

ACCIDENTAL (UNINTENTIONAL INJURY) DEATHS

Technical Notes

Beginning with the 2000 data year in Arizona (1999 nationally) two major changes have occurred that affect the computation of mortality rates and analyses of mortality data over time. First, a new revision of the International Classification of Diseases (ICD), used to classify causes of death, was implemented. The Tenth Revision (ICD-10) has replaced the Ninth Revision (ICD-9), which was in effect since 1979. Second, a new population standard for the age adjustment of mortality rates has replaced the standard based on the 1940 population and used since 1943. The new set of age-adjustment weights uses the year 2000 U.S. population as a standard.

Both changes have profound effects on the comparability of mortality data and continuity in statistical trends. Age-adjusted rates can only be compared to other age-adjusted rates that use the same population standard. In this report, ALL age-adjusted mortality rates are based on the (new) 2000 standard, and they CANNOT BE compared to rates using the 1940 standard population. This is because the age structures of the 1940 and year 2000 populations differ. From 1940 to 2000 the U.S. population "aged" considerably. The age-adjusted rates based on the year 2000 standard are different because the year 2000 population standard, which has an older age structure, gives more weight than the 1940 standard to death rates at older ages where mortality is higher.

Breaks in comparability of mortality statistics effective with deaths occurring in 2000 also result from the implementation of ICD-10. ICD-10 is far more detailed than ICD-9, with about 8,000 categories compared with about 5,000 categories. Some of the coding rules and rules for selecting the underlying cause of death have been changed. Fortunately, the comparability ratio for accidental (unintentional injury) deaths (a measure of comparison between ICD-9 and ICD-10) is close to 1.0 (1.0305), and this indicates that similar number of deaths would be assigned to unintentional injury when ICD-9 or ICD-10 was used.

However, before data for 2000, mortality medical information was based on manual coding of an underlying death for each certificate in accordance with WHO rules, and done locally by the Office of Vital Records. Effective with the 2000 data year and the implementation of ICD-10, cause-of-death data presented in this publication were coded by the National Center for Health Statistics, using computerized procedures of SuperMICAR (Mortality Medical Indexing and Retrieval) and ACME (Automated Classification of Medical Entities) systems.

The conversion to computerized coding contributed to at least some of the breaks in comparability over time of cause-of-death statistics for intentional self-harm (suicide), accidental drug overdoses and accidental discharge of firearms:

Data year	1999	2000	2001	2002	2003	2004
Drug-induced deaths	543	331	577	645	646	745
Accidental poisoning/overdose	383	230	414	458	447	517
Suicide	773	737	600	855	807	854
Suicide by firearms	495	486	358	544	476	498
Suicide by drugs	105	59	76	100	93	115
Accidental discharge of firearms	7	11	114	26	13	13

Unprecedented decline in 2001 in the number of suicides and the equally unprecedented increase in the number of firearm deaths classified as accidental obviously are associated. Approximately 100 firearm fatalities, that would have been classified as suicides had the manual coding system been in place, were classified as accidents in 2001 because the "manner of death" was not indicated and the automated coding system defaulted to accidental injury. Computerized coding of the underlying cause of death also affected the number of accidental drug overdoses in 2000, as well as the number of suicides by drug poisoning in both 2000 and 2001.

The true counts of accidental drug poisonings in 2000 and of accidental firearm fatalities in 2001 are not available and they are marked as such in Tables 2-1 – 2-21.

Both the ICD-9 and ICD-10 codes used to identify specific categories of accidental (unintentional) injury deaths are available at <http://www.azdhs.gov/plan/report/im/im/im01/im00/imcod.pdf>