‡
African American	111	31.0	1,375	34.8	NS
Asian/Pacific Islander	<20	NR	867	14.7	-----
Caucasian	59	30.5	4,781	26.4	NS
Hispanic	<20	NR	1,731	15.3	-----

* Rate per 100,000 persons, age-adjusted and cumulative over years 2000-2007, ‡NS indicates not statistically significant at a p-value of 0.05
NR indicates rate not reported due to small numbers

Fig. 4: Age-adjusted mortality rates for breast cancer among women for the Inglewood Oil Field communities and Los Angeles County, by race/ethnicity



Risk Factors for Breast Cancer:

Risk factors for breast cancer include age, family history of breast cancer, previous breast cancer, race, early radiation treatment to the chest area, menstruation before age 12 or menopause after age 55, genetic mutation linked to breast cancer, treatment with the drug diethylstilbestrol, not having children, excessive alcohol consumption, being overweight, physical inactivity and prolonged postmenopausal hormone therapy.

Individual opportunities for prevention:

- Follow recommended breast cancer screening and follow-up guidelines
- Limit alcohol consumption
- Maintain a healthy weight
- Stay physically active

Community opportunities for intervention:

- Promote the availability of low-cost breast cancer screening and follow-up
- Provide education on the importance of receiving on-schedule breast cancer screening
- Promote physical activity by providing access to safe places like parks to walk, play and exercise

Colorectal Cancer

There was no statistically significant difference in overall mortality rates for colorectal cancer in the Inglewood Oil Field communities compared to Los Angeles County, after adjusting for age and race/ethnicity. Colorectal cancer is the seventh leading cause of death and premature death in the Inglewood Oil Field communities. From 2000-2007, the mortality rate for colorectal cancer was 19.5 deaths per 100,000 persons in the Inglewood Oil Field communities and 17.7 deaths per 100,000 persons in Los Angeles County, after adjusting for age and race/ethnicity (Table 5a). The mortality rates for colorectal cancer were not statistically significantly different in the Inglewood Oil Field communities and Los Angeles County for any ethnicity (Table 5b and Fig. 5). African Americans had the highest mortality rates for colorectal cancer in the Inglewood Oil Field communities as well as Los Angeles County.

Table 5a: Age- and race-adjusted mortality rates for colorectal cancer for the Inglewood Oil Field communities and Los Angeles County from 2000-2007

	Inglewood Oil Field Communities		Los Angeles County		
Cause of Death	No. of deaths	Rate*	No. of deaths	Rate*	p-value‡
Colorectal Cancer	237	19.5	11,056	17.7	NS

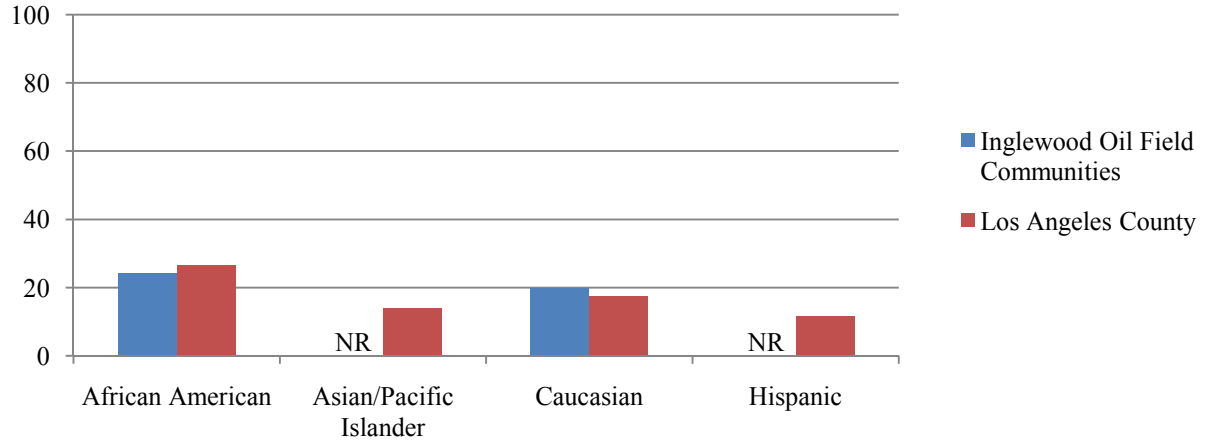
* Rate per 100,000 persons, age/race-adjusted, cumulative over years 2000-2007, ‡NS indicates not statistically significant at a p-value of 0.05

Table 5b: Age-adjusted mortality rates for colorectal cancer for the Inglewood Oil Field communities and Los Angeles County from 2000-2007, by race/ethnicity

	Inglewood Oil Field Communities		Los Angeles County		
Race/Ethnicity	No. of deaths	Rate*	No. of deaths	Rate*	p-value‡
African American	137	24.2	1,688	26.4	NS
Asian/Pacific Islander	<20	NR	1,340	13.9	-----
Caucasian	73	19.9	6,068	17.5	NS
Hispanic	<20	NR	1,924	11.6	-----

* Rate per 100,000 persons, age-adjusted and cumulative over years 2000-2007, ‡NS indicates not statistically significant at a p-value of 0.05
NR indicates rate not reported due to small numbers

Fig. 5: Age-adjusted mortality rates for colorectal cancer for the Inglewood Oil Field communities and Los Angeles County, by race/ethnicity



Risk Factors for Colorectal Cancer:

Risk factors for colorectal cancer include age, previous colorectal cancer or polyps, family history of colorectal cancer, inflammatory bowl disease, physical inactivity, being overweight, alcohol abuse, diets high in red and processed meats, cooking meats at very high temperature, tobacco smoking and type 2 diabetes.

Individual opportunities for prevention:

- Obtain routine medical care to detect and remove precancerous colorectal polyps
- Follow recommended screening guidelines for stool tests and special medical exams to detect colon cancer
- Eat plenty of fruits, vegetables and whole grain foods
- Stay physically active

Community opportunities for intervention:

- Promote the availability of low-cost colorectal cancer screening and follow-up
- Promote physical activity by providing access to safe places like parks to walk, play and exercise
- Increase the availability of affordable, nutritious foods

Coronary Heart Disease

There was no statistically significant difference in overall mortality rates for coronary heart disease in the Inglewood Oil Field communities compared to Los Angeles County, after adjusting for age and race/ethnicity. Coronary heart disease is the number one cause of death and premature death in the Inglewood Oil Field communities. From 2000-2007, the mortality rate for coronary heart disease was 192 deaths per 100,000 persons in the Inglewood Oil Field communities and 205 deaths per 100,000 persons in Los Angeles County, after adjusting for age and race/ethnicity (Table 6a). African Americans had the highest mortality rates for coronary heart disease in the Inglewood Oil Field communities and Los Angeles County (Table 6b and Fig. 6). African Americans in the Inglewood Oil Field communities however, had a statistically significant lower mortality rate for coronary heart disease than African Americans in Los Angeles County.

Table 6a: Age- and race-adjusted mortality rates for coronary heart disease for the Inglewood Oil Field communities and Los Angeles County from 2000-2007

	Inglewood Oil Field Communities		Los Angeles County		
Cause of Death	No. of deaths	Rate*	No. of deaths	Rate*	p-value‡
Coronary Heart Disease	2,251	192.0	125,526	205.0	NS

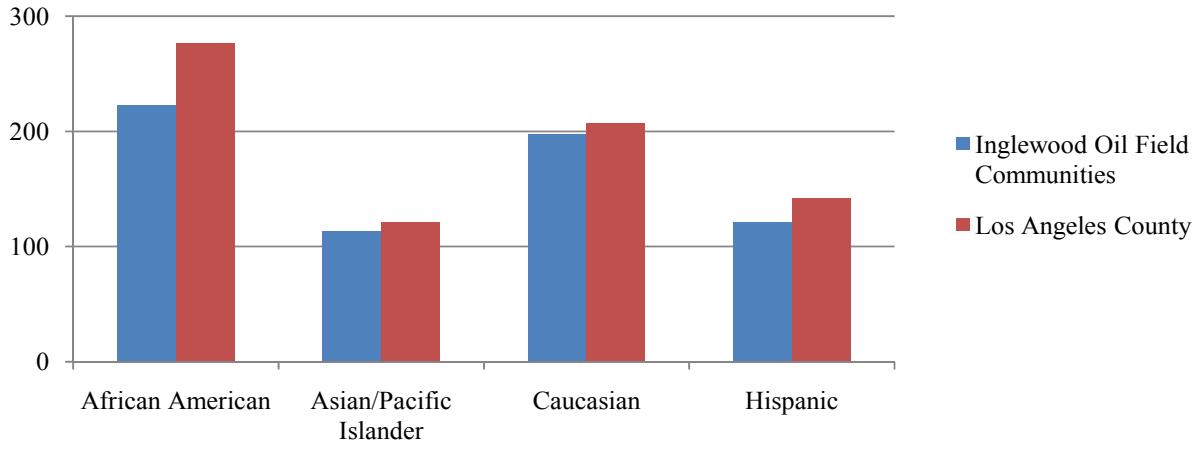
* Rate per 100,000 persons, age/race-adjusted, cumulative over years 2000-2007, ‡NS indicates not statistically significant at a p-value of 0.05

Table 6b: Age-adjusted mortality rates for coronary heart disease for the Inglewood Oil Field communities and Los Angeles County from 2000-2007, by race/ethnicity

	Inglewood Oil Field Communities		Los Angeles County		
Race/Ethnicity	No. of deaths	Rate*	No. of deaths	Rate*	p-value‡
African American	1,201	222.3	17,219	276.3	<0.001
Asian/Pacific Islander	105	113.3	10,788	120.9	NS
Caucasian	805	197.6	76,414	206.4	NS
Hispanic	134	121.5	20,721	142.3	NS

* Rate per 100,000 persons, age-adjusted and cumulative over years 2000-2007, ‡NS indicates not statistically significant at a p-value of 0.05

Fig. 6: Age-adjusted mortality rates for coronary heart disease for the Inglewood Oil Field communities and Los Angeles County, by race/ethnicity



Risk Factors for Coronary Heart Disease:

Risk factors for coronary heart disease include age, male gender, race, tobacco smoking, high cholesterol, high blood pressure, being overweight, excessive alcohol consumption, previous heart attack or angina and family history of early heart disease.

Individual opportunities for prevention:

- Eat a heart-healthy diet
- Consult with your physician about increasing physical activity
- Stop smoking
- Control blood pressure, cholesterol, and diabetes
- Reduce stress
- Get regular medical check-ups

Community opportunities for intervention:

- Promote physical activity by providing access to safe places like parks to walk, play and exercise
- Restrict smoking in public places and worksites
- Provide access to smoking cessation programs
- Encourage people to quit smoking through media campaigns
- Increase the availability of nutrient-rich foods which have vitamins, minerals, fiber and other nutrients but are lower in calories

Diabetes

There was no statistically significant difference in overall mortality rates for diabetes in the Inglewood Oil Field communities compared to Los Angeles County, after adjusting for age and race/ethnicity. Diabetes is the fifth leading cause of death and sixth leading cause of premature death in the Inglewood Oil Field communities. From 2000-2007, the mortality rate for diabetes was 22 deaths per 100,000 persons in the Inglewood Oil Field communities and 21.8 deaths per 100,000 persons in Los Angeles County, after adjusting for age and race/ethnicity (Table 7a). African Americans had the highest mortality rates for diabetes in the Inglewood Oil Field communities as well as in Los Angeles County (Table 7b and Fig. 7). African Americans in the Inglewood Oil Field communities however, had statistically significant lower mortality rates for diabetes than African Americans in Los Angeles County.

Table 7a: Age- and race-adjusted mortality rates for diabetes for the Inglewood Oil Field communities and Los Angeles County from 2000-2007

	Inglewood Oil Field Communities		Los Angeles County		
Cause of Death	No. of deaths	Rate*	No. of deaths	Rate*	p-value‡
Diabetes	310	22.0	16,890	21.8	NS

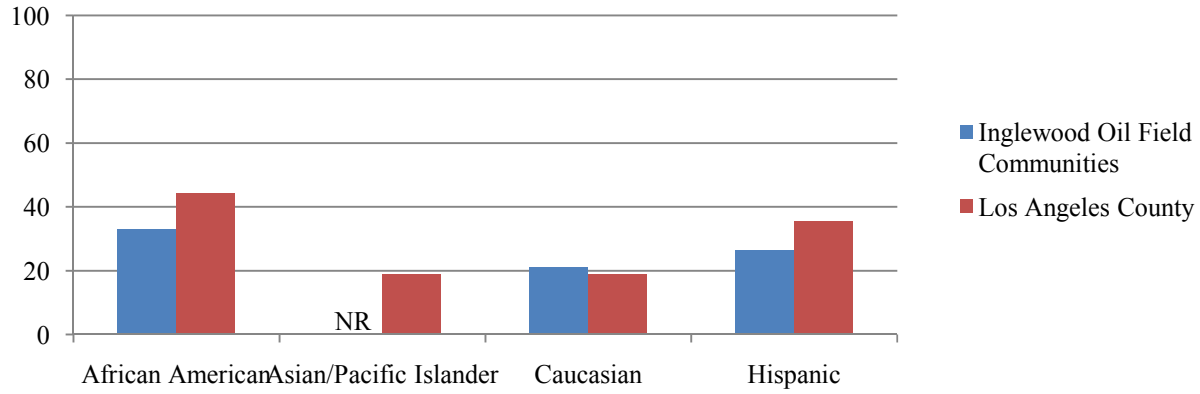
* Rate per 100,000 persons, age/race-adjusted, cumulative over years 2000-2007, ‡NS indicates not statistically significant at a p-value of 0.05

Table 7b: Age-adjusted mortality rates for diabetes for the Inglewood Oil Field communities and Los Angeles County from 2000-2007, by race/ethnicity

	Inglewood Oil Field Communities		Los Angeles County		
Race/Ethnicity	No. of deaths	Rate*	No. of deaths	Rate*	p-value‡
African American	185	33.2	2,837	44.3	<0.001
Asian/Pacific Islander	<20	NR	1,745	19.0	-----
Caucasian	77	21.2	6,564	19.0	NS
Hispanic	34	26.6	5,657	35.4	NS

* Rate per 100,000 persons, age-adjusted and cumulative over years 2000-2007, ‡NS indicates not statistically significant at a p-value of 0.05
NR indicates rate not reported due to small numbers

Fig. 7: Age-adjusted mortality rates for diabetes for the Inglewood Oil Field communities and Los Angeles County, by race/ethnicity



Risk Factors for Diabetes:

Risk factors for diabetes include being overweight, physical inactivity, age, pre-diabetes, family history of diabetes or history of gestational diabetes mellitus.

Individual opportunities for prevention:

- Maintain a healthy weight
- Stay physically active
- Eat plenty of fruits, vegetables and whole grain foods, while limiting consumption of high-fat foods
- Follow recommended screening and treatment guidelines
- Control blood pressure and high cholesterol
- Limit the intake of salt and sugar

Community opportunities for intervention:

- Promote physical activity by providing access to safe places like parks to walk, play and exercise
- Promote medical screening for diabetes for individuals with high blood pressure
- Increase the availability of affordable, nutritious foods
- Enforce state physical education requirements and nutrition education as part of a comprehensive school health curriculum

Emphysema and Chronic Obstructive Pulmonary Diseases (COPD)

There was no statistically significant difference in overall mortality rates for emphysema/COPD in the Inglewood Oil Field communities compared to Los Angeles County, after adjusting for age and race/ethnicity. Emphysema/COPD is the sixth leading cause of death in the Inglewood Oil Field communities. From 2000-2007, the mortality rate for emphysema/COPD was 36.7 deaths per 100,000 persons in the Inglewood Oil Field communities and 39.6 deaths per 100,000 persons in Los Angeles County, after adjusting for age and race/ethnicity (Table 8a). Caucasians had the highest mortality rates for emphysema/COPD in the Inglewood Oil Field communities and Los Angeles County (Table 8b and Fig. 8). African Americans had statistically significant lower mortality rates for emphysema/COPD than African Americans in Los Angeles County.

Table 8a: Age- and race-adjusted mortality rates for emphysema/COPDŧ for the Inglewood Oil Field communities and Los Angeles County from 2000-2007

	Inglewood Oil Field Communities		Los Angeles County		
Cause of Death	No. of deaths	Rate*	No. of deaths	Rate*	p-value‡
Emphysema/COPDŧ	322	36.7	21,484	39.6	NS

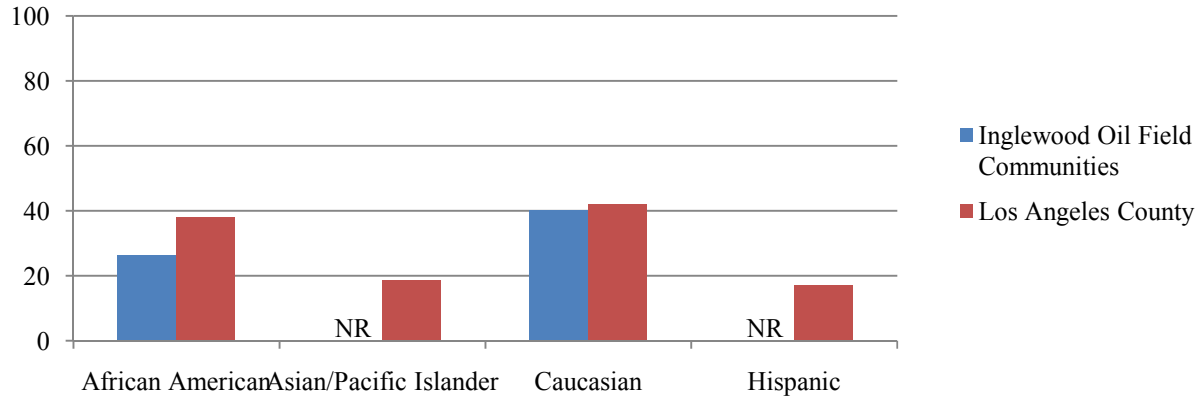
ŧ COPD includes chronic lower respiratory diseases such as chronic bronchitis, bronchiectasis, and other chronic obstructive pulmonary diseases
* Rate per 100,000 persons, age/race-adjusted, cumulative over years 2000-2007, ‡NS indicates not statistically significant at a p-value of 0.05

Table 8b: Age-adjusted mortality rates for emphysema/COPDŧ for the Inglewood Oil Field communities and Los Angeles County from 2000-2007, by race/ethnicity

	Inglewood Oil Field Communities		Los Angeles County		
Race/Ethnicity	No. of deaths	Rate*	No. of deaths	Rate*	p-value‡
African American	141	26.4	2,346	38.1	<0.001
Asian/Pacific Islander	<20	NR	1,614	18.7	-----
Caucasian	156	40.3	15,094	42.2	NS
Hispanic	<20	NR	2,346	17.3	-----

* Rate per 100,000 persons, age-adjusted and cumulative over years 2000-2007, ‡NS indicates not statistically significant at a p-value of 0.05
NR indicates rate not reported due to small numbers

Fig. 8: Age-adjusted mortality rates for emphysema/COPD for the Inglewood Oil Field communities and Los Angeles County from 2000-2007, by race/ethnicity



Risk Factors for Emphysema/COPD:

Risk factors for emphysema/COPD include tobacco smoking and breathing the smoke of others, occupational exposure to certain industrial pollutants.

Individual opportunities for prevention:

- Stop smoking
- Avoid being near people who are smoking
- If you don't smoke, don't start

Community opportunities for intervention:

- Increase the availability of effective smoking cessation services
- Limit smoking, and decrease exposure to indoor and outdoor secondhand smoke through effective anti-smoking policies and enforcement
- Support an increase in the tobacco tax

Human Immunodeficiency Virus (HIV)

There was no statistically significant difference in overall mortality rates for HIV in the Inglewood Oil Field communities compared to Los Angeles County, after adjusting for age and race/ethnicity. HIV is the fifth leading cause of premature death in the Inglewood Oil Field communities. From 2000-2007, the mortality rate for HIV was 3 deaths per 100,000 persons in the Inglewood Oil Field communities and 5.6 deaths per 100,000 persons in Los Angeles County, after adjusting for age and race/ethnicity (Table 9a). African Americans had higher mortality rates for HIV in the Inglewood Oil Field communities and in Los Angeles County (Table 9b and Fig. 9). African Americans in the Inglewood Oil Field communities had statistically significant higher mortality rates for HIV than males and African Americans in Los Angeles County.

Table 9a: Age- and race-adjusted mortality rates for HIV for the Inglewood Oil Field communities and Los Angeles County from 2000-2007

	Inglewood Oil Field Communities		Los Angeles County		
Cause of Death	No. of deaths	Rate*	No. of deaths	Rate*	p-value‡
HIV	96	3.0	3,804	5.6	NS

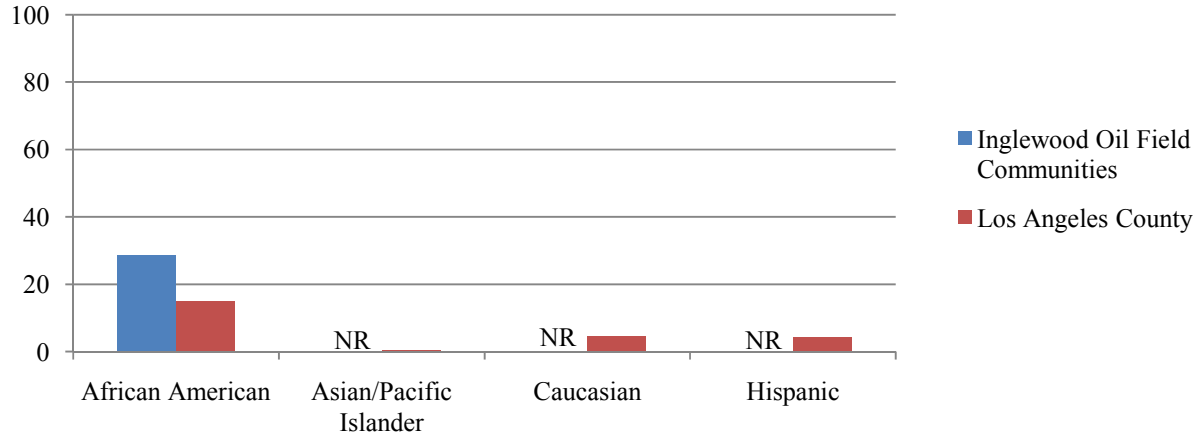
* Rate per 100,000 persons, age/race-adjusted, cumulative over years 2000-2007, ‡NS indicates not statistically significant at a p-value of 0.05

Table 9b: Age-adjusted mortality rates for HIV for the Inglewood Oil Field communities and Los Angeles County from 2000-2007, by race/ethnicity

	Inglewood Oil Field Communities		Los Angeles County		
Race/Ethnicity	No. of deaths	Rate*	No. of deaths	Rate*	p-value‡
African American	78	28.5	1,113	14.9	<0.001
Asian/Pacific Islander	<20	NR	73	0.6	-----
Caucasian	<20	NR	1,287	4.6	-----
Hispanic	<20	NR	1,300	4.3	-----

* Rate per 100,000 persons, age-adjusted and cumulative over years 2000-2007, ‡NS indicates not statistically significant at a p-value of 0.05
NR indicates rate not reported due to small numbers

Fig. 9: Age-adjusted mortality rates for HIV for the Inglewood Oil Field communities and Los Angeles County from 2000-2007, by race/ethnicity



Risk Factors for HIV:

Risk factors for HIV include having unprotected sex with an HIV-infected person or a person whose HIV status is unknown, sharing drug needles and syringes.

Individual opportunities for prevention:

- Use latex condoms consistently and correctly with HIV-infected sexual partners or those whose HIV status is unknown
- Do not share drug needles and syringes
- Learn your HIV status by getting tested for antibodies to HIV. An estimated 60,000 persons are living with HIV/AIDS in Los Angeles County, many of whom may be unaware of their infection.

Community opportunities for intervention:

- Educate the community about how HIV is transmitted and how to avoid getting infected
- Provide HIV counseling and testing
- Provide access to drug treatment programs and sexually transmitted disease testing and treatment
- Screen pregnant women for HIV infection and use drug therapies to reduce the transmission of HIV from mother to baby

Homicide

There was no statistically significant difference in overall mortality rates for homicide in the Inglewood Oil Field communities compared to Los Angeles County, after adjusting for age and race/ethnicity. Homicide is the second leading cause of premature death in the Inglewood Oil Field communities. From 2000-2007, the mortality rate for homicide was 9.3 deaths per 100,000 persons in the Inglewood Oil Field communities and 9.2 deaths per 100,000 persons in Los Angeles County, after adjusting for age and race/ethnicity (Table 10a). African Americans had the highest mortality rates for homicide in the Inglewood Oil Field communities and Los Angeles County (Table 10b and Fig. 10). African Americans in the Inglewood Oil Field communities had a statistically significant lower mortality rate for homicide than African Americans in Los Angeles County.

Table 10a: Age- and race-adjusted mortality rates for homicide for the Inglewood Oil Field communities and Los Angeles County from 2000-2007

	Inglewood Oil Field Communities		Los Angeles County		
Cause of Death	No. of deaths	Rate*	No. of deaths	Rate*	p-value‡
Homicide	202	9.3	8,352	9.2	NS

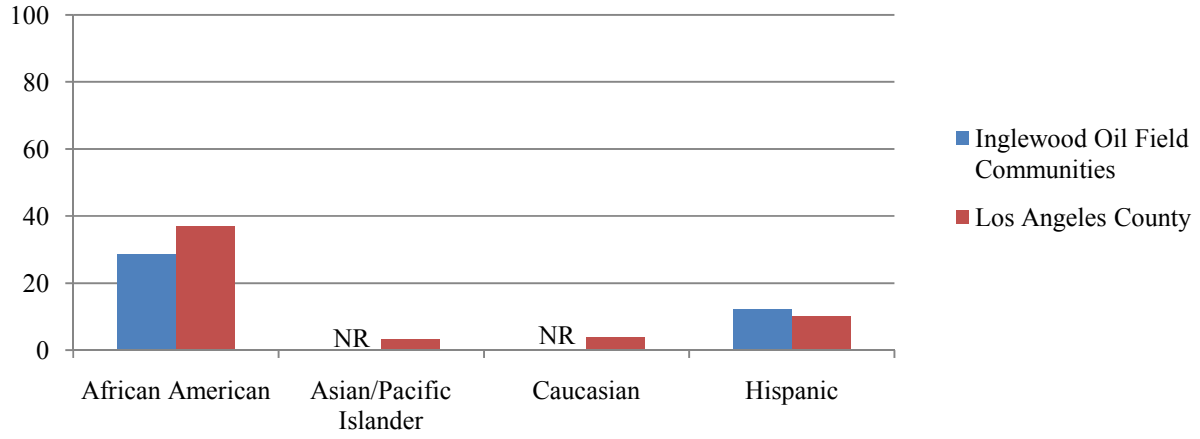
* Rate per 100,000 persons, age/race-adjusted, cumulative over years 2000-2007, ‡NS indicates not statistically significant at a p-value of 0.05

Table 10b: Age-adjusted mortality rates for homicide for the Inglewood Oil Field communities and Los Angeles County from 2000-2007, by race/ethnicity

	Inglewood Oil Field Communities		Los Angeles County		
Race/Ethnicity	No. of deaths	Rate*	No. of deaths	Rate*	p-value‡
African American	146	28.5	2,832	37.0	0.003
Asian/Pacific Islander	<20	NR	345	3.2	-----
Caucasian	<20	NR	916	3.7	-----
Hispanic	46	12.1	4,220	10.1	NS

* Rate per 100,000 persons, age-adjusted and cumulative over years 2000-2007, ‡NS indicates not statistically significant at a p-value of 0.05
NR indicates rate not reported due to small numbers

Fig. 10: Age-adjusted mortality rates for homicide for the Inglewood Oil Field communities and Los Angeles County from 2000-2007, by race/ethnicity



Risk Factors for Homicide:

Risk factors for homicide include intimate partner violence, poor access to quality education, lack of employment opportunities, youths with excessive unstructured free time, gang affiliation, alcohol and substance abuse, witnessing and experiencing violence and access to firearms.

Individual opportunities for prevention:

- Maintain respectful relationships with family and friends
- Pursue a good education
- Seek help for substance abuse
- Recognize that easy access to firearms is a risk for homicide
- If firearms are kept in the home, store them unloaded and locked with the ammunition locked separately.

Community opportunities for intervention:

- Create social norms that promote healthy relationships
- Develop after-school programs for children and adolescents
- Support nurse home-visitation programs for teenage parents
- Support community policing
- Make substance abuse treatment services widely available
- Build communities that discourage street violence with well-lit streets and plenty of pedestrian traffic

Liver Disease

There was no statistically significant difference in overall mortality rates for chronic liver disease in the Inglewood Oil Field communities compared to Los Angeles County, after adjusting for age and race/ethnicity. Chronic liver disease is the ninth leading cause of premature death in the Inglewood Oil Field communities. From 2000-2007, the mortality rate for chronic liver disease was 9.1 deaths per 100,000 persons in the Inglewood Oil Field communities and 10.8 deaths per 100,000 persons in Los Angeles County, after adjusting for age and race/ethnicity (Table 11a). Hispanics had the highest mortality rates for chronic liver disease in the Inglewood Oil Field communities and in Los Angeles County (Table 11b and Fig. 11). African Americans in the Inglewood Oil Field communities had statistically significant lower morality rates for chronic liver disease than African Americans in Los Angeles County.

Table 11a: Age- and race-adjusted mortality rates for chronic liver disease for the Inglewood Oil Field communities and Los Angeles County from 2000-2007

	Inglewood Oil Field Communities		Los Angeles County		
Cause of Death	No. of deaths	Rate*	No. of deaths	Rate*	p-value‡
Liver Disease	103	9.1	8,600	10.8	NS

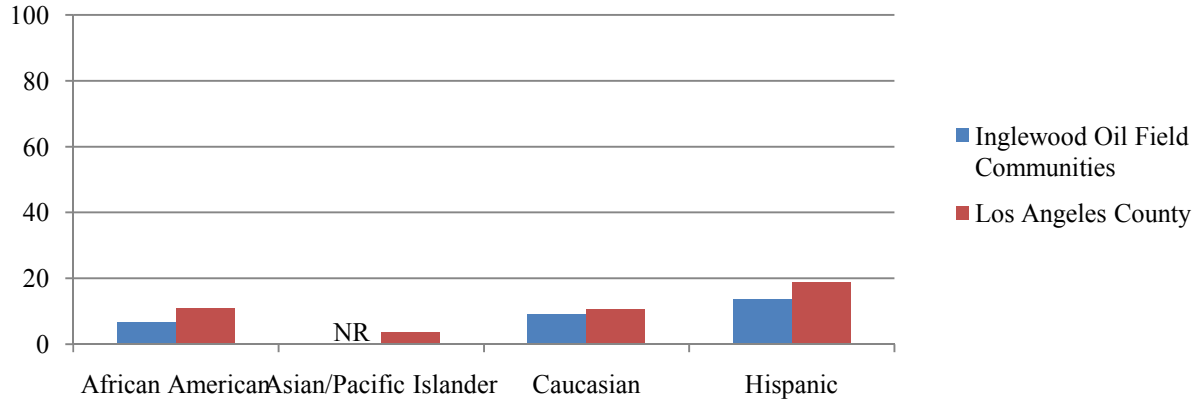
* Rate per 100,000 persons, age/race-adjusted, cumulative over years 2000-2007, ‡NS indicates not statistically significant at a p-value of 0.05

Table 11b: Age-adjusted mortality rates for chronic liver disease for the Inglewood Oil Field communities and Los Angeles County from 2000-2007, by race/ethnicity

	Inglewood Oil Field Communities		Los Angeles County		
Race/Ethnicity	No. of deaths	Rate*	No. of deaths	Rate*	p-value‡
African American	38	6.6	775	10.9	0.003
Asian/Pacific Islander	<20	NR	357	3.5	-----
Caucasian	28	9.1	3,319	10.6	NS
Hispanic	27	13.7	4,058	18.8	NS

* Rate per 100,000 persons, age-adjusted and cumulative over years 2000-2007, ‡NS indicates not statistically significant at a p-value of 0.05
NR indicates rate not reported due to small numbers

Fig. 11: Age-adjusted mortality rates for chronic liver disease for the Inglewood Oil Field communities and Los Angeles County from 2000-2007, by race/ethnicity



Risk Factors for Chronic Liver Disease:

Risk factors for chronic liver disease include excessive alcohol consumption, viral hepatitis infection and prolonged exposure to certain chemicals and medications.

Individual opportunities for prevention:

- Limit alcohol intake
- Follow manufacturer's instructions when using household and industrial chemicals
- Follow doctor's instructions when taking prescription and over-the-counter drugs
- Avoid behaviors that promote transmission of hepatitis B and hepatitis C, such as injection drug use and unprotected sex

Community opportunities for intervention:

- Provide access to alcohol treatment programs
- Promote hepatitis B vaccination for groups at high risk
- Promote screening for hepatitis C for groups at high risk including users of injection drugs, hemodialysis patients and recipients of transfusions or organs

Lung Cancer

There was no statistically significant difference in overall mortality rates for lung cancer in the Inglewood Oil Field communities compared to Los Angeles County, after adjusting for age and race/ethnicity. Lung cancer is the second leading cause of death and fourth leading cause of premature death in the Inglewood Oil Field communities. From 2000-2007, the mortality rate for lung cancer was 46.4 deaths per 100,000 persons in the Inglewood Oil Field communities and 43.5 deaths per 100,000 persons in Los Angeles County, after adjusting for age and race/ethnicity (Table 12a). African Americans had the highest mortality rates for lung cancer in the Inglewood Oil Field communities and in Los Angeles County (Table 12b and Fig. 12). African Americans in the Inglewood Oil Field communities had a statistically significant lower mortality rate for lung cancer than African Americans in Los Angeles County.

Table 12a: Age- and race-adjusted mortality rates for lung cancer£ for the Inglewood Oil Field communities and Los Angeles County from 2000-2007

	Inglewood Oil Field Communities		Los Angeles County		
Cause of Death	No. of deaths	Rate*	No. of deaths	Rate*	p-value‡
Lung Cancer£	501	46.4	24,654	43.5	NS

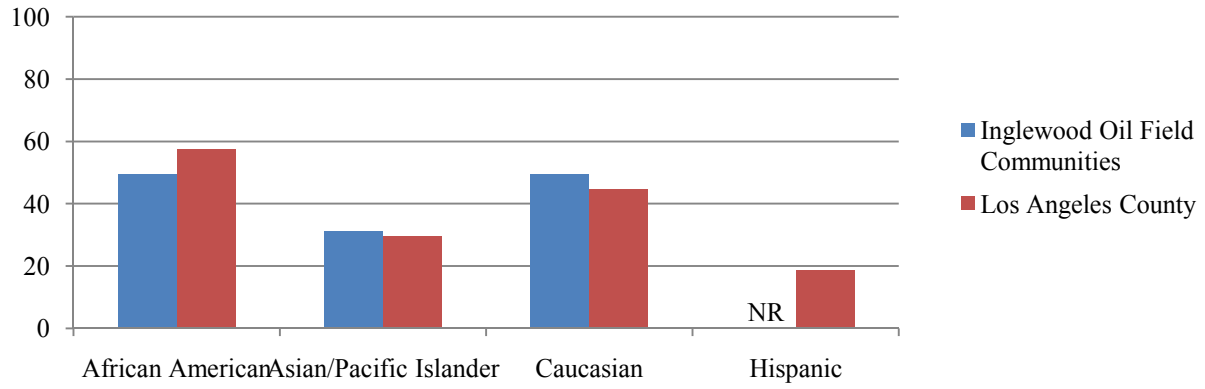
£Lung cancer includes cancers of the lung, bronchus and trachea
* Rate per 100,000 persons, age/race-adjusted, cumulative over years 2000-2007, ‡NS indicates not statistically significant at a p-value of 0.05

Table 12b: Age-adjusted mortality rates for lung cancer£ for the Inglewood Oil Field communities and Los Angeles County from 2000-2007, by race/ethnicity

	Inglewood Oil Field Communities		Los Angeles County		
Race/Ethnicity	No. of deaths	Rate*	No. of deaths	Rate*	p-value‡
African American	280	49.6	3,717	57.6	0.018
Asian/Pacific Islander	30	31.3	2,821	29.4	NS
Caucasian	174	49.5	15,092	44.7	NS
Hispanic	<20	NR	2,951	18.8	-----

* Rate per 100,000 persons, age-adjusted and cumulative over years 2000-2007, ‡NS indicates not statistically significant at a p-value of 0.05
NR indicates rate not reported due to small numbers

Fig. 12: Age-adjusted mortality rates for lung cancer£ for the Inglewood Oil Field communities and Los Angeles County from 2000-2007, by race/ethnicity



Risk Factors for Lung Cancer:

Risk factors for cancers of the lung, bronchus and trachea include tobacco smoking and breathing the smoke of others, prior lung cancer and exposure to cancer-causing substances including radon, asbestos, uranium and arsenic.

Individual opportunities for prevention:

- Stop smoking
- Avoid being near people who are smoking
- Reduce exposure to cancer-causing substances
- If you don't smoke, don't start

Community opportunities for intervention:

- Increase the availability of effective smoking cessation services
- Limit smoking, and decrease exposure to indoor and outdoor secondhand smoke through effective anti-smoking policies and enforcement
- Support an increase in the tobacco tax

Motor Vehicle Crashes

There was no statistically significant difference in overall mortality rates for motor vehicle crashes in the Inglewood Oil Field communities compared to Los Angeles County, after adjusting for age and race/ethnicity. Motor vehicle crashes are the third leading cause of premature death in the Inglewood Oil Field communities. From 2000-2007, the mortality rate for motor vehicle crashes was 6.2 deaths per 100,000 persons in the Inglewood Oil Field communities and 9.5 deaths per 100,000 persons in Los Angeles County, after adjusting for age and race/ethnicity (Table 13a). The mortality rates for motor vehicle crashes were not statistically significantly different in the Inglewood Oil Field communities and Los Angeles County for African Americans (Table 13b and Fig. 13). The numbers of deaths were too few to compare rates for the other ethnicities. African Americans had the highest morality rates for motor vehicle crashes in the Inglewood Oil Field communities and in Los Angeles County.

Table 13a: Age- and race-adjusted mortality rates for motor vehicle crashes for the Inglewood Oil Field communities and Los Angeles County from 2000-2007

	Inglewood Oil Field Communities		Los Angeles County		
Cause of Death	No. of deaths	Rate*	No. of deaths	Rate*	p-value‡
Motor Vehicle Crash	101	6.2	6,931	9.5	NS

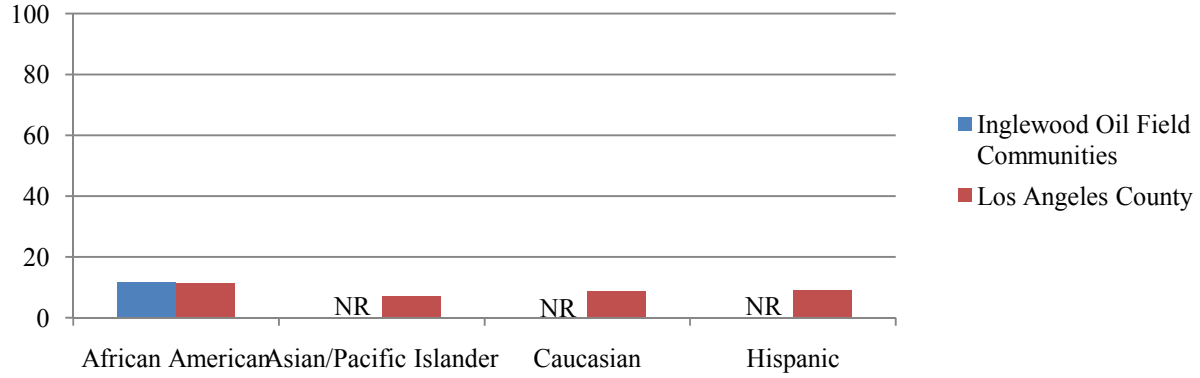
* Rate per 100,000 persons, age/race-adjusted, cumulative over years 2000-2007, ‡NS indicates not statistically significant at a p-value of 0.05

Table 13b: Age-adjusted mortality rates for motor vehicle crashes for the Inglewood Oil Field communities and Los Angeles County from 2000-2007, by race/ethnicity

	Inglewood Oil Field Communities		Los Angeles County		
Race/Ethnicity	No. of deaths	Rate*	No. of deaths	Rate*	p-value‡
African American	63	11.7	840	11.3	NS
Asian/Pacific Islander	<20	NR	722	7.0	-----
Caucasian	<20	NR	2,342	8.9	-----
Hispanic	<20	NR	2,993	9.0	-----

* Rate per 100,000 persons, age-adjusted and cumulative over years 2000-2007, ‡NS indicates not statistically significant at a p-value of 0.05
NR indicates rate not reported due to small numbers

Fig. 13: Age-adjusted mortality rates for motor vehicle crashes for the Inglewood Oil Field communities and Los Angeles County from 2000-2007, by race/ethnicity



Risk Factors for Motor Vehicle Crashes:

Risk factors for motor vehicle crashes include driving under the influence of alcohol or drugs (illicit, prescription, or over-the-counter), driving recklessly, driving while distracted, disobeying traffic laws, lack of driving experience, younger or older age, hazardous road conditions, neglecting routine car maintenance. Risk factors for injury after a crash include not using seat belts or other passenger safety restraints such as child safety seats, unsafe car design.

Individual opportunities for prevention:

- Do not drive while impaired by alcohol or drugs
- Always wear seat belts, even for short trips
- Place young children in an age-appropriate, properly installed child safety or booster seat
- Have children younger than 12 years of age ride in the back seat
- Do not drive while distracted

Community opportunities for intervention:

- Actively enforce all traffic laws, including laws addressing seat belt use and child passenger safety
- Use media campaigns to reduce alcohol-impaired driving
- Comply with the graduated licensing system for teenage drivers
- Support national efforts for safe car design with safety features such as antilock brakes or electronic stability control systems

Pancreatic Cancer

There was no statistically significant difference in overall mortality rates for pancreatic cancer in the Inglewood Oil Field communities compared to Los Angeles County, after adjusting for age and race/ethnicity. Pancreatic cancer is the tenth leading cause of death in the Inglewood Oil Field communities. From 2000-2007, the mortality rate for pancreatic cancer was 9.2 deaths per 100,000 persons in the Inglewood Oil Field communities and 10.5 deaths per 100,000 persons in Los Angeles County, after adjusting for age and race/ethnicity (Table 14a). There was no statistically significant difference in mortality rates for pancreatic cancer in the Inglewood Oil Field communities and Los Angeles County for any ethnicity (Table 14b and Fig. 14). African Americans had the highest mortality rates for pancreatic cancer in the Inglewood Oil Field communities as well as in Los Angeles County as a whole.

Table 14a: Age- and race-adjusted mortality rates for pancreatic cancer for the Inglewood Oil Field communities and Los Angeles County from 2000-2007

	Inglewood Oil Field Communities		Los Angeles County		
Cause of Death	No. of deaths	Rate*	No. of deaths	Rate*	p-value‡
Pancreatic Cancer	134	9.2	6,597	10.5	NS

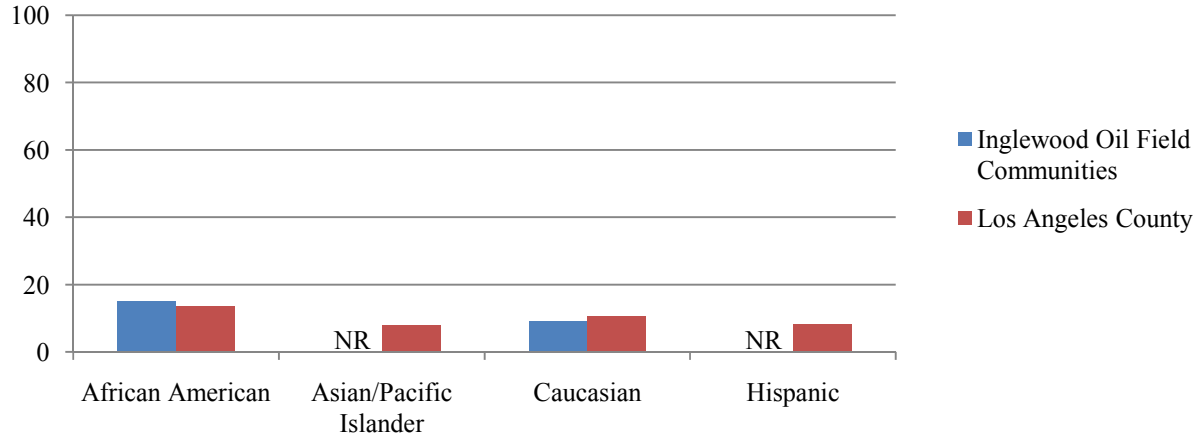
* Rate per 100,000 persons, age/race-adjusted, cumulative over years 2000-2007, ‡NS indicates not statistically significant at a p-value of 0.05

Table 14b: Age-adjusted mortality rates for pancreatic cancer for the Inglewood Oil Field communities and Los Angeles County from 2000-2007, by race/ethnicity

	Inglewood Oil Field Communities		Los Angeles County		
Race/Ethnicity	No. of deaths	Rate*	No. of deaths	Rate*	p-value‡
African American	84	15.0	864	13.6	NS
Asian/Pacific Islander	<20	NR	767	8.0	-----
Caucasian	31	9.0	3,617	10.5	NS
Hispanic	<20	NR	1,331	8.3 (7.9-8.8)	-----

* Rate per 100,000 persons, age-adjusted and cumulative over years 2000-2007, ‡NS indicates not statistically significant at a p-value of 0.05
NR indicates rate not reported due to small numbers

Fig. 14: Age-adjusted mortality rates for pancreatic cancer for the Inglewood Oil Field communities and Los Angeles County from 2000-2007, by race/ethnicity



Risk Factors for Pancreatic Cancer:

Risk factors for pancreatic cancer include age, tobacco smoking, family history of pancreatic cancer, being overweight or obese, H.pylori bacterial infection, pancreatitis and diabetes.

Individual opportunities for prevention:

- Stop smoking
- Maintain a healthy weight

Community opportunities for intervention:

- Restrict smoking in public places and worksites
- Increase the availability of effective smoking cessation services
- Support an increase in the tobacco tax

Pneumonia and Influenza

There was no statistically significant difference in overall mortality rates for pneumonia/influenza in the Inglewood Oil Field communities compared to Los Angeles County, after adjusting for age and race/ethnicity. Pneumonia and influenza are the fourth leading causes of death in the Inglewood Oil Field communities. From 2000-2007, the mortality rate for pneumonia/influenza was 33.7 deaths per 100,000 persons in the Inglewood Oil Field communities and 29.3 deaths per 100,000 persons in Los Angeles County, after adjusting for age and race/ethnicity (Table 15a). Caucasians had the highest mortality rates for pneumonia/influenza in the Inglewood Oil Field communities (Table 15b and Fig. 15). Caucasians in the Inglewood Oil Field communities had a statistically significant higher mortality rate for pneumonia/influenza than Caucasians in Los Angeles County as a whole.

Table 15a: Age- and race-adjusted mortality rates for pneumonia/influenza for the Inglewood Oil Field communities and Los Angeles County from 2000-2007

	Inglewood Oil Field Communities		Los Angeles County		
Cause of Death	No. of deaths	Rate*	No. of deaths	Rate*	p-value‡
Pneumonia/Influenza	373	33.7	18,883	29.3	NS

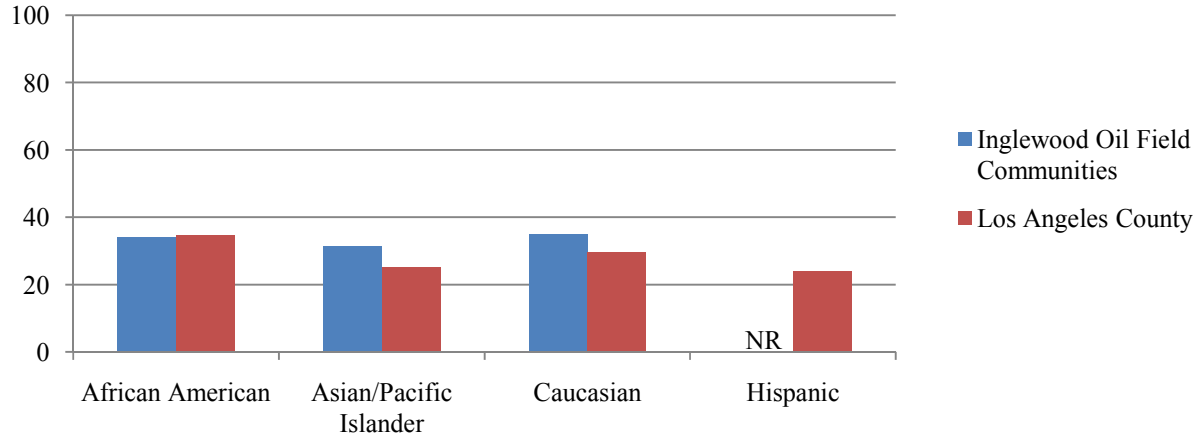
* Rate per 100,000 persons, age/race-adjusted, cumulative over years 2000-2007, ‡NS indicates not statistically significant at a p-value of 0.05

Table 15b: Age-adjusted mortality rates for pneumonia/influenza for the Inglewood Oil Field communities and Los Angeles County from 2000-2007, by race/ethnicity

	Inglewood Oil Field Communities		Los Angeles County		
Race/Ethnicity	No. of deaths	Rate*	No. of deaths	Rate*	p-value‡
African American	179	34.0	2,065	34.6	NS
Asian/Pacific Islander	28	31.3	2,138	25.2	NS
Caucasian	148	35.0	11,346	29.6	0.049
Hispanic	<20	NR	3,261	23.9	-----

* Rate per 100,000 persons, age-adjusted and cumulative over years 2000-2007, ‡NS indicates not statistically significant at a p-value of 0.05
NR indicates rate not reported due to small numbers

Fig. 15: Age-adjusted mortality rates for pneumonia/influenza for the Inglewood Oil Field communities and Los Angeles County from 2000-2007, by race/ethnicity



Risk Factors for Pneumonia/Influenza:

Risk factors for pneumonia/influenza include age (young and old), smoking, and underlying chronic medical conditions such as diabetes and asthma.

Individual opportunities for prevention:

- Follow recommended guidelines for influenza and pneumococcal pneumonia vaccination
- Wash your hands frequently with soap and water
- Stop smoking
- Stay away from people who are sick
- Avoid touching your eyes, nose or mouth

Community opportunities for intervention:

- Education the community about the recommendations for influenza and pneumococcal pneumonia vaccination
- Provide information about the availability of low-cost or no-cost vaccinations for certain individuals
- Encourage everyone with respiratory illness (fever, cough, runny nose) to stay home to avoid spreading the illness to others

Stroke

There was no statistically significant difference in overall mortality rates for stroke in the Inglewood Oil Field communities compared to Los Angeles County, after adjusting for age and race/ethnicity. Stroke is the third leading cause of death and tenth leading cause of premature death in the Inglewood Oil Field communities. From 2000-2007, the mortality rate for stroke was 48.4 deaths per 100,000 persons in the Inglewood Oil Field communities and 48.3 deaths per 100,000 persons in Los Angeles County, after adjusting for age and race/ethnicity (Table 16a). African Americans had the highest mortality rates for stroke in the Inglewood Oil Field communities as well as Los Angeles County (Table 16b and Fig. 16). African Americans in the Inglewood Oil Field communities however, had a statistically significant lower mortality rate for stroke than African Americans in Los Angeles County as a whole.

Table 16a: Age- and race-adjusted mortality rates for stroke for the Inglewood Oil Field communities and Los Angeles County from 2000-2007

	Inglewood Oil Field Communities		Los Angeles County		
Cause of Death	No. of deaths	Rate*	No. of deaths	Rate*	p-value‡
Stroke	600	48.4	31,928	48.3	NS

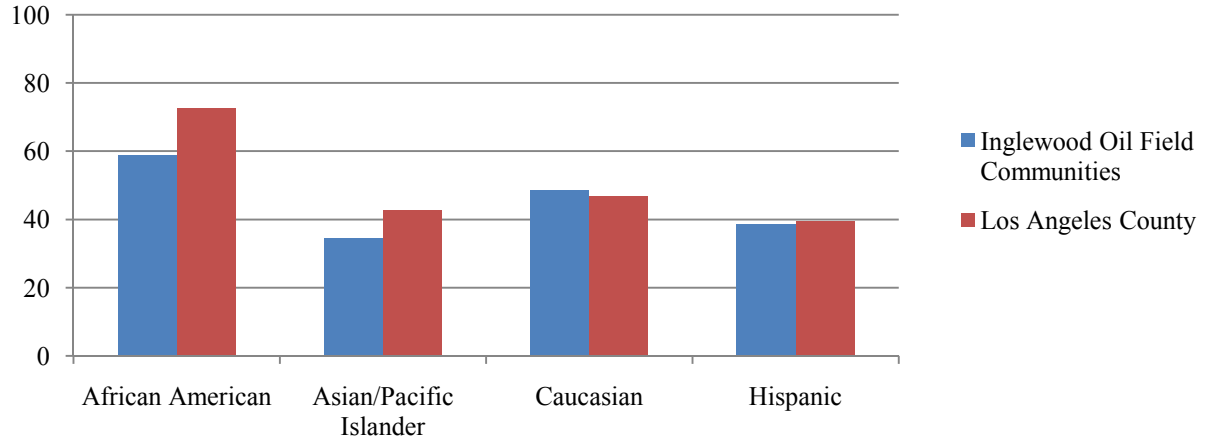
* Rate per 100,000 persons, age/race-adjusted, cumulative over years 2000-2007, ‡NS indicates not statistically significant at a p-value of 0.05

Table 16b: Age-adjusted mortality rates for stroke for the Inglewood Oil Field communities and Los Angeles County from 2000-2007, by race/ethnicity

	Inglewood Oil Field Communities		Los Angeles County		
Race/Ethnicity	No. of deaths	Rate*	No. of deaths	Rate*	p-value‡
African American	316	58.9	4,495	72.6	<0.001
Asian/Pacific Islander	31	34.3	3,865	42.6	NS
Caucasian	201	48.5	17,505	46.8	NS
Hispanic	46	38.6	5,979	39.5	NS

* Rate per 100,000 persons, age-adjusted and cumulative over years 2000-2007, ‡NS indicates not statistically significant at a p-value of 0.05

Fig. 16: Age-adjusted mortality rates for stroke for the Inglewood Oil Field communities and Los Angeles County from 2000-2007, by race/ethnicity



Risk Factors for Stroke:

Risk factors for stroke include high blood pressure, tobacco smoking, diabetes, high cholesterol, being overweight, physical inactivity, excessive alcohol consumption, age, family history of stroke, and prior stroke or heart attack.

Individual opportunities for prevention:

- Control high blood pressure
- Stop smoking
- Manage diabetes
- Maintain a healthy weight
- Consult with your physician about increasing physical activity
- Eat a diet low in fat and salt
- Learn the stroke warning signs

Community opportunities for intervention:

- Promote access to blood pressure screening and treatment for high blood pressure
- Promote physical activity by providing access to safe places like parks to walk, play and exercise
- Restrict smoking in public places and worksites
- Provide access to smoking cessation programs
- Encourage people to quit smoking through media campaigns

Conclusion

There were no statistically significant difference in overall mortality rates for all causes of death in the Inglewood Oil Field communities compared to Los Angeles County, after adjusting for age and race/ethnicity. African Americans and Hispanics in the Inglewood Oil Field communities had statistically significantly lower mortality rates for all causes of death compared to African Americans and Hispanics in Los Angeles County.

There were no statistically significant differences in the mortality rates for any of the leading causes of death or premature death in the Inglewood Oil Field communities compared to Los Angeles County, after adjusting for age and race/ethnicity. Although there were no statistically significant differences in the overall mortality rates, the racial/ethnic disparities existing in Los Angeles County are also reflected in the mortality rates found in the Inglewood Oil Field communities.

There were statistically significantly higher mortality rates for some of the leading causes of death and premature death in certain ethnic groups. In the Inglewood Oil Field communities and in Los Angeles County as a whole, African Americans had the highest mortality rates for all causes of death, colorectal cancer, coronary heart disease, diabetes, HIV, homicide, motor vehicle crashes, pancreatic cancer and stroke. Caucasians had the highest mortality rates for emphysema and chronic obstructive pulmonary diseases, while Hispanics had the highest mortality rates for chronic liver disease in both the Inglewood Oil Field communities and Los Angeles County. African Americans and Caucasians had higher rates of Alzheimer's disease, breast cancer (among females), lung cancer and pneumonia/influenza than other ethnicities in both the Inglewood Oil Field communities and Los Angeles County.

For some of the leading causes of death and premature death, rates were statistically significantly different in the Inglewood Oil Field communities compared to Los Angeles County for certain ethnic groups. African Americans in the Inglewood Oil Field communities had statistically significantly lower mortality rates for coronary heart disease, diabetes, emphysema/COPD, homicide, chronic liver disease, lung cancer and stroke than African Americans in Los Angeles County. On the other hand, African Americans in the Inglewood Oil Field communities had statistically significantly higher mortality rates for HIV than African Americans in Los Angeles County. Caucasians in the Inglewood Oil Field communities had statistically significantly higher mortality rates for pneumonia/influenza than Caucasians in Los Angeles County.

The differences in mortality rates for the leading causes of death and premature death do not appear to be related to the geographic location of the Inglewood Oil Field communities. Many of the differences observed within these communities are common in Los Angeles County and represent a significant public health challenge throughout the county. The disparities in mortality rates can best be addressed by targeting the underlying causes of these disparities.

ANALYSIS OF RATES OF LOW-BIRTH-WEIGHT BIRTHS

The Toxics Epidemiology Program in the Bureau of Toxicology & Environmental Assessment obtained data on rates of low-birth-weight births in response to community concerns regarding potential adverse health effects for residents living near the Inglewood Oil Field. The data for rates of low-birth-weight births were obtained from registered birth certificates entered into the Automated Vital Statistics System (AVSS) at the birth hospital or the office of the local registrar. Since registration of birth certificates is required by law, the data in the AVSS is nearly 100 percent complete.

Methods

The low-birth-weight births analysis was performed with data on live births during the period 2000-2007. The analysis included births among women living in the area identified in the Inglewood Oil Field communities and Los Angeles County as a whole. Low birth weight was defined as a birth weight less than 2500 grams (5.5 pounds). The area representing the Inglewood Oil Field communities used in the analyses for low-birth-weight births included the census tracts within 1.5 miles from the perimeter of the Inglewood Oil Field. The census tracts for the year 2000 are: 2199.00, 2201.00, 2351.00, 2360.00, 2361.00, 2362.01, 2362.02, 2364.00, 2699.01, 2701.00, 2702.00, 2751.00, 2761.00, 6009.02, 6009.11, 6009.12, 6013.01, 6013.02, 6013.03, 7024.00, 7025.01, 7025.02, 7026.00, 7027.00, 7028.01, 7030.01, 7030.02, 7031.00, and 7032.00. A map of the included census tracts is provided in Appendix A.

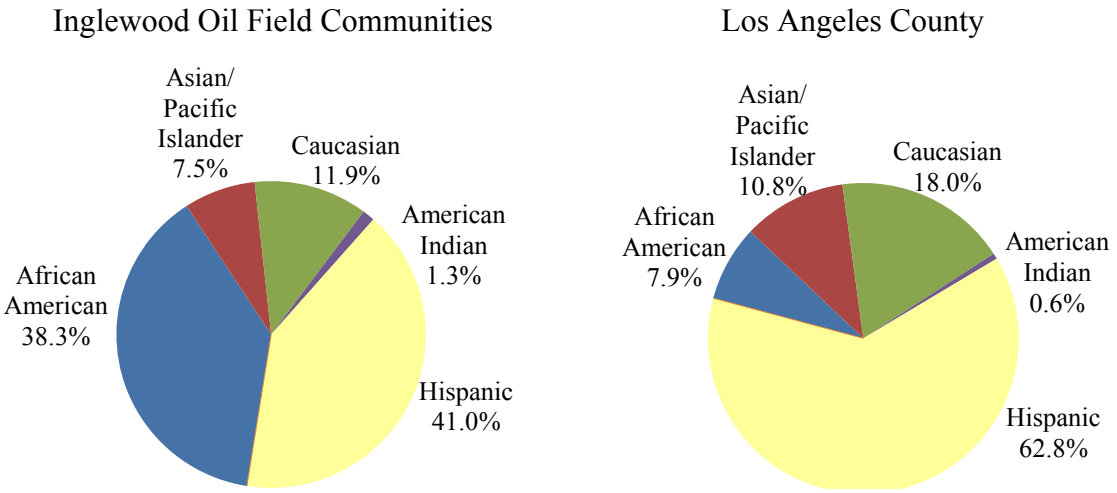
The data were analyzed for an eight year period to increase the reliability of the findings and to assess trends. Rates based on small numbers of events can fluctuate widely from year to year for reasons other than a true change in the underlying frequency of occurrence of the event. Therefore, when the number of low-birth-weight births was less than 20 in any single year, the rates of low-birth-weight births are not reported.

Rates of low-birth-weight births for the Inglewood Oil Field communities and Los Angeles County were compared and a statistical test of the difference was done to determine if the rates were statistically different.[2] A p-value of less than 0.05 indicated that the two rates were statistically significantly different, while a p-value of greater than 0.05 indicated that the two rates were not statistically significantly different.

Since the racial/ethnic distribution of the underlying population in the Inglewood Oil Field communities differs from Los Angeles County, rates were stratified to examine differences by racial/ethnic group for African Americans, Asian/Pacific Islanders, Caucasians and Hispanics (Fig. 1). Rates of low-birth-weight births were not reported for American Indians/Alaska Natives since the numbers of low-birth-weight births were too small to provide reliable rates. Overall rates of low-birth-weight births were adjusted for race/ethnicity to account for the differences in the racial/ethnic distribution in the Inglewood Oil Field communities and Los Angeles County. Cumulative race-adjusted rates were standardized to the racial/ethnic distribution of the Los Angeles County population for the year 2000.

[2] Rothman KJ, Greenland S, Lash TL. Modern Epidemiology 3rd Ed. Philadelphia: Lippincott Williams & Wilkins; 2008 p.266-268.

Fig. 1: Number of live births in the Inglewood Oil Field communities and Los Angeles County, by race/ethnicity



Source: California Department of Public Health, Center for Health Statistics, 2000-2007

Results

The rate of low-birth-weight births was 7.2 per 100 live births in the Inglewood Oil Field communities and 7.0 per 100 live births in Los Angeles County, after adjusting for the differences in racial/ethnic distribution of births (Table 2). The rates of low-birth-weight births were not statistically significantly different between the Inglewood Oil Field communities and Los Angeles County for any ethnicity (Table 1).

In both the Inglewood Oil Field communities and Los Angeles County, African Americans had the highest rates of low-birth-weight births. Since there were proportionately more African American births in the Inglewood Oil Field communities than in Los Angeles County (Fig. 1), when rates were adjusted for the differences in racial/ethnic distribution, there were no statistically significant differences in rates of low-birth-weight births (Table 2).

From 2000-2007, the rates of low-birth-weight births were consistently higher in African Americans than in other ethnicities in Los Angeles County (Fig. 2). There appears to be a slight increasing trend in rates of low-birth-weight births in the Inglewood Oil Field communities as well as in Los Angeles County for all ethnicities.

Table 1: Number of low birth weight births and rates for the Inglewood Oil Field communities and Los Angeles County from 2000-2007, by race/ethnicity

	Inglewood Oil Field Communities		Los Angeles County		
Race/Ethnicity	No. of LBW	LBW Rate*	No. of LBW	LBW Rate*	p-value‡
All Races	1,246	8.7	85,370	7.0	<0.001
African American	651	11.9	11,957	12.5	NS
Asian/Pacific Islander	86	8.1	9,496	7.2	NS
Caucasian	101	5.9	14,924	6.8	NS
Hispanic	399	6.8	48,245	6.3	NS

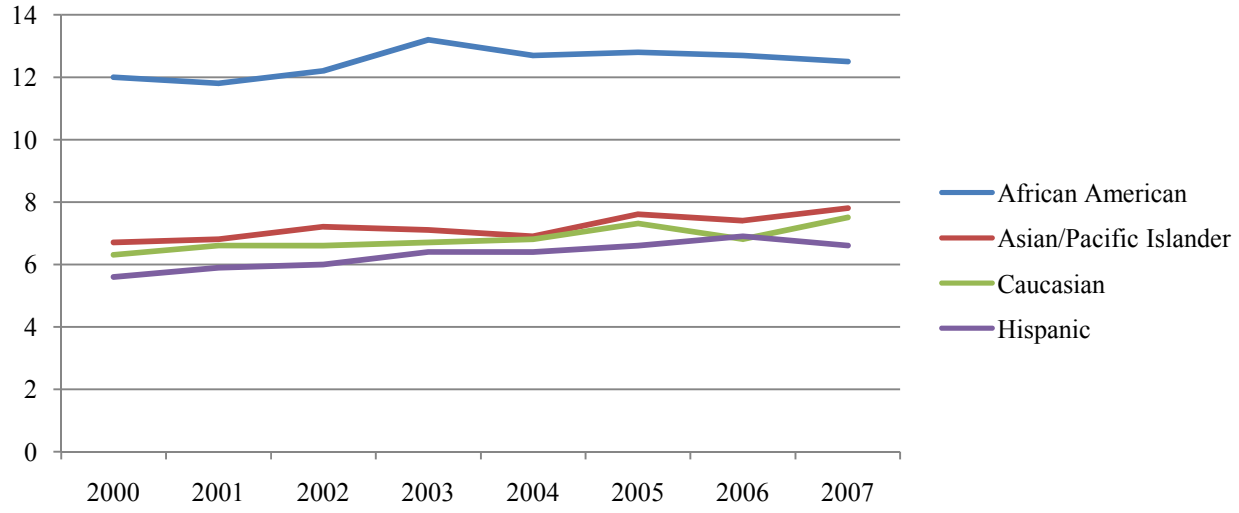
* LBW rate is the number of low birth weight live births per 100 live births, cumulative over years 2000-2007
‡NS indicates not statistically significant at a p-value of 0.05
Source: California Department of Public Health, Center for Health Statistics, OHIR Vital Statistics Section, 2000-2007

Table 2: Number of low birth weight births and rates for the Inglewood Oil Field communities and Los Angeles County from 2000-2007, adjusted for race/ethnicity

	Inglewood Oil Field Communities		Los Angeles County		
	No. of LBW	LBW Rate*	No. of LBW	LBW Rate*	p-value‡
Low Birth Weight Births	1,246	7.2	85,370	7.0	NS

* LBW rate is the number of low birth weight live births per 100 live births, race-adjusted and cumulative over years 2000-2007
‡NS indicates not statistically significant at a p-value of 0.05
Source: California Department of Public Health, Center for Health Statistics, OHIR Vital Statistics Section, 2000-2007

Fig. 2: Low-birth-weight birth rates for Los Angeles County from 2000-2007 by race/ethnicity

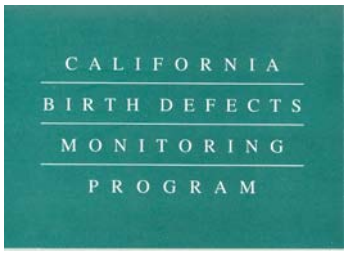


Data Source for Fig. 2: Table 3 in Appendix A

Conclusion

There was no statistically significant difference in the rates of low-birth-weight births in the Inglewood Oil Field communities compared to Los Angeles County, after adjusting for race/ethnicity. These results should be interpreted with caution given the lack of information on other factors (such as smoking) that could influence birth weights.

The differences in rates of low-birth-weight births among racial and ethnic groups that exist countywide are reflected in the rates observed in the Inglewood Oil Field communities. These disparities in low-birth-weight births represent a significant public health challenge throughout the county.



Request Title:

Baldwin Hills Community Standards and Los Angeles County

REQUEST NUMBER: ID 1150

DATE: DECEMBER 22, 2010

DATA SOURCE:

THE CALIFORNIA BIRTH DEFECTS MONITORING PROGRAM

Maternal, Child and Adolescent Health Division
Center for Family Health
California Department of Public Health
1615 Capitol Avenue, MS 8304
Sacramento, CA 95814

PREPARED FOR:

CARRIE TAYOUR

(EPIDEMIOLOGIST, LA COUNTY DEPT OF PUBLIC HEALTH)

DEFINITIONS AND ABBREVIATIONS

Term	Meaning
CBDMP	California Birth Defects Monitoring Program
CDPH	California Department of Public Health
DCS	Data Collection Specialist
MCAH	Maternal, Child and Adolescent Health Division
CFH	Center for Family Health
Registry	CBDMP's database of clinical data related to birth defect cases identified in CBDMP surveillance regions
Precision	Code used to allow for the assessment of the accuracy of the diagnosis
BPA	British Pediatric Association; diagnostic coding system used by CBDMP to classify birth defects
IUFD	Intrauterine fetal death
TAB	Therapeutic abortion

1. CBDMP Program Information

In 1982, California established a groundbreaking program for birth defects monitoring. Recognizing that birth defects are a public health problem about which too little is known, the State Legislature created the California Birth Defects Monitoring Program (CBDMP). From 1982-1990, seven pieces of legislation were passed and enacted, mandating the CBDMP to: 1) Maintain an ongoing program of birth defects monitoring statewide; 2) Track birth defects rates and trends; 3) Evaluate whether environmental hazards are associated with birth defects; 4) Investigate other possible birth defects causes; 5) Develop birth defects prevention strategies; 6) Conduct interview studies about causes; and 7) May operate by contract with a qualified entity.

CBDMP monitors birth defects in California as a means to ensure the safety of the public. Through active medical chart review and data collection, the CBDMP maintains a Registry of birth defects. CBDMP uses information in the Registry to perform surveillance, to monitor trends in occurrence of birth defects, and to help in planning intervention and prevention strategies. In addition, CBDMP provides data to scientific researchers.

1.1 Program Mission and Goals

Program Mission: The California Birth Defects Monitoring Program (CBDMP) collects and analyzes data to identify opportunities for preventing birth defects and improving the health of babies.

Program Goals:

- Increase the quality and quantity of California-based birth defect data available for purposes of public health monitoring and investigator-led research
- Increase communication of birth defects information
- Monitor public health and safety concerns relating to birth defects

1.2 Data Collection Methods

CBDMP uses a systematic approach to collect data that are used for the purposes of surveillance, epidemiologic research, and cluster investigations. To identify cases (live births, fetal deaths, and terminations) with birth defects, highly trained data collection staff visit health facilities in select Registry counties. Data collection is limited to in-patient facilities, genetic offices and cytogenetic laboratories. Data collection staff visit health facilities and review all relevant logs, such as obstetrics, nursery, and newborn intensive care unit, as well as discharge diagnoses indices. All potential cases are identified and the medical records are reviewed. Detailed identifying information and diagnostic information are abstracted into a standard format. For each diagnosis a confirmation code signifies how the diagnosis was made; a sub-specialist code signifies what type of physician or clinician made the diagnosis; and a precision code allows for the assessment of the accuracy of the diagnosis. A CBDMP data expert or geneticist reviews abstracts of children who have multiple diagnoses to determine if the children also have previously unrecognized syndromes.

2. REQUEST

In response to health concerns voiced by residents in communities near the Baldwin Hills Community Standards District (CSD), the Los Angeles County Department of Public Health is conducting a community health assessment. The assessment will provide a profile of the health of the population near the CSD. They are requesting an analysis examining the rates of birth defects for a selected group of zip codes--90008, 90016, 90043, 90056, 90230, 90232, 90302--compared to all recent available data on birth defects reported in Los Angeles County starting in 1990. The results of the analysis will be used to examine the rates of birth defects in this geographical area compared to rates in LA County as a whole as part of a snapshot of health in this area.

3. METHODS

The analysis performed identified birth defect cases in the registry collected over a span of eight years or more (DOB: 7/1/1990-12/31/2002, excluding DOB 1998) for Los Angeles County and zip codes that contain the Baldwin Hills Community (90008, 90016, 90043, 90056, 90230, 90232, and 90302). Rates were calculated per 1,000 live births and fetal deaths with 95% confidence intervals for each defect or defect group. Not all defects requested were collected by CBDMP for all years.

Vital statistics information on the total number of live births and fetal deaths (denominator value) for rate calculations was determined using the California Center for Health Statistics Office of Health Information and Research Vital Statistics data.

3.1 Data Selection Criteria

Congenital anomalies were identified using British Pediatric Association (BPA). Criteria used for inclusion is listed in Table 4 of Appendix A. Births in military hospitals were excluded. Birth year 1998 excluded due to incomplete data collection.

3.2 Statistical Methods

Birth defect rates and confidence intervals (Baldwin Hills and Los Angeles County) are displayed in this report. Rates represent cases per 1,000 live births and fetal deaths. 95% confidence intervals were calculated using Poisson distribution. The Relative risk (RR) was also calculated between groups for each deformity and reported, with respective 95% confidence intervals.

The confidence intervals indicate that there is a 95% probability that the actual statistic falls somewhere between the lower and the upper limit. When looking at the relative risk, if the 95% confidence interval includes 1, it is determined that there is not a statistical difference between the two rates.

4. RESULTS

4.1 Birth defect rates with 95% confidence intervals for Los Angeles County & Baldwin Hills

Zip codes containing and surrounding the Baldwin Hills Community (90008, 90016, 90043, 90056, 90230, 90232, and 90302) and Los Angeles County from July 1, 1990-December 31, 2002 (excluding births occurring in 1998) per 1,000 live births and fetal deaths.

Type of Birth Defect	Baldwin Hills Community Zip Codes*	Los Angeles County	Relative Risk
Anencephaly	0.20 (0.09-0.40)	0.34 (0.32-0.37)	0.59 (0.30 – 1.18)
Spina Bifida	0.38 (0.21-0.62)	0.38 (0.35-0.41)	0.99 (0.6 – 1.66)
Encephalocele₮	0.03 (0.00-0.16)	0.11 (0.10-0.13)	0.26 (0.04 – 1.86)
Microcephalus₮	0.97 (0.67-1.37)	0.91 0.86-0.95)	1.08 (0.76 – 1.52)
Hydrocephalus₮	0.71 (0.45-1.05)	0.52 (0.48-0.55)	1.37 (0.91 – 2.06)
Other Nervous System Anomalies₮	1.86 (1.43-2.38)	1.55 (1.49-1.61)	1.20 (0.93 – 1.54)
Eye Anomalies§	3.29 (2.65-4.04)	3.15 (3.06-3.25)	1.05 (0.85 – 1.29)
Ear Anomalies§	5.21 (4.40-6.13)	5.09 (4.97-5.21)	1.02 (0.87 – 1.21)
Cardiac Septal Closure Anomalies₮	3.19 (2.61-3.85)	3.45 (3.36-3.54)	0.92 (0.76 – 1.12)
Transposition of Great Vessels	0.28 (0.14-0.49)	0.46 (0.43-0.49)	0.71 (0.39 – 1.29)
Tetralogy of Fallot	0.40 (0.23-0.65)	0.35 (0.33-0.38)	1.13 (0.69 – 1.86)
Other Heart Anomalies₮	2.33 (1.85-2.90)	2.53 (2.45-2.60)	0.92 (0.74 – 1.15)

Type of Birth Defect	Baldwin Hills Community Zip Codes*	Los Angeles County	Relative Risk
Other Circulatory System Anomalies₮	1.56 (1.17-2.05)	1.85 (1.79-1.91)	0.85 (0.64 – 1.11)
Respiratory System Anomalies§	3.76 (3.08-4.56)	3.42 (3.32-3.52)	1.1 (0.91 – 1.34)
Cleft palate and/or cleft lip	1.20 (0.89-1.60)	1.52 (1.47-1.58)	.79 (0.59 – 1.05)
TE/Fistula§	0.22 (0.08-0.47)	0.25 (0.22-0.27)	0.88 (0.39 – 1.98)
Pyloric Stenosis§	1.12 (0.76-1.59)	1.55 (1.48-1.62)	0.72 (0.51 – 1.03)
Small Intestinal Atresia§	0.65 (0.39-1.03)	0.41 (0.38-0.45)	1.57 (0.98 – 2.52)
Large Intestinal Atresia§	0.47 (0.25-0.80)	0.44 (0.41-0.48)	1.07 (0.62 – 1.84)
Hirschsprung	0.18 (0.06-0.39)	0.13 (0.11-0.14)	1.40 (0.63 – 3.15)
Genital Anomalies§	2.89 (2.30-3.60)	2.95 (2.86-3.04)	0.98 (0.79 – 1.22)
Urinary System Anomalies§	2.32 (1.78-2.96)	2.29 (2.21-2.37)	1.01 (0.79 – 1.30)
Musculo-skeletal§	3.47 (2.81-4.24)	3.26 (3.16-3.35)	1.07 (0.87 – 1.31)
Limbs§	5.72 (4.86-6.68)	4.80 (4.68-4.91)	1.19£ (1.02 – 1.39)
Other Musculoskeletal Anomalies§	4.70 (3.93-5.58)	4.11 (4.00-4.22)	1.14 (0.96 – 1.36)
Anomalies of the Integument§	4.85 (4.06-5.74)	4.24 (4.14-4.35)	1.13 (0.95 – 1.34)
Down Syndrome₮	1.68 (1.27-2.18)	1.67 (1.61-1.73)	1.01 (0.78 – 1.31)
Other Chromosomal Anomalies§	1.23 (0.85-1.72)	1.22 (1.16-1.28)	1.01 (0.72 – 1.42)
Other Congenital Disorders§	0.98 (0.64-1.42)	1.20 (1.14-1.26)	0.82 (0.56 – 1.19)

* Baldwin Hills Community zip codes include 90008, 90016, 90043, 90056, 90230, 90232, and 90302

₮ California Birth Defect Monitoring Program reported data from the years 1990-2000, excluding 1998 because of incomplete data collected for that year

§ California Birth Defect Monitoring Program reported data from the years 1990-1997

£ $p < .05$

5. DISCUSSION

The table included in Section 5.1 of this report shows the rates of birth defects with corresponding 95% confidence intervals for the zip codes that contain and surround the Baldwin Hills Community and for all of Los Angeles County. The Relative risk associated with each rate comparison is also calculated along with the corresponding 95% confidence intervals. In calculating rates for the zip codes that contain and surround Baldwin Hills Community, wide confidence intervals mean that the estimates of the rates are very imprecise due to the small sample sizes of pregnant women and the small numbers of children born with birth defects.

The only rate estimates for birth defects in the zip codes that contain and surround Baldwin Hills that were statistically significantly different when compared to Los Angeles County as a whole was for limb defects, with RR 1.19 (95% CI 1.02 – 1.39). Babies born in the Baldwin Hills area were 1.2 times more likely to be born with a limb defect than those in the remaining Los Angeles area for the birth years 1990 thru 1997.

Epidemiological investigations are relatively conclusive when large, population-based samples are involved. Conversely, analyses of data from local areas, such as the communities surrounding the Baldwin Hills Community, are limited by small sample sizes. In addition, these analyses cannot take into account the multitude of factors associated with the development of birth defects. Thus, these results should be interpreted with caution.

5.1 LIMITATIONS

Due to budget constraints, not all of the defects were collected for all birth years. Data collection for the 1998 birth year was incomplete and, therefore, not included in this analysis.

This investigation cannot rule out that living in close proximity to Baldwin Hills may be associated with a small increase in the risk of developing birth defects in some individuals. Scientific detection of such small increases in risk is beyond the scope of this investigation, due to small sample sizes in the Baldwin Hills area and other methodological limitations.

6. TERMS OF USE

The table and data in this report and results pertaining to the request are confidential. The data will not be used for purposes other than those stated in the agreement. Requester must adhere to strict guidance of HIPAA rules in regards to storing and providing privacy protections for health-related data. The data may be used for epidemiologic and public health monitoring and planning purposes only. Data may be presented in aggregate form only. No personal level data may be released. The requester will not sell or distribute the data or permit others to do so. The requester will not link or match, or let others link or match, the data to any other unaggregated dataset and/or other individual information unless such link or match was identified in the research proposal and the proposal was approved by the State of California Health and Human Services Agency (CHHSA) and Committee for the Protection of Human Subjects (CPHS). No subject contact is permitted without written approval. The requester will not use or permit others to use the data to learn about the identity of a program client or a survey participant.

USC
UNIVERSITY
OF SOUTHERN
CALIFORNIA

Keck School of Medicine
University of Southern California

Cancer Surveillance Program

Department of
Preventive Medicine

Assessment of Cancer Incidence in Baldwin Hills, Baldwin Hills Adjacent and Ladera Heights

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The University of Southern California Cancer Surveillance Program (USC-CSP) is the population-based cancer registry for Los Angeles County that was begun in 1972. By law, all cancers diagnosed in California since January 1, 1988 are reported to one of the regional registries that form the California Cancer Registry (CCR), the legally mandated cancer reporting system of California. The USC-CSP serves as Region 9 of the CCR, and is also one of the registries participating in the National Cancer Institute's Surveillance, Epidemiology, and End-Results Program (SEER). The California Department of Public Health, the Centers for Disease Control and Prevention, and the National Cancer Institute fund cancer surveillance conducted by USC-CSP. Data is collected on all new cancer patients diagnosed in Los Angeles County since 1972 and includes information on age, race/ethnicity, patient's address at diagnosis, gender and specific type of cancer. All invasive cancers, excluding non-melanoma skin cancers, are reported, along with in situ breast and bladder cancer, and benign brain tumors. Completeness of the reporting to the registry is estimated at over 95%.

This report is in response to a request from the Los Angeles County Board of Supervisors as communicated to Dr. Cozen by Carrie Nagy, Epidemiologist, Los Angeles County Department of Health Services, for the risk of cancer types related to exposure to oil wells located at the La Cienega oil field. Because risk of certain types of hematopoietic cancers has been linked to exposure to petroleum products such as benzene1, we examined the expected and observed incidence of these cancers in the area of concern. We divided the time period into 1972-1999 and 2000-2005 in order to capture a better understanding of the most recent trends. The aggregated census tracts examined were: 220100, 235100, 236000, 236202, 236400, 269901, 276100, 600911, 601301, 601303, 702400, 702501, 702502, 702600, 702700, 703001, 703002, 703100, and 703200.

Results:

The type of cancer that has been most definitively linked to benzene (petroleum product) is acute myelogenous leukemia. There was no excess occurrence of this type of leukemia in the census tracts examined (Table 1). All other hematopoietic cancer incidence was similarly within the range of that expected except for chronic myelogenous leukemia among non-Hispanic whites in the most recent time period examined; there were two additional cases over that expected (Table 1.) We could not examine the risk of acute lymphocytic leukemia which occurs mainly in children under 5 years old, because there were too few cases in the area. We did not examine Hodgkin lymphoma because it has not been associated with benzene or petroleum exposures 1.

Table 1. Observed and expected numbers of selected hematopoietic cancers in census tracts 220100, 235100, 236000, 236202, 236400, 269901, 276100, 600911, 601301, 601303, 702400, 702501, 702502, 702600, 702700, 703001, 703002, 703100, 703200 from 1972-2005, based on the USC SEER Cancer Surveillance Program.

	1972-1999		2000-2005	
	Cases Observed[1]	Cases Expected[2]	Cases Observed[1]	Cases Expected[2]
Acute myelogenous leukemia[3]				
African-American	17	14-34	7	3-16
Non-Hispanic White	47	32-59	4	2-13
Hispanic White	-	-	-	-
Asian/Other	4	0-8	-	-
Chronic myelogenous leukemia[4]				
African-American	11	9-27	4	0-9
Non-Hispanic White	11	12-32	9*	0-7
Hispanic White	-	-	-	-
Asian/Other	-	-	-	-
Chronic lymphocytic leukemia[5]				
African-American	28	17-39	13	3-17
Non-Hispanic White	54	39-69	14	4-18
Hispanic White	-	-	-	-
Asian/Other	-	-	-	-
Non-Hodgkin lymphoma[6]				
African-American	106	80-120	41	32-59
Non-Hispanic White	198	175-232	50	30-56
Hispanic White	13	7-24	9	2-14
Asian/Other	15	6-21	12	2-14
Multiple myeloma[7]				
African-American	97	68-105	37	22-46
Non-Hispanic White	52	43-74	11	4-18
Hispanic White	5	0-10	-	-
Asian/Other	4	0-7	-	-

[1]Number of cases observed in census tracts
[2]Expected range of 95% confidence interval based on population of named census tracts
[3]Acute myelogenous leukemia, SEER Site 35021
[4]Chronic myelogenous leukemia, SEER Site 35022
[5]Chronic lymphocytic leukemia, SEER Site 35012
[6]Non-Hodgkin lymphoma, SEER Sites 33041-33042
[7]Multiple myeloma, SEER Site 34000

Discussion:

There was an excess risk of chronic myelogenous leukemia (CML) in non-Hispanic whites based on two cases, in the census tracts examined. The link between this type leukemia and petroleum products is not as consistently found as that with acute myelogenous leukemia, but there are some reports of an association1. Because we examined 27 comparisons (by race/ethnicity and cancer type), chance is still a possible explanation for the occurrence of 2 additional cases. Furthermore, in most of the studies examining this issue, occupational exposure to specific petroleum-based chemicals, such as benzene, was measured, rather than

residential proximity to oil wells. Very few, if any, well-conducted published studies exist on health effects in communities due to proximity of oil wells.

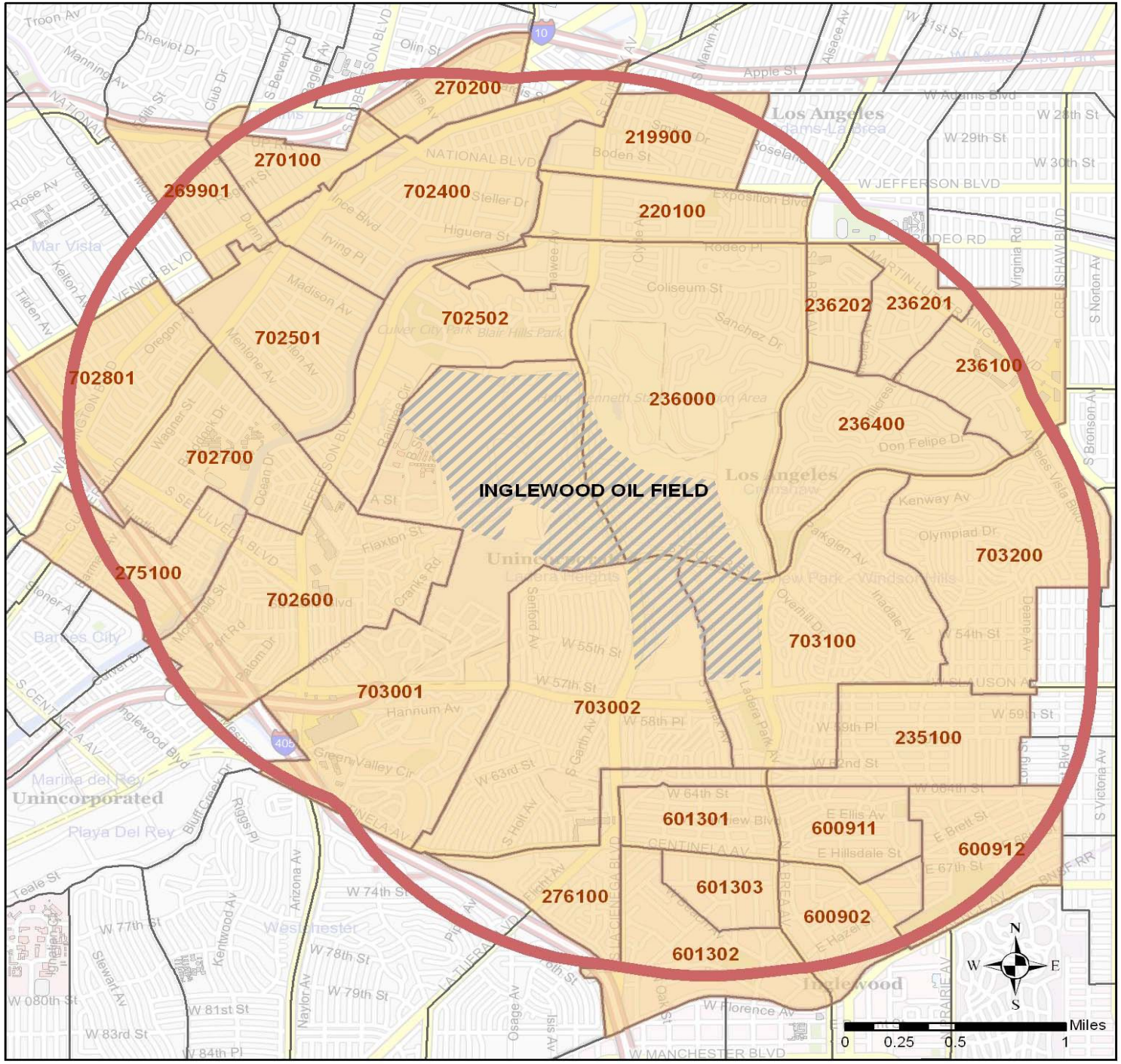
The additional two cases of CML may or may not be related to the proximity of the oil wells and prediction about future leukemia risk related to an expansion of oil wells should not be made on this basis. Rather, risk assessment should be based on estimated exposure of the community to carcinogenic substances associated with oil wells.

References

1. Linet MS, Devesa SS, Morgan GJ. The Leukemias. In Schottenfeld D and Fraumeni JF, Jr. Cancer Epidemiology and Prevention. Third Edition. Oxford University Press, New York, New York, 2006.

Cc: Dennis Deapen, Dr. PH., Thomas M. Mack, M.D., M.P.H., Jonathan Samet M.D., M.S., Kurt Snipes, Ph.D., Janet Bates, M.D., M.P.H. and Margaret McCusker, M.D., M.S.

APPENDIX A



Census tracts within proximity of Inglewood Oil Field perimeter

Legend

- study area
- 1.5 mile buffer
- selected census tracts

Estimated population:

PEPS 2007 = 152,035
Census 2000 = 146,461

Prepared by LA County Department of Public Health, Office of Health Assessment and Epidemiology, 12/2010

Table 1: Crude mortality rates for the Inglewood Oil Field communities and Los Angeles County from 2000-2007

	Inglewood Oil Field Communities		Los Angeles County	
Cause of Death	No. of deaths	Rate*	deaths	Rate*
All Causes	8,708	724	476,493	594.3
Alzheimer's	160	13.3	10,200	12.7
Asthma	30	2.5	1,028	1.3
Breast Cancer (females)	186	28.9	8,774	21.6
Colorectal Cancer	237	19.7	11,056	13.8
Coronary Heart Disease	2,251	187.2	125,526	156.6
Diabetes	310	25.8	16,890	21.1
Emphysema/COPDŧ	322	26.8	21,484	26.8
HIV	96	6.4	3,804	4.7
Homicide	202	16.8	8,352	10.4
Liver Disease	103	8.6	8,600	10.7
Lung Cancer£	501	41.7	24,654	30.7
Motor Vehicle Crash	101	8.4	6,931	8.6
Pancreatic Cancer	134	11.1	6,597	8.2
Pneumonia/Influenza	373	31	18,883	23.6
Stroke	600	49.9	31,928	39.8

* Per 100,000 persons, cumulative over years 2000-2007
ŧ Chronic obstructive pulmonary diseases (COPD) include chronic lower respiratory diseases such as chronic bronchitis, bronchiectasis, and other chronic obstructive pulmonary diseases
£Lung cancer includes cancers of the lung, bronchus and trachea
Source: Linked Death Files 2000-2007, Los Angeles County Department of Health Services, Data Collection and Analysis Unit
Population: July 1, 2007 population estimates prepared by WRMA for Urban Research, Los Angeles County ISD, released June 27, 2008

Table 2: Numbers of deaths from all causes of death and age-adjusted rates of mortality for the Inglewood Oil Field communites§ and Los Angeles County, by race/ethnicity for the years 2000-2007

	2000		2001		2002		2003		2004		2005		2006		2007	
	No. of deaths	Death rate*	No. of deaths	Death rate*	No. of deaths	Death rate*	No. of deaths	Death rate*	No. of deaths	Death rate*	No. of deaths	Death rate*	No. of deaths	Death rate*	No. of deaths	Death rate*
Inglewood Oil Field Communities	1,071	787.9	1,056	779.9	1,145	824.5	1,136	795.8	1,120	754.9	1,062	708.6	1,060	699.3	1,058	685.1
African American	547	851.4	603	954.6	593	914	631	924.6	607	861.6	570	794.1	577	802.8	569	793.4
Asian / Pacific Islander	52	557.1	59	583	50	459.5	55	509.5	58	531.6	53	432.8	38	292.5	62	430.7
Caucasian	395	828.1	312	666.2	416	844.6	350	743.6	345	724.8	354	723.6	357	759.2	320	673.3
Hispanic	77	504.1	79	465.1	84	486.1	97	656.6	104	589.2	81	488.7	85	411.5	102	446.9
Los Angeles County	59,032	753.7	59,774	756.0	59,586	726.1	61,026	721.3	59,153	682.2	60,145	678.6	59,461	660.6	58,316	624.3
African American	8,256	1,074.8	8,447	1,100.9	8,481	1,077	8,517	1,059	8,372	1,025	8,410	1,016	8,185	984.8	8,023	939.8
Asian / Pacific Islander	4,787	498.2	5,084	511.3	5,255	495.8	5,352	475.7	5,591	472.8	5,820	468.4	5,884	454.2	6,087	439.6
Caucasian	34,688	809.3	34,182	800.7	33,668	772.9	34,100	772	32,320	726.7	32,097	716.3	31,375	704.8	30,590	673.3
Hispanic	11,102	597	11,874	622.4	11,966	587.9	12,801	593.9	12,631	560.9	13,567	572.6	13,783	556.4	13,429	506.2

§2000 Census Tracts: 2199.00, 2201.00, 2351.00, 2360.00, 2361.00, 2362.01, 2362.02, 2364.00, 2699.01, 2701.00, 2702.00, 2751.00, 2761.00, 6009.02, 6009.11, 6009.12, 6013.01, 6013.02, 6013.03, 7024.00, 7025.01,7025.02, 7060.00, 7027.00, 7028.01, 7030.01, 7030.02, 7031.00, 7032.00

* Age-adjusted rate per 100,000 person-years; 'NR' rate not reported due to small numbers

Source: Linked Death Files 2000-2007, Los Angeles County Department of Health Services, Data Collection and Analysis Unit

Population: July 1, 2007 population estimates prepared by WRMA for Urban Research, Los Angeles County ISD, released June 27, 2008.

Table 3: Numbers of low-birth-weight live births and rates of low-birth-weight births for the Inglewood Oil Field communites§ and Los Angeles County, by race/ethnicity for the years 2000-2007

	2000		2001		2002		2003		2004		2005		2006		2007	
	No. of LBW	LBW rate*	No. of LBW	LBW rate*	No. of LBW	LBW rate*	No. of LBW	LBW rate*	No. of LBW	LBW rate*	No. of LBW	LBW rate*	No. of LBW	LBW rate*	No. of LBW	LBW rate*
Inglewood Oil Field Communities	187	10.3	129	7.5	139	8.2	129	7.5	138	8.0	182	9.9	176	9.3	166	9.0
African American	120	15.7	60	8.8	69	10.1	67	10.4	66	10.7	89	12.9	98	13.7	82	12.5
Asian / Pacific Islander	<20	NR	<20	NR	<20	NR	<20	NR	<20	NR	<20	NR	<20	NR	<20	NR
Caucasian	<20	NR	<20	NR	<20	NR	<20	NR	<20	NR	<20	NR	<20	NR	<20	NR
Hispanic	46	6.2	50	7.2	50	7.4	40	5.4	52	7.4	57	7.7	51	6.8	53	6.7
Los Angeles County	10,080	6.4	10,213	6.7	10,222	6.8	10,794	7.1	10,717	7.1	10,984	7.3	11,196	7.4	11,186	7.4
African American	1,616	12.0	1,489	11.8	1,456	12.2	1,559	13.2	1,478	12.7	1,456	12.8	1,456	12.7	1,429	12.5
Asian / Pacific Islander	1,095	6.7	1,061	6.8	1,151	7.2	1,165	7.1	1,151	6.9	1,244	7.6	1,239	7.4	1,390	7.8
Caucasian	1,827	6.3	1,860	6.6	1,832	6.6	1,883	6.7	1,878	6.8	1,932	7.3	1,775	6.8	1,939	7.5
Hispanic	5,478	5.6	5,714	5.9	5,700	6.0	6,084	6.4	6,111	6.4	6,232	6.6	6,628	6.9	6,298	6.6

§2000 Census Tracts: 2199.00, 2201.00, 2351.00, 2360.00, 2361.00, 2362.01, 2362.02, 2364.00, 2699.01, 2701.00, 2702.00, 2751.00, 2761.00, 6009.02, 6009.11, 6009.12, 6013.01, 6013.02, 6013.03, 7024.00, 7025.01,7025.02, 7060.00, 7027.00, 7028.01, 7030.01, 7030.02, 7031.00, 7032.00

Note: Low birth weight is defined as weight less than 2,500 grams at birth. Numbers in the male and female categories may not add up to the total due to live births designated as unknown gender.

* LBW Rate is defined as the number of low birth weight live births per 100 live births; 'NR' rate not reported due to small numbers

Source: California Department of Public Health, Center for Health Statistics, OHIR Vital Statistics Section, 2000-2007.

Table 4: California Birth Defects Monitoring Program's criteria used for inclusion of birth defect data

Type of Birth Defect	British Pediatric Association (BPA) Code	Continued & Specific Instrucitons
Anencephaly	740.000-740.199	DOB 7/1/1990-1997, 1999-2002: Continued=any, Specific=any
Spina Bifida Excludes spina bifida if anencephaly (704.000-741.000) present	741.000-741.999	DOB 7/1/1990-1997, 1999-2002: Continued=any, Specific=any
Encephalocele₮	742.000-742.090	DOB 7/1/1990-1997, 1999-2000: Continued=any, Specific=any
Microcephalus₮	742.100	DOB 7/1/1990-1997, 1999-2000: Continued=any, Specific=any
Hydrocephalus₮ Excludes hydrocephaly if spina bifida (741.000-741.999) present	742.300-742.390	DOB 7/1/1990-1997, 1999-2000: Continued=any, Specific=any
Other Nervous System Anomalies₮ Excludes encephalocele (742.000-742.090), microcephalus (742.100), hydrocephaly (742.300-742.390)	742.200-742.299; 742.400-742.999	DOB 7/1/1990-1997, 1999-2000: Continued=any, Specific=any
Eye Anomalies§	743.000-743.904	DOB 7/1/1990-1997: Continued=any, Specific=any
Ear Anomalies§ Includes anomalies of ear, face & neck	744.000-744.910	DOB 7/1/1990-1997: Continued=any, Specific=any
Cardiac Septal Closure Anomalies₮	745.400-745.900	DOB 7/1/1990-1997, 1999-2000: Continued=any, Specific=any
Transposition of Great Vessels Includes DORV (745.150); only d-TGA; collected for DOB 2001-2003	745.100-745.190	DOB 7/1/1990-1997, 1999-2002: Continued=any, Specific=any
Tetralogy of Fallot	745.200, 745.210, 747.310	DOB 7/1/1990-1997, 1999-2002: Continued=any, Specific=any
Other Heart Anomalies₮ Excludes tetraology of fallot (745.200, 747.310), septal closure defects (745.400-745.900), transposition of great vessels (745.100-745.190)	745.000-745.020; 745.300-745.305; 746.000-746.990	DOB 7/1/1990-1997, 1999-2000: Continued=any, Specific=any
Other Circulatory System Anomalies₮	747.100-747.900	DOB 7/1/1990-1997, 1999-2000: Continued=any, Specific=any
Respiratory System Anomalies§	748.000-748.904	DOB 7/1/1990-1997: Continued=any, Specific=any

Cleft palate and/or cleft lip	749.000-749.294	DOB 7/1/1990-1997, 1999-2002: Continued=any, Specific=any
Tracheoesophageal (TEF)/Fistula§ Includes esophageal atresia +/- TEF; excludes esophageal stenosis	750.300-750.320	DOB 7/1/1990-1997: Continued=any, Specific=any
Pyloric Stenosis§	750.510	DOB 7/1/1990-1997: Continued=any, Specific=any
Small Intestinal Atresia§ Excludes stenosis of duodenum (751.130), jejunum (751.140), ilieum (751.150), stenosis small intestine NOS with fistula (751.185), stenosis small intestine NOS without fistula (751.180) and duodenal web (751.160)	751.100-751.120; 751.190-751.195	DOB 7/1/1990-1997: Continued=any, Specific=any
Large Intestinal Atresia§ Excludes stenosis of large intestine (751.206), stenosis rectum with fistula (751.215) , stenosis rectum without fistula (751.225), stenosis anus with fistula (751.236), stenosis anus without fistula (751.246)	751.200, 751.210, 751.220, 751.235 751.237, 751.239, 751.245, 751.247, 751.249	DOB 7/1/1990-1997: Continued=any, Specific=any
Hirschsprung	751.300-751.340	DOB 7/1/1990-1997, 1999-2000: Continued=any, Specific=any
Genital Anomalies§	752.000-752.904	DOB 7/1/1990-1997: Continued=any, Specific=any
Urinary System Anomalies§	753.000-753.904	DOB 7/1/1990-1997: Continued=any, Specific=any
Musculo-skeletal§	754.000-754.884	DOB 7/1/1990-1997: Continued=any, Specific=any
Limbs§	755.000-755.904	DOB 7/1/1990-1997: Continued=any, Specific=any
Other Musculoskeletal Anomalies§	756.000-756.994	DOB 7/1/1990-1997: Continued=any, Specific=any
Anomalies of the Integument§	757.000-757.990	DOB 7/1/1990-1997: Continued=any, Specific=any
Down Syndrome₮	758.000-758.099	DOB 7/1/1990-1997, 1999-2000: Continued=any, Specific=any
Other Chromosomal Anomalies§	758.100-758.999	DOB 7/1/1990-1997: Continued=any, Specific=any
Other Congenital Disorders§	759.000-759.999	DOB 7/1/1990-1997: Continued=any, Specific=any

₮ CBDMP reported data for DOB 1990-2000, excludes 1998 incomplete data collected for that year

§ CBDMP reported data for DOB 1990-1997

* Data for chromosome defects & birth defects with abnormal chromosomes differs over time