

May 6, 1982

Deputy Chief, Cancer Branch

North Charleston Cancer Mortality 1970-1979

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Overall: Very good job, though scope is restricted because data are unavailable.

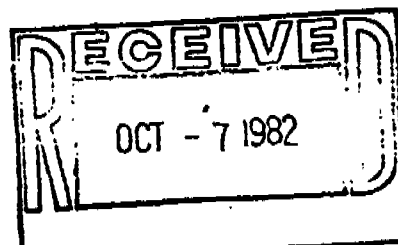
Critical Comments:

1. If total population or age distribution of population at risk has changed significantly over the decade, 1970-1979, then the estimated population used to calculate expected numbers of cancer deaths may be incorrect; if too small or an underestimate of those in older age group, expected numbers would also be underestimates.
2. Cancer mortality may reflect both cancer incidence and availability of good medical care. Because this latter availability might reflect local factors, perhaps West Virginia or Kanawha County proportional mortalities might also be used to calculate expected numbers of cases to compare with those from the United States.
3. Cancer mortality rates are higher in nonwhites than whites. Does the local racial composition differ appreciably from that of the U.S.? If so, it might be worth calculating expected numbers from age-sex-race specific population estimates and their corresponding proportional mortalities. This should make only a minor change in expected values.
4. The probability of observing 10 or more cancer deaths when only 5.36 were expected is 0.047, assuming a Poisson distribution of observed deaths. Although statistically significant at the 0.05 level, about 9 other areas with a population of 364 persons in Charleston alone would show a similar excess mortality simply by chance. $[0.047 \times 71,505 (= \text{Charleston 1970 population}) / 364 = 9.2]$.
5. The occurrence of 2 deaths from respiratory system cancer in women below age 50 is distinctly unusual, although smoking and other exposures may have contributed to these deaths. The distribution of other kinds of cancer deaths is not unusual.

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Recommendations:

- *1. I would do nothing because numbers are too small to give meaningful results and because the variety of cancers involved makes it unlikely a single cause is responsible.
2. If publicity and political considerations compel further study, I would:
 - a) verify diagnoses and places of residence of these deaths,
 - b) use 1970 and 1980 census data to recalculate expected numbers of cancer deaths,
 - c) survey next-of-kin, particularly of the women dying of respiratory system cancer, to check on predisposing risk factors and length of residence in area,
 - *d) defer any study of current pollutant levels in the area until this cancer excess is confirmed: the decision to measure or reduce air pollutants in this situation should rest on different grounds from the present reported excess cancer mortality.

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