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## COMMONWEALTH of VIRGINIA

C. M. G. BUTTERY, M.D., M.P.H.  
STATE HEALTH COMMISSIONERDepartment of Health  
Richmond, Virginia 23219  
September 14, 1990Valorie Stallings, M.D.  
Director, Norfolk Health District  
Norfolk City Health Department  
401 Colley Avenue  
Norfolk, VA 23507

Dear Dr. Stallings:

Attached is a report summarizing my assessment of cancer in various sections of Norfolk. This investigation was conducted as a result of a complaint from the Glenwood Park community. My analysis compared Glenwood Park, Pamlico, the total city of Norfolk, and white residents of Norfolk.

The data analyzed do not demonstrate an excess of cancer in Glenwood Park or suggest a need for further epidemiologic investigations of cancer in the area. If you have any questions after you have reviewed the report, feel free to call me at (804) 786-6261.

Sincerely,

Handwritten signature of Diane Woolard.

C. Diane Woolard, M.P.H.  
Senior Epidemiologist

cc: John Alexander

Handwritten signature, likely of John Alexander.

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Report on the Investigation of Cancer in Norfolk, Virginia  
September, 1990

### Introduction

On July 3, 1990, Valorie Stallings, M.D., M.P.H., Director of the Norfolk City Health Department received a letter from the Honorable Owen Pickett, Member of the Congress of the United States. Congressman Pickett requested that the Health Department follow up on a neighborhood concern about the occurrence of cancer that had been brought to his attention.

The president of the Glenwood Park Civic Club in Norfolk, Virginia had written to Congressman Pickett requesting an epidemiologic study of all cancer related deaths and illnesses in Glenwood Park, a list of all landfill remediations, and analysis of soil and water samples taken throughout the neighborhood. The neighborhood felt that there had been numerous cases of cancer and that they could be related to objects that had been buried in a nearby landfill.

On August 7, 1990, John Alexander, Sanitarian in the Norfolk City Health Department contacted Diane Woolard, M.P.H., Senior Epidemiologist in the Virginia Department of Health, Office of Epidemiology regarding this citizen complaint. Ms. Woolard conducted an epidemiologic analysis of cancer in the Glenwood Park section of Norfolk, the results of which are presented below.

### Background

John Alexander contacted the Norfolk city planning office for information on the population of the Glenwood Park neighborhood and to find comparable communities in the area to use as comparison groups. The data provided demonstrated that Norfolk, Virginia was estimated to include a population of 275,965 in 1988. Sixty percent of this population were white and 36% were black.

Glenwood Park is one census tract within the city of Norfolk. The 1988 population was estimated to be 1,536, with 83% of those white and 3% black. The city planning office recommended that comparable communities would be Pamlico and Norvella Heights. Pamlico is Census Tract 5, contains 3,620 residents and is 82% white and 8% black. Norvella is Census Tract 59.02, contains 4,032 persons and is 82% white and 10% black.

### Methods

No complete data exist on the occurrence of cases of cancer in Virginia, especially at the census tract level. Since data on all cases of cancer are not available, death certificate data are

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analyzed in response to cancer cluster reports. Cancer mortality, while not expected to be a complete account of all cancer in an area, serves as an index of the level of cancer activity in a locality.

Populations to study and compare were selected to be Glenwood Park (Census Tract 5), Pamlico (Census Tract 11), the whole city of Norfolk, and white residents of Norfolk. White residents were selected as a separate study group because Norfolk city as a whole has a higher proportion of blacks than the two census tract areas analyzed. Norvella Heights was not included because death certificate data were not available at that geographic level. That is, census tract 59 could have been analyzed, but not 59.02.

Death certificate data for 1985 through 1988 were analyzed, comparing the number of cancer deaths observed in each of the four geographic areas under study. Observed deaths were compared to the number expected based on the cancer mortality rate for the state of Virginia as a whole. This was done for all cancers combined, and separately for breast, digestive, and respiratory cancers.

An age-adjusted expected total number of deaths was calculated by multiplying the Virginia age-specific death rate for each age group by the population of each age group in each area, then adding the expected deaths over all age groups. Age-adjusted expected values are more meaningful than unadjusted values because mortality is strongly related to age. If one population contains proportionately more elderly persons than another population, its mortality rate may appear artificially higher than the other population. Therefore, the mortality rates for the two populations must be adjusted to remove the effect of age to allow for more reliable comparisons. Age-adjusted mortality rates were calculated using the indirect method of adjustment with the state of Virginia as the standard.

## Results

Attached tables show data on the estimated 1988 populations of the communities analyzed, information about cancer deaths occurring within those communities between 1985 and 1988, and results of the epidemiologic analysis of the cancer mortality. Table 1 verifies the comparability of the study communities. Tables 2-5 list the number of cancer deaths during the study period for each community, separately for all cancers, breast cancer, digestive cancer, and respiratory cancer. Table 6 contains information on the epidemiologic analysis of the data, including the observed and expected numbers of cancer deaths and age-adjusted mortality rates for each community and cancer category analyzed.

For all cancers combined, the death rate for Glenwood Park was lower than that of the state and of the three Norfolk comparison communities. Nine cancer deaths occurred during the four year

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period. Each of the nine was due to a different type of cancer, including one case each of stomach cancer, colon cancer, liver cancer, pancreatic cancer, lung cancer, skin cancer, prostate cancer, multiple myeloma, and one cancer of an unspecified site.

No breast cancer deaths occurred in Glenwood Park between 1985-1988, leading that community to have a lower mortality rate than the comparison populations.

Glenwood Park had a higher rate of digestive cancer deaths than the comparison groups. This was based on four cases, all of which had different target body sites, including one stomach, one colon, one liver, and one pancreatic cancer.

With respect to respiratory system cancers, Glenwood Park had a lower mortality rate compared to all other communities. Only one person died from respiratory cancer in that neighborhood during the four year study period.

### Discussion

Sometimes it seems as if a group of cancers occurs during a short period of time among persons who live close together. When epidemiologists receive such reports, they must decide whether a cluster actually exists. A cluster would involve an unusual number of cases of the same type of cancer occurring close together with respect to space and time. Clusters may occur by chance or may be due to some identifiable factor. This judgment is usually made on the basis of knowledge of disease patterns and probability statistics. The vast majority of apparent cancer clusters are chance events and not due to some identifiable common cause.

This study does not support the existence of a cancer cluster in the Glenwood Park section of Norfolk, Virginia. That community did not experience any more cancer mortality than expected overall. Nor was there an excess of deaths due to cancer of any specific body site.

The following facts may aid the citizens of Glenwood Park in better understanding the incidence of cancer in their neighborhood.

Cancer is one term used to describe a number of different diseases. These diseases have in common an uncontrolled multiplication and growth of abnormal cells and the ability to spread to body parts that are distant from the original site.

Different cancers, however, also have many different characteristics. Cancers can start in many different body sites, and even in different tissues within a given site. Cancers in different sites and cell types represent entirely different diseases and should not be thought of as having the same etiology.

Different cancers also have different risk factors which

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promote their development. Personal lifestyle and genetic factors have been shown to be the most important determinants of cancer. Smoking causes 30% and improper diet may explain an additional 35% of all cancer deaths. Other risk factors which have been identified to be related to cancer include overexposure to the sun, alcohol abuse, family history of cancer, age, sex, race, and some specific occupational exposures such as asbestos or radiation. A neighborhood environment has not been shown to be a risk factor for any type of cancer in the United States.

Cancer is a very commonly occurring group of diseases. It strikes three out of four families, is diagnosed in one out of three Americans, and causes one out of five deaths. If the community is experiencing no more than these proportions of cases, they have no more cancer than expected. These diseases simply affect a lot of people.

Cancer may seem to be occurring more frequently than in the past because the incidence of cancer increases with increasing age and the American population is aging. A community with a larger proportion of individuals age 50 and older would be expected to contain more persons diagnosed with cancer. Additionally, much of the stigma formerly associated with having cancer has disappeared, cancer patients are more likely to talk about their illnesses than previously, and the media has focused attention on the subject of cancer. All these factors have led to an increase in discussions about cancer.

Different cancers have different latency periods, that is the time between exposure to one or more cancer-causing agents and the appearance of the cancer. Cancers commonly take twenty years or more to develop to the point of being detectable. When looking for the cause of cancer, exposures which took place twenty or more years before the cancer was diagnosed should be considered.

### Conclusion

Cancers are a complex group of diseases. It is impossible to explain the cause of each individual case of cancer, especially given the long latency period of the disease. Although the neighborhood environment has not been shown to be a risk factor for any type of cancer in any neighborhood in the United States, a further search for a common exposure would take place if a larger than expected number of a certain type of cancer were to be detected in a defined geographic area. Since Glenwood Park does not have an excess of deaths due to cancer in general or of any particular type of cancer, we do not recommend further epidemiologic studies on cancer in this neighborhood.

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Table 1. Characteristics of the Populations of the Study  
Communities, Norfolk, Virginia, 1988

	Pamlico (CT5)	Glenwood Park (CT5)	Norfolk Total	Norfolk Whites
Total Population	1,536	3,620	275,965	156,006
Age Distribution(%):				
<45	77.7%	73.9%	74.3%	72.5%
45-54	6.0	9.1	7.9	6.6
55-64	6.9	7.7	8.7	7.7
65-74	5.9	6.3	5.8	7.7
75+	3.5	3.0	3.4	5.5
Median Age	30.5	31.6	29.0	not avail.
Racial Distribution(%):				
White	82.4%	82.6%	60.0%	100.0%
Black	7.9	2.9	35.8	N/A*

\* N/A denotes not applicable

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Norfolk, Virginia, 1985-1988

	<u>Pamlico</u>	<u>Glenwood Park</u>	<u>Norfolk Total</u>	<u>Norfolk Whites</u>
Total	<u>28</u>	<u>9</u>	<u>2086</u>	<u>1216</u>
Age: <45	0	0	97	50
45-54	6	0	156	62
55-64	10	3	506	277
65-74	8	1	726	431
75+	<u>4</u>	<u>5</u>	<u>601</u>	<u>396</u>
Sex: Male	<u>13</u>	<u>5</u>	<u>1135</u>	<u>624</u>
Female	<u>15</u>	<u>4</u>	<u>951</u>	<u>592</u>
Race: White	<u>28</u>	<u>9</u>	<u>1216</u>	<u>1216</u>
Nonwhite	0	0	867	N/A*
Unknown	0	0	3	0

\* N/A denotes not applicable

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Norfolk, Virginia, 1985-1988

	<u>Pamlico</u>	<u>Glenwood Park</u>	<u>Norfolk Total</u>	<u>Norfolk Whites</u>
Total	3	0	149	91
Age: <45	0	0	15	6
45-54	0	0	18	11
55-64	2	0	42	24
65-74	0	0	39	25
75+	1	0	35	25
Sex: Male	0	0	4	3
Female	3	4	145	88
Race: White	3	0	91	91
Nonwhite	0	0	58	N/A*

\* N/A denotes not applicable

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Norfolk, Virginia, 1985-1988

	<u>Pamlico</u>	<u>Glenwood Park</u>	<u>Norfolk Total</u>	<u>Norfolk Whites</u>
Total	4	4	537	294
Age: <45	0	0	14	6
45-54	0	0	41	14
55-64	1	1	134	69
65-74	1	1	178	100
75+	2	2	170	105
Sex: Male	2	2	302	160
Female	2	2	235	134
Race: White	4	4	294	294
Nonwhite	0	0	243	N/A*

\* N/A denotes not applicable

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Norfolk, Virginia, 1985-1988

	<u>Pamlico</u>	<u>Glenwood Park</u>	<u>Norfolk Total</u>	<u>Norfolk Whites</u>
Total	<u>14</u>	<u>1</u>	<u>602</u>	<u>371</u>
Age: <45	0	0	13	7
45-54	4	0	45	19
55-64	6	1	166	96
65-74	3	0	229	140
75+	<u>1</u>	<u>0</u>	<u>149</u>	<u>109</u>
Sex: Male	8	1	396	224
Female	<u>6</u>	<u>0</u>	<u>206</u>	<u>147</u>
Race: White	14	1	371	371
Nonwhite	0	0	231	N/A*

\* N/A denotes not applicable

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Mortality in Norfolk Communities, 1985-1988

	<u>Pamlico</u>	<u>Glenwood Park</u>	<u>Norfolk Total</u>	<u>Norfolk Whites</u>
<b>All Cancers:</b>				
Observed Deaths	28	9	2086	1216
Expected Deaths	22	10	1773	1237
Mortality Rate <sup>1</sup>	231.0	169.9	213.4	178.3
<b>Breast Cancer:</b>				
Observed Deaths	3	0	149	91
Expected Deaths	2	1	155	102
Mortality Rate <sup>2</sup>	24.9	0	15.1	14.0
<b>Digestive Cancer:</b>				
Observed Deaths	4	4	537	294
Expected Deaths	5	2	406	291
Mortality Rate <sup>3</sup>	33.1	76.6	55.5	42.3
<b>Respiratory Cancer:</b>				
Observed Deaths	14	1	602	371
Expected Deaths	6	3	536	363
Mortality Rate <sup>4</sup>	117.0	18.7	61.3	55.7

- 1 Age-adjusted, compared to state rate of 181.3 per 100,000  
2 Age-adjusted, compared to state rate of 15.7 per 100,000  
3 Age-adjusted, compared to state rate of 41.9 per 100,000  
4 Age-adjusted, compared to state rate of 54.6 per 100,000