

SURVEY STRATEGIES FOR ESTIMATING RARE HEALTH ATTRIBUTES

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1. Introduction

Estimation of the incidence and prevalence of rare health attributes in the population is one of the most difficult and persistent methodological problems in the national program for producing health and vital statistics. Speakers at this symposium have called attention to this methodological problem with respect to planning epidemiological studies of pollutant effects. They pointed out that many of the most serious health conditions such as congenital malformations, infant deaths, and numerous severe chronic diseases in which pollutants have been implicated or suspected, affect relatively small numbers of persons.

One objective of this paper is to describe the sample survey methods that have been used by the National Center for Health Statistics (NCHS) to produce national statistics for health conditions with low rates of prevalence and for vital events with low occurrence rates. Since different data systems have evolved in this country for producing vital statistics and for producing morbidity statistics, the methodological problems associated with estimating rare vital events are somewhat different than those associated with rare health conditions and the methods of dealing with these problems have been somewhat different also. Therefore, the matter will be discussed separately for the two data systems.

Another objective of this paper is to describe a new type of estimator that is currently being investigated by NCHS. The estimator is being tested in sample surveys of providers of health services to estimate rare health conditions and in household sample surveys to estimate rare vital events.

2. Rare vital events

National birth and death statistics are predominately by-products of the birth and death registration systems. Vital statistics are derived from the items of information reported on the records of registered births and deaths. Since national vital statistics are based on 100 per cent of the nearly two million deaths registered annually and on a 50 per cent sample of the nearly four million annually registered births, estimating the number of rare vital events in terms of the demographic and medical variables on the records does not present a problem.