Understanding Science and Scientific Methods:

An Overview for Lawyers

SUMMARY – 26 September 2005

Class on 19 September 2005 Covered Topics 2.c.i. and 2.c.ii. (part) on the Syllabus

I. Dioxin and Agent Orange

A. Basic Science of Dioxin –

B. The Use of Agent Orange in Vietnam

C. The Health Politics of Agent Orange and Dioxin

1. The Sample Population: Employment & Unemployment:

   Very few differences between Vietnam Veterans and non-Veterans. Slight bias towards professional occupations of non-veterans.

2. The Sample Population: Vietnam Casualties: No race or ethnic bias. Very, very small income bias.


4. Bottom Line – Vietnam Veterans are fairly representative of the U.S. male population
II. Basic Statistics of Epidemiological Studies

A. Experimental Studies – Figure 2-1 -- Controlled trial, Clinical Trial
   1. Core of the method is the *random assignment of subjects.*
   2. **Problems:** a) Adherence; b) Attrition

B. Case Control Studies – Figure 2-2.
   1. You Look Backward in Time.
   2. **Problems:** a) are the cases a valid representation of the disease?
      B) are the controls similar to the cases? C) selective recall

C. Cross-Sectional Studies – The Present – Figure 2-4
   1. Very efficient
   2. **Problems:** a) subject selection; b) response/participation bias; 3)
      Time-order relationships (what causes what?); inaccurate self-reported data

D. Cohort Studies – Figure 2-3 -- Look Forward in Time
   1. Data are gathered in standardized fashion and you start with a population *that is not diseased.*
   2. **Problems:** a) Sample selection; b) Loss to follow-up; c) change in habits; d) Surveillance bias.