Results of the Household Health Survey in the Community Adjacent to the Sunshine Canyon Landfill and in a Comparison Community

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BACKGROUND

On September 9, 2003 the Los Angeles County Board of Supervisors instructed the Department of Health Services (DHS) to investigate community concerns of cancer and other illnesses among individuals living near the Sunshine Canyon Landfill. Dr. Paul Simon, Director of Health Assessment and Epidemiology, and staff from the Toxics Epidemiology Program reviewed background materials related to the landfill and associated health complaints. In addition, meetings were held with community representatives to obtain information on their health concerns and to discuss possible approaches for investigating these concerns. At these meetings and through informal communications, community members expressed general concerns about possible adverse health effects of living near the landfill and specific concerns about cancer and asthma.

As part of their investigation, DHS staff requested that the USC Cancer Surveillance Program analyze data on cancer incidence in the neighborhoods surrounding the landfill, and that the California Birth Defects Monitoring Program analyze data on birth defects in these neighborhoods. In addition, DHS staff analyzed data from birth and death certificates to assess mortality, including infant mortality, and low birth weight births. The results of these analyses did not reveal any evidence of unusual patterns of disease in the neighborhoods around the landfill.[1-4]

Because many individuals in the community expressed concerns that the data analyses described above might be missing important morbidity among persons currently and previously residing near the landfill, DHS agreed to conduct a household health survey. The objectives of the survey were: 1) to obtain information on health risks, self-perceived health status, and selected medical conditions among those in the community directly adjacent to the landfill, 2) to estimate the prevalence of asthma among adults and children in the community, 3) to assess for unusual patterns of cancer among persons currently or previously residing in the community, and 4) to assess the level of concern in the community regarding the landfill and the general environment.

At the outset, community representatives were informed that the survey would not be able to determine causal relationships between the landfill and reported illness for the following reasons. First, there have been no specific toxic exposures identified from the landfill. In the absence of a defined exposure, surveys and other epidemiologic studies cannot be used to address the question of causation. Second, even in the presence of a

defined exposure, the survey would not have sufficient statistical power to detect an excess risk attributable to this exposure for the conditions of greatest concern (e.g., cancer and birth defects). Even if all residents of the census tract adjacent to the landfill were included, the survey would not have sufficient statistical power to detect this excess risk. Third, although some conditions (e.g., asthma) do occur with sufficient frequency to allow for detection of excess risk, such excess, if identified, would not necessarily mean it was caused by the landfill given that there are many other possible causes that cannot be measured in a survey. Fourth, many research studies have documented the inherent inaccuracies of self-reported health data collected in surveys, even for serious conditions such as cancer. This is one of the reasons why the cancer data from the USC Cancer Surveillance Program, which is collected through rigorous medical record and laboratory review, is much more reliable than cancer data collected from a survey.

SURVEY DESIGN AND DATA COLLECTION

The questionnaire was developed following an extensive literature review, input from the community, and consultation with several medical and epidemiological experts. Copies of the draft questionnaire were not provided to community representatives or other outside parties to prevent any possibility of response bias that might occur if questions were disclosed to residents prior to survey implementation. Wherever possible, survey questions were taken from existing validated questionnaires. The final questionnaire consisted of sections covering demographics, home environment, general health, individual medical conditions, and individual lifestyle factors. In addition, questions were asked about concerns related to the landfill as well as the neighborhood at large.

The survey was administered to 100 households selected randomly from an accessible population of 977 households in the community closest to Sunshine Canyon Landfill (U.S. Census Tract 1066.03 in Granada Hills). This sample size was selected after considering all available resources to complete the survey and to assure sufficient statistical power to detect a doubling of asthma risk with 70% power. Households in this community are located at distances ranging from 0.9 – 2.0 miles of the landfill. Sampling was stratified so that proportionate numbers of households would be selected from each of 4 regions: within 1 mile, 1-1.25 miles, 1.25-1.5 miles, and 1.5-2.0 miles of the landfill. The sample was, therefore, designed to be representative of the census tract of interest and is referred to in the remainder of the report as Community A.

To provide data for comparison with Community A, the survey was also done in another community with similar demographic and geographic characteristics but with no prior history of landfill proximity. The following geographic and demographic factors were considered in choosing this comparison community: proximity to freeways, regional air quality, racial/ethnic composition, household size, socioeconomic status based on average household income, average age, and average length of time residents lived in the community. Based on these factors, a community within Chatsworth (U.S. Census Tract 1131) was selected as the comparison community. The same questionnaire was administered to 100 households in the comparison community, selected randomly from an accessible population of 2,053 households. The community represented by this sample is henceforth referred to as Community B.

One adult over the age of 21 from each household, generally the homeowner or co-homeowner, was eligible to be the respondent and was administered the questionnaire. This respondent was asked to respond to questions about his or her own health and the health of each current household member. Respondents were also asked to report cancer diagnoses in previous household members who had since died or moved away, including cancer diagnoses made after the person had moved away.

Interviews were conducted in the home by DHS staff and public health graduate students who were trained in the administration of the questionnaire. Households were contacted up to three times in order to request participation in the survey. Interviews were completed during March and April, 2004.

DATA ANALYSIS

Demographic characteristics, lifestyle factors, and disease prevalence were analyzed for each community. Ninety-five percent confidence intervals were calculated for each point estimate, adjusting for community sampling rates and household variance. A ninety-five percent confidence interval (CI) represents a range of values within which the "true" value would fall 95% of the time if samples were drawn repeatedly from the same population.

Demographics and home characteristics, general health, and community concerns were compared between the two communities using Chi-square (χ^2) exact tests and t-tests. Trend differences were assessed using Mantel-Haenzel χ^2 tests. Individual medical conditions and lifestyle factors were compared using Wald tests, adjusting for household variance. Analyses of individual conditions were performed for adults (18 years and over) and children (less than 18 years) separately. Differences between the two communities were considered "statistically significant" if there was a less than 5% statistical likelihood that results were due to random chance (P-value <0.05). However, because of the limitations of the survey as described above, the absence of a statistically significant difference does not necessarily mean that an observed difference is not real. In addition, the presence of a statistically significant difference in disease prevalence between the two communities does not mean that the difference was caused by the landfill.

All data analyses were performed using *SAS* software, Version 8.2. To protect the confidentiality of survey participants, any result on demographics or health conditions involving three or fewer persons (for example, 2 cases of a particular type of cancer) is presented as "less than or equal to three."

RESULTS

Response Rate

The response rate for Community A was 67% (150 households had to be contacted to complete 100 interviews) and in Community B was 52% (191 households were contacted to complete 100 interviews). From these 100 participating households in each community, individual health data were obtained on a total of 324 residents in Community A and 293 residents in Community B.

Demographics

The demographic characteristics of each sample are relatively similar to the population demographics of each community (Table 1), suggesting that the samples are a reasonably good representation of the community in each census tract. In addition, the demographic characteristics of the two samples are also relatively similar (Table 1). Individual data were obtained on 253 adults and 71 children in Community A and on 225 adults and 68 children in Community B. The average age of adults was 47.6 years in Community A and 50.2 years in Community B; the average age of children was 9.1 years in Community A and 10.9 years in Community B. The gender distributions of the two samples were also similar. However, among adults, there was a slightly higher percentage of females in Community A than Community B (51.2% versus 45.3%). In addition, among respondents only, females accounted for a higher percentage in Community A (57%) than Community B (46%) although this difference was not statistically significant (p=0.16). Among children, there was a higher percentage of males in Community A than Community B (64.8% versus 48.5%). One other difference is that Community B respondents had on average resided in their community longer than those in Community A (19.2 years versus 14.4 years, respectively).

Home Environment

Table 2 shows characteristics of the indoor home environments in the two communities: presence of a combustion source (wood burning fireplace or stove), carpeting, water damage, mold or mildew on surfaces of the home, number of plants in the home, presence of pets, presence of pests, use of commercially-supplied pest control services, regular sources of drinking water, and daily smoking in the home. No statistically significant differences are seen between the two communities, except that Community A residents were less likely than Community B residents to utilize a wood burning fireplace or stove (39% versus 59%), report pests in the home (79% versus 89%), and schedule a regular pest control service (40% versus 58%).

Perceptions of General Health

Table 3 shows data on respondents' perceptions of their general health, including self-perceived health status, recent physical health, recent mental health, and recent activity limitation due to poor health. The percentage of adults that reported only “fair” or “poor” health status was 9% in Community A and 5% in Community B (this difference was not statistically significant). Fifty percent of adults in Community A and 38% in Community B reported 1 or more days in the past month when their physical health was not good. Thirty-five percent in Community A and 29% in Community B reported 1 or more days in the past month when their mental health was not good. These differences are also not statistically significant. Thirty-three percent in Community A reported at least one day of activity limitation due to poor physical or mental health in the past month compared to 19% in Community B. This finding is statistically significant. Upon further stratifying this result by level of concern about the environment, the difference was present only among those

who were "very concerned" about the environment. No difference was observed among those who did not report being very concerned about the environment (Table 4).

Individual Medical Conditions and Lifestyle Factors

Table 5 shows results for individual medical conditions and lifestyle factors among adults, including history of heart disease, diabetes, cancer, asthma, other chronic respiratory conditions such as emphysema or chronic bronchitis, hay fever (or allergies affecting the nose, sinus, or chest), lifetime smoking, current smoking, history of occupational hazard exposure, and history of military service. No statistically significant differences were observed between the two communities. In addition, no statistically significant differences were observed when the analysis was stratified by gender (Table 6). However, when both diagnosed asthma and possible asthma (history of "wheezing") were combined, the prevalence was significantly higher among women in Community A than Community B ($p=0.03$). No corresponding difference in asthma-type conditions was observed among males.

Table 7 shows results for medical conditions in children, including history of asthma, hay fever (or allergies affecting the nose, sinus, or chest), and attention deficit disorder (ADD). No statistically significant differences were observed between the two communities for these conditions. The prevalence of childhood asthma in Community A (7.1%) was not higher than in Community B (11.9%). The number of children in the sample was insufficient to stratify the results by gender.

Table 8 presents the results of additional analyses of the reported cancer diagnoses among current and past household members. A total of 14 cancers (occurring in 5.7% of adults) were reported among current adult household members in Community A and 6 cancers (in 2.7% of adults) in Community B. This difference was not statistically significant ($p = 0.13$). A variety of different cancer types were reported in Community A, including breast cancer, basal cell carcinoma, ovarian cancer, leukemia, colon cancer, myeloma, Non-Hodgkin's lymphoma, and prostate cancer. Specific cancer types reported in Community B included breast cancer, prostate cancer, colon cancer, and Non-Hodgkin's lymphoma. Breast cancer was the most common cancer type reported in both communities. No cases of cancer were reported in children less than 18 years of age. The number of reported cancers among former residents was low in both communities (5 in Community A and 3 or less in Community B).

The number of reported cancer diagnoses in Community A was examined by proximity of residence to the landfill (within 1 mile, 1-1.25 miles, 1.25-1.5 miles, and 1.5-2 miles from the landfill). No association was found between proximity to the landfill and percentage of residents reported with a cancer diagnosis ($p = 0.21$) (Figure 1).

Community Concerns

Tables 9 and 10 show results for the questions on environmental and neighborhood-related concerns. Questions about specific environmental concerns related to the landfill were asked only of respondents in Community A. Respondents from both communities were asked more general questions about neighborhood-related concerns without

specifically relating them to the landfill. Respondents were asked to report their level of concern on a scale from 1 ("not concerned") to 5 ("very concerned").

A relatively high percentage of respondents in Community A reported being "very concerned" about the following issues related to the landfill: proper maintenance of the landfill (79%), adequate enforcement of safety measures (79%), air pollution (77%), drinking water safety (76%), general health (73%), dust (71%), landfill gas (70%), property value (70%), odor (59%), traffic (51%), and noise (38%) (Table 9).

On the more general neighborhood issues, a higher percentage of respondents from Community A than Community B reported being very concerned about school/education quality (49% versus 33%), crime (41% versus 30%), and traffic (65% versus 48%) (Table 10). In addition, a higher percentage of Community A than Community B respondents reported being very concerned about drinking water safety (75% versus 27%) and air pollution (77% versus 31%), and both of these differences were statistically significant.

DISCUSSION

The results of the survey suggest that the household, lifestyle, and health characteristics measured in the survey are relatively similar across the two communities studied. Although some differences in disease prevalence were observed, the magnitude of these differences is relatively small and is consistent with the level of variation often seen when comparing different communities and other geographic areas in the county.

The survey found a higher number of reported cancers in Community A (n=14) than Community B (n=6). This observed difference was not statistically significant, suggesting that the difference could be due to chance alone (random variation) given the small number of cases reported. If, however, the difference is real, it does not appear related to the landfill for the following reasons. First, the cancers reported in Community A consisted of a number of different types of cancer rather than a single predominant type as would be expected with a toxic environmental exposure. In addition, the types of cancer reported in Community A did not include those most often caused by environmental exposures (e.g., lung, liver, and bladder cancers).[5] Second, the cancers reported in Community A were spread relatively evenly throughout the census tract (i.e., there was no evidence of an association between cancer reports and proximity of residence to the landfill). Third, the heightened concerns about cancer among persons living near the landfill could result in a greater likelihood of reporting a past cancer diagnosis, especially if it was not an immediately life threatening diagnosis. Other studies have documented this type of reporting bias for cancers and other health conditions in similar circumstances.[6, 7]

An important concern voiced by community members during the planning phase of the survey was their belief that there were many cases of cancer among former residents of the community near the landfill. These cases would not have been included in the USC Cancer Surveillance Program analysis if the diagnosis had been made after the person moved out of the neighborhood. To address this concern, the survey collected information on cancer diagnoses among persons originally in the household who had moved away prior to their cancer diagnosis. No evidence was found of an increased number of cancers among former residents of Community A compared to Community B. Because the survey collected information on a sample of households rather than on all households, there are undoubtedly additional cases of cancer among former residents that were not captured by

the survey. However, given that the survey used random sampling procedures, had a reasonably good response rate, and produced a sample with similar demographics to the population demographics, we believe the results are representative of the overall community.

The survey found a higher prevalence of asthma among adult females in Community A than Community B and this difference was of marginal statistical significance. However, asthma rates among adult males and children were lower (though not statistically significant) in Community A than Community B. This suggests that other factors, not related to the landfill or the local environment, are contributing to the higher asthma rate among women in Community A.

A higher percentage of respondents in Community A than Community B reported only poor or fair overall health, poor physical health or mental health, and activity limitation due to poor health. However, only the last of these differences was statistically significant and, in this case, the difference was observed only among respondents who reported being very concerned about the environment. This finding suggests that the intensity of community concern about the local environment, including the landfill, may be contributing to worsened self-perceptions of health among residents in Community A. It is difficult to draw an objective conclusion about survey results given the heightened state of awareness among residents in Community A. Other studies similarly have found higher rates of reported symptoms (e.g., headaches, fatigue, and respiratory symptoms), even in the absence of evidence of medically verified disease, among residents living near waste sites where community concern has been heightened.[8, 9] These studies suggest that community concerns related to a landfill or other environmental source may trigger stress-related symptoms and/or increase the awareness of existing symptoms in some individuals.

The survey did confirm the widespread concern about the local environment among residents in Community A. Well over 50% of respondents reported being very concerned about how the landfill may be impacting their health as well as about other issues related to the landfill. Respondents in Community A were also significantly more likely than those in Community B to report being very concerned about air pollution and drinking water safety in their community. Some of this difference may reflect a more generalized concern among residents in Community A, as reflected in their greater reported concern about crime and the quality of the schools.

In summary, the results of the survey do not provide evidence of unusually high rates of asthma or specific cancers in the community adjacent to the southern border of the Sunshine Canyon Landfill, with the possible exception of asthma among women in Community A. The results do indicate considerable concern about the landfill and, among those most concerned, poorer self-perceived health status.

This survey is one component of a more comprehensive investigation that has been undertaken by the Los Angeles County Department of Health Services in response to health concerns voiced by some residents near the Sunshine Canyon Landfill. A final report that incorporates the results of all components of the investigation will be prepared and submitted to the County Board of Supervisors upon completion of the investigation.

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Table 1. Characteristics of the Samples versus the U.S. Census

	Community A[1]		Community B[2]	
	Sample	U.S. Census	Sample	U.S. Census
Individuals [n]	324	3,051	293	6,244
Households [n]	100	977	100	2,053
Age (yrs) [median]	42.7	41.0	44.8	43.5
Gender				
Males	52%	49%	53%	48%
Females	48%	51%	47%	52%
Ethnicity[3]				
White, Non-Latino	67%	58%	71%	75%
Asian / Pacific Islander	14%	25%	8%	10%
Latino	9%	10%	14%	10%
African American	1%	3%	1%	2%
Year householder first moved into community				
1990 or later	52%	49%	43%	47%
1980 - 1989	29%	31%	18%	22%
1970 - 1979	10%	12%	24%	24%
1969 or earlier	9%	8%	15%	7%

[1] 2000 Census Tract: 1066.03

[2] 2000 Census Tract: 1131

[3] Percents do not add up to 100 due to 'other' or 'missing' data on ethnicity

Table 2. Home Characteristics

	Community A[1] (n = 100)	Community B[2] (n = 100)	*P*-value[3]
Wood burning fireplace/stove	39%	59%	0.007
Wall-to-wall carpeting	95%	92%	0.57
Water damage	34%	46%	0.11
Persistent mold or mildew growth	13%	10%	0.66
Any pet	61%	66%	0.56
Any pest	79%	89%	0.05
Regular use of pest-control service	40%	58%	0.02
Drinking water use			
tap	26%	31%	0.53
filtered	54%	54%	1.00
bottled	58%	47%	0.16
Daily smoker(s) in home	11%	9%	0.81

[1] 2000 Census Tract: 1066.03

[2] 2000 Census Tract: 1131

[3] Chi-square exact test

Table 3. Self-Perceived Health Status

	Community A[1] (n = 100)	Community B[2] (n = 100)	*P*-value[3]
Self-perceived general health is fair or poor	9%	5%	0.41
One or more unhealthy days in past month (physical health)	50%	38%	0.12
One or more unhealthy days in past month (mental health)	35%	29%	0.36
One or more days poor health (physical or mental) limited usual activities in past month	33%	19%	0.03

[1] 2000 Census Tract: 1066.03

[2] 2000 Census Tract: 1131

[3] Chi-square exact test

Table 4. Activity Limitation by Level of Environmental Concern

	Community A[1] (n = 100)	Community B[2] (n = 100)	*P*-value[3]
Very concerned about the environment*:			
One or more days poor health (physical or mental) limited usual activities in past month	37%	11%	0.05
Not very concerned about the environment*:			
One or more days poor health (physical or mental) limited usual activities in past month	21%	21%	1.00

[1] 2000 Census Tract: 1066.03

[2] 2000 Census Tract: 1131

[3] Chi-square exact test.

* 'Very concerned' / 'Not very concerned' about drinking water safety and air pollution in the community

Table 5. Prevalence of Selected Health Conditions and Lifestyle Factors among Adults[1]

	Community A[2] (n = 253)		Community B[3] (n = 225)	
	Prevalence	95% CI[4]	Prevalence	95% CI[4]
Health Conditions				
Heart disease	7.2%	4.0 - 10.3	6.2%	3.0 - 9.5
Diabetes	4.5%	2.1 - 6.8	6.3%	2.9 - 9.7
Cancer	5.7%	2.4 - 9.1	2.7%	0.6 - 4.8
Current asthma[5]	7.2%	3.8 - 10.6	7.1%	3.8 - 10.5
Wheezing (ever)	13.7%	8.3 - 19.0	9.4%	5.1 - 13.7
Hay fever	38.8%	31.7 - 45.9	32.7%	25.9 - 39.5
Other respiratory illnesses	6.0%	2.9 - 9.1	4.9%	1.9 - 7.9
Lifestyle				
Ever smoked	30.2%	23.7 - 36.8	39.7%	32.2 - 47.2
Current smoker	14.2%	9.1 - 19.2	13.9%	8.7 - 19.1
Ever worked outside the home	85.7%	79.8 - 91.6	84.7%	78.9 - 90.5
Used protective gear on the job	17.8%	13.2 - 22.4	26.9%	21.0 - 33.0
International military service	7.9%	4.7 - 11.1	8.6%	5.1 - 12.1

[1] Adult = age 18 and over

[2] 2000 Census Tract: 1066.03

[3] 2000 Census Tract: 1131

[4] 95% confidence interval around observed prevalence, adjusted for household variance

[5] Asthma prevalence consists of those ever diagnosed with asthma by a health care provider AND reported still having asthma and/or having had an asthma attack in the past 12 months.

Table 6. Prevalence of Selected Health Conditions and Lifestyle Factors among Adults, by Gender[1]

	Community A[2] (n = 253)		Community B[3] (n = 225)	
	Prevalence	95% CI[4]	Prevalence	95% CI[4]
Males				
Health Conditions				
Heart disease	7.4%	3.0 - 11.8	6.5%	2.2 - 10.8
Diabetes	5.0%	1.3 - 8.6	7.3%	2.5 - 12.1
Cancer	4.2%	0.7 - 7.7	2.4%	0.0 - 5.2
Current asthma[5]	5.7%	1.4 - 10.1	10.6%	5.2 - 16.0
Wheezing (ever)	10.7%	5.3 - 16.2	11.4%	5.5 - 17.2
Hay fever	34.4%	25.4 - 43.5	31.1%	22.9 - 39.4
Other respiratory illnesses	6.6%	2.5 - 10.6	4.1%	0.6 - 7.5
Lifestyle				
Ever smoked	36.7%	28.7 - 44.7	43.1%	34.2 - 52.0
Current smoker	16.0%	9.2 - 22.7	17.2%	10.4 - 24.0
Ever worked outside the home	94.1%	90.1 - 98.2	87.6%	81.4 - 98.8
Used protective gear on the job	20.0%	13.3 - 26.7	32.7%	24.0 - 41.4
International military service	15.3%	8.8 - 21.7	15.0%	8.8 - 21.2
Females				
Health Conditions				
Heart disease	7.0%	2.4 - 11.6	5.9%	1.4 - 10.4
Diabetes	4.0%	0.8 - 7.2	5.0%	0.7 - 9.2
Cancer	7.3%	2.8 - 11.7	3.0%	0.0 - 6.3
Current asthma[5]	8.6%	4.0 - 13.2	2.9%	0.0 - 6.1
Wheezing (ever)	16.4%	8.9 - 24.0	6.9%	2.1 - 11.8
Hay fever	43.0%	33.7 - 52.2	34.7%	25.2 - 44.1
Other respiratory illnesses	5.4%	1.6 - 9.2	5.9%	1.3 - 10.5
Lifestyle				
Ever smoked	24.4%	16.0 - 32.8	35.6%	25.6 - 45.7
Current smoker	12.6%	6.1 - 19.1	9.9%	3.0 - 16.9
Ever worked outside the home	77.8%	68.8 - 86.7	81.2%	73.6 - 88.8
Used protective gear on the job	15.3%	9.0 - 22.0	20.0%	11.3 - 27.8
International military service	NR	~	NR	~

[1] Adult = age 18 and over

[2] 2000 Census Tract: 1066.03

[3] 2000 Census Tract: 1131

[4] 95% confidence interval around observed prevalence, adjusted for household variance

[5] Asthma prevalence consists of those ever diagnosed with asthma by a health care provider AND reported still having asthma and/or having had an asthma attack in the past 12 months.

NR: Not reported (observed number is less than or equal to 3)

Table 7. Prevalence of Selected Health Conditions among Children[1]

	Community A[2] (n = 71)		Community B[3] (n = 68)	
	Prevalence	95% CI[4]	Prevalence	95% CI[4]
Health Conditions				
Current asthma[5]	7.1%	1.1 - 13.2	11.9%	1.0 - 23.0
Wheezing (ever)	8.6%	2.0 - 15.2	13.4%	3.0 - 23.9
Hay fever	22.9%	11.3 - 34.4	26.9%	13.0 - 40.7
Other respiratory illnesses	0%	~	4.5%	0.0 - 9.6
ADD or ADHD[6]	7.6%	0.0 - 15.1	7.9%	0.0 - 16.1
Cancer	0%	~	0%	~

[1] Child = less than age 18

[2] 2000 Census Tract: 1066.03

[3] 2000 Census Tract: 1131

[4] 95% confidence interval around observed prevalence, adjusted for household variance

[5] Asthma prevalence consists of those ever diagnosed with asthma by a health care provider AND reported still having asthma and/or having had an asthma attack in the past 12 months.

[6] ADD = Attention Deficit Disorder, ADHD = Attention Deficit Hyperactivity Disorder

Table 8. Types of Cancer Reported among Current Residents[1]

Community A[2] (n = 14)	Community B[3] (n = 6)
Breast[4]	Breast[5]
Basal cell carcinoma	Colon
Ovarian	Non-Hodgkin's lymphoma
Leukemia	Prostate
Colon	
Myeloma	
Non-Hodgkin's lymphoma	
Prostate	

[1] All cases were diagnosed in adults (age 18 or over).

[2] 2000 Census Tract: 1066.03

[3] 2000 Census Tract: 1131

[4] In Community A, 5 cases of breast cancer were reported. Three or less cases each were reported for all other cancer types.

[5] In Community B, 3 or less cases were reported for each cancer type.

Table 9. Percentage of Adults in Community A* with Concerns about Landfill-Related Issues

	Not Concerned 1	…… 2	Somewhat Concerned 3	…… 4	Very Concerned 5
General Health	9%	5%	4%	9%	73%
Dust	10%	6%	5%	8%	71%
Traffic	15%	12%	14%	7%	51%
Landfill gas	17%	1%	5%	6%	70%
Drinking water safety	9%	5%	5%	5%	76%
Air pollution	6%	3%	5%	9%	77%
Property value	8%	9%	4%	9%	70%
Noise	25%	11%	17%	9%	38%
Odor	17%	8%	7%	9%	59%
Proper maintenance of landfill	10%	2%	2%	6%	79%
Adequate enforcement of safety measures	7%	3%	3%	8%	79%

* 2000 Census Tract: 1066.03 (n = 100)

Table 10. Percentage of Adults that Report Being Very Concerned about Community-Related Issues

	Community A[1] (n = 100)	Community B[2] (n = 100)	*P*-value[3]
Schools / Education	49%	33%	0.02
Crime	41%	30%	0.14
Traffic	65%	48%	0.02
Drinking water safety	75%	27%	< 0.0001
Air pollution	77%	31%	< 0.0001

[1] 2000 Census Tract: 1066.03

[2] 2000 Census Tract: 1131

[3] Chi-square exact test

Figure 1. Percentage of Adults Diagnosed with Cancer in Community A, by Distance of Residence from the Landfill