

CHAPTER 22

FUTURE DIRECTIONS

A careful review of the results of the past four physical examinations provides an opportunity to refine and focus the remaining two examinations of the Air Force Health Study. The current and prior examination outcomes have identified several medical tests requiring more intense evaluation and other analyses that can be reduced or eliminated in the 1997 and 2002 studies without sacrificing scientific value.

Immunological testing of skin test reactivity, T-cell type, and T-cell function were important parts of all four examinations, and high-quality data in this area were gathered in the 1985, 1987, and 1992 studies. After exhaustive evaluation, there appear to be some effects that may be dioxin-related. Therefore, many of these measurements will remain in the 1997 study. However, the skin test reactivity measurement is medically redundant with the battery of cell function tests, and thus will be eliminated from the next examination. Additionally, many of the highly nonspecific tests in the protein profile and lupus panel will be eliminated. Many of these tests are poorly understood by clinical pathologists and immunologists and should be removed from consideration.

The Doppler evaluation of the large artery pulses (radial and femoral) also will be eliminated, reducing examination time and stress on the participants. Our data does not indicate any dioxin-mediated effect on these arteries. However, the relationship between dioxin and diabetes makes it imperative that the smaller arteries of the legs and feet remain a key part of the examination.

Because no association was found between testicular abnormality detected during ultrasound and dioxin, the ultrasound evaluation of the testicles will be eliminated.

Additional dioxin assays will be performed on willing Ranch Hands who have participated in our studies of dioxin half-life. A fourth measurement, taken from blood collected in 1997, will further refine our estimate of half-life, allow study of the fit of the first order elimination model, and permit better estimates of the initial dose in Ranch Hands with elevated current dioxin levels.

The 1997 examination will be expanded to include additional measurements of the cellular metabolism of glucose. The possible development of a laboratory measurement of specific enzymes involved in glucose transport into the cell would be an important addition to the current evaluation of diabetes.