expanded followup study did not confirm the finding of an association between children with Down's syndrome and the occupational exposure of their fathers to radar [Cohen et al., 1977]. A somewhat related study examined children whose mothers had been treated with microwave diathermy (2450 MHz, CW, 100-W output power) to relieve the pain of uterine contraction during labor [Daels, 1973]. No evidence of mental retardation was manifested in a 1-year followup of the children.

There were two early epidemiological papers reporting systematic evaluation of cancer and microwave exposure [Lilienfield et al., 1978; Robinette et al., 1980]. Both of these are cohort studies with morbidity and mortality as study endpoints.

One study population consisted of U.S. Foreign Service personnel in Eastern Europe. During the period between 1953 and 1976, persons stationed in the Moscow Embassy were exposed for up to 0.015 mW/cm^2 of 600-9600 MHz microwave radiation for 9-18 hr/day [Lilienfield et al., 1978]. The morbidity and mortality of the Moscow Embassy personnel were compared with those who had served in other similar Eastern European embassies or consulate where only background levels of microwave radiation were detectable during the same time period. There was no consistent pattern of increased frequency of morbidity and no evidence of higher mortality in the exposed group. While the study did not exhibit any difference in specific causes of death nor an excess of cancer in the Moscow Embassy group, it should be noted that the small number of cancer cases makes interpretation of this study rather limited.

Another study was conducted on U.S. Navy personnel who enlisted between 1950-1954 and were trained in the use and maintenance of radio and radar equipment. The study population had nearly equal numbers in the high-exposure (20,109, up to 10-100 mW/cm^2) cohorts and low-exposure (20,781, <1 mW/cm^2) cohorts [Robinette et al., 1980]. The report did not reveal any difference in the mortality rate between the two groups more than 20 years after exposure. Similarly, the authors did not find an enhanced incidence of cancer resulting from potentially higher radar or microwave exposure.

A major difficulty with these two studies is the uncertainty in assessing actual exposure to large numbers of people. It is interesting to note that the cohorts of both studies were followed through existing records for essentially the same time period 1950-1976 and the studies commenced subsequently. Exposure measures were assigned to groups of individuals on the basis of estimation or reconstruction over wide range of frequencies and power density levels. The lack of actual measurement did not permit assignment of exposure to any individual in the study. These complications confine the usefulness of both studies in conclusions about possible microwave or radar related health effect.

Several epidemiological studies on cancer and mortality have been published within the last few years. Some of the more recent studies related to Rf and microwave exposure are summarized in **Table 13** and are briefly reviewed in this section.