INTRODUCTION

This workshop attempted to summarize the epidemiologic evidence bearing on the proposed benefits and suspected risks of oestrogen therapy. We illustrated the sorts of data available, discussed their limitations and attempted to quantify their effects. The ultimate goal of this exercise was to permit some idea of the balance between risks and benefits of oestrogen therapy. From the outset, we concede that no simple equation can be derived to demonstrate a positive or negative balance sheet for oestrogen therapy. This is true because of gaps in our knowledge about the full effects of exogenous oestrogens, vagueness in the measures we use to value the risks and benefits, and widely different standards of practice which could affect risks and benefits.

NATURE OF EPIDEMIOLOGIC STUDIES

The epidemiologic evidence that can be brought to bear on this question includes simple descriptive studies, case–control and retrospective
cohort studies and prospective clinical trials. By examining disease rates as they may vary by race, geography or time, correlations may be observed between those rates and the exposure which can be suggestive of a relationship. Case–control and retrospective cohort studies are the principal epidemiologic studies which attempt to quantify an association between exposure and illness and further qualify it as causal or non-causal. A well-designed prospective study is the best way to establish a relationship between exposure and outcome with any certainty but is rarely feasible to establish risks.

In case–control studies the starting population is defined by the presence or absence of the disease. Exposure in the diseased group is compared with exposure in the non-diseased controls. In retrospective cohort studies the starting population is defined by the presence or absence of an exposure which occurred in the past. The rate of disease that subsequently developed is determined in the exposed and non-exposed groups. The yield of both case–control and cohort studies is the relative risk which compares the exposed individual’s risk relative to that of the non-exposed individual’s risk.

A valid epidemiologic study is one that is free of three types of bias: observation or misclassification bias where subjects are misclassified with respect to exposure or disease, selection bias where cases and controls are selected in some way on a correlate of the exposure, or confounding due to factors such as age or race associated with both the exposure and illness. Alternatively associations which are strong, consistently found in different studies, show a dose response, and have biological credibility are unlikely to be spurious.

THE BENEFITS OF OESTROGEN THERAPY

The potential benefits of oestrogen therapy were considered under three headings: effects on the cardiovascular system, effects on bone, and effects on the central nervous system. Though recognized as a major benefit, relief of genital atrophy was not discussed in detail.

Descriptive studies of cardiovascular mortality in women show a steadily increasing rate with no sudden or dramatic upturn around the time of the menopause (Furman, 1971; Ryan, 1976). However, studies do indicate that women who have bilateral oophorectomy at an early age suffer an increased risk for cardiovascular death (Rosenberg et al., 1976). It has not been established that replacement therapy can eliminate this risk. Case–control and cohort studies regarding oestrogens and cardio-