AD-A055 555 RAND CORP SANTA MONICA CALIF F/G 6/5
THE VALUE OF SCREENING TRIALS,(U)
MAR 78 E B KEELER
UNCLASSIFIED RAND/P-5949 NL

| OF |
AD
A055 555

END
DATE
FILMED
8-78
DDC

(2)

(6) THE VALUE OF SCREENING TRIALS

(10) Emmett B. Keeler

(11) March 1978

(12) 5 P.

(14) RAND P-5949

THE VALUE OF SCREENING TRIALS

Emmett B. Keeler*

The RAND Corporation, Santa Monica, California

Epidemiologists sceptical of the efficacy of cancer treatment have noted that mortality rates from breast cancer have been nearly constant for the last 40 years. They point out that the observed rise in incidence and fall in case fatality rates may both be due to increased screening. Observed incidence would rise if screening has detected some patients with mild or slowly progressing forms of cancer who would previously not have come under treatment. Since such patients have a naturally better prognosis, including them in the diseased cases improves case fatality rates. Treatment may still be worthless.[1]

Results from the treatment of other cancers raise similar doubts. Five year survival rates of even those lung cancer cases detected by screening are so low that treatment cannot be very helpful.[2,3] Canadian provinces with different cervical cancer programs showed little difference in survival despite great variations in the proportion of women screened.[4] While the lower class women most prone to cervical cancer took less part in these programs than middle and upper class women, their absence should only dilute any differential effects of early treatment, not eliminate them. Still, negative results from such observational studies are just as unreliable as positive results. The increased screening and treatment in British Columbia may have had an effect that was obscured by other differences between the provinces. The value of cervical cancer treatment remains unknown.

---

*Any views expressed in this paper are those of the author. They should not be interpreted as reflecting the views of The RAND Corporation or the official opinion or policy of any of its governmental or private research sponsors. Papers are reproduced by The RAND Corporation as a courtesy to members of its staff.

This paper was prepared for publication in the New England Journal of Medicine.

By contrast, we can rely on the results of the carefully controlled Health Insurance Plan of Greater New York breast cancer screening trial.[5] This study proved that breast cancer *treatment* is efficacious, refuting the sceptics. Since the group offered screening had a third fewer deaths from breast cancer than the controls, treatment must have been beneficial to them. Such solid evidence of the value of treatment distinguishes breast cancer from other major cancers.

Information on the efficacy of treatment is an important side benefit of screening trials. Such information cannot be obtained directly because it is unethical to withhold treatment from known cancer patients, even if there is no evidence that treatment is efficacious. In a screening trial, there will be more patients with undetected cancer in the control group, but since they are not identified, the ethical risks of omitting treatment are reduced. Large randomized screening trials for cervical cancer, colon cancer, and mild hypertension would show whether current methods of treatment have any merit, in addition to resolving controversies about the cost-effectiveness of screening.[6]

Such trials are inherently expensive because of their size but are easily justified economically by the solid information they produce. If screening proves to be efficacious, much of the expense goes into improved medical care for the participants. If screening does not improve health, then the evidence from the trial can have an impact on costs that far outweighs its expense. For example, evidence from the HIP screening trial is primarily responsible for recent NCI guidelines limiting mammograms in young women.[7] The resultant savings in a single year are greater than the total costs of the study.

In summary, screening trials provide information on cancer treatment which is otherwise practically impossible to obtain. This information provides additional justification for expanding current support of such trials.

REFERENCES

1. McPherson K. and M. S. Fox, "Treatment of Breast Cancer," *Costs Risks and Benefits to Surgery*, J. P. Bunker, B. A. Barnes, F. Mosteller, (eds.), Oxford University Press, New York 1977, pp. 308-323.

2. Brett, G. Z., "Earlier Diagnosis and Survival in Lung Cancer," *British Medical Journal*, 1969, pp. 260-262.

3. Boucot, K. R. and W. Weiss, "Is Curable Lung Cancer Detected by Semiannual Screening?", *Journal of the American Medical Association*, Vol. 224, 1973, pp. 1361-1365.

4. Ahluwalia, H. S., R. Doll, "Mortality from Cancer of the Cervix Uteri in British Columbia and Other Parts of Canada, *British Journal of Preventive Social Medicine*, Vol. 22, 1968, pp. 161-164.

5. Shapiro, S., P. Strax, L. Venet, et al, "Changes in 5-year Breast Cancer Mortality in a Breast Cancer Screening Program," Seventh National Cancer Conference Proceedings, American Cancer Society, 1963, pp. 663-678.

6. Sackett, D. L., W. W. Holland, "Controversy in the Detection of Disease," *Lancet* (2), 1975, pp. 357-359.

7. New York Times Editorial, May 12, 1977.