Documentation of Mortality Statistics and Cause of Death Codes for Core (non-Refresher) MIDUS and Milwaukee Samples

This memo accompanies an updated mortality dataset containing 2,124 decedents from the MIDUS Core National and Milwaukee samples. In Spring 2021, all MIDUS Core sample cases – regardless of prior decedent status – were submitted to NDI to find new decedents, confirm known decedents, obtain cause of death, and to gauge the effectiveness of MIDUS Admin Core NDI submission filters to screen out cases that are likely alive. Two NDI Plus[1] searches were performed: a Final Data Search for years 1995 through 2019; and an Early Release Data Search for 2020, which contains approximately 95% of recorded U.S. deaths that occurred in 2020, according to NDI.

In total, information from 7,699 Core individuals with sufficient minimum matching criteria[2] were submitted to the National Death Index (NDI). Because some individuals are associated with multiple Social Security Numbers and/or multiple last names (e.g., maiden names, hyphenated names, or alternative spellings), a total of 8,052 cases were submitted.

The updated Core mortality dataset:
MIDUS_Core_MortalityCauseData_N2124_20220310.sav

This updated dataset adds 613 newly-identified decedents to the previous mortality dataset (N=1,511) for a total of 2,124 decedent cases. These new decedents include those found through processing of the Final (1995-2019) and Early Release (2020) NDI data searches, as well as any cases found and confirmed by the MIDUS Administrative Core via longitudinal sample maintenance through early 2022. ***Note that the decedent information through 2020 is considered "complete" due to the Final and Early NDI searches, while any decedent data after 2020 is considered "partial" because it is the byproduct of ongoing longitudinal sample maintenance efforts.***

The current NDI submission and mortality review submitted all Core cases with sufficient minimum matching criteria. When including information from cases with multiple potential last names (maiden names, hyphenated names, or alternative spellings) as well as those who were associated with multiple SSNs, a total of 8,052 cases were submitted to NDI.

Note that the decedent status for six previously deceased cases (M2IDs: 10302, 10838, 11508, 13536, 13613, 17906) was overturned from *dead* to *living* after careful review of NDI results and additional tracing using multiple sources (e.g., Lexis-Nexis database, contacting sibling or twin family members, and searching online obituaries, grave listings, and funeral home websites). Overturning the decedents status of a case is only done after careful consideration and tracing; new sources must strongly indicate the respondent is alive, along with a corresponding lack of corroborating death evidence.

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[1] Different from NDI routine searches which only provide potential decedent matches, the NDI Plus search also provides the cause of death (ICD Codes) for many matches.
[2] To be eligible for an NDI search, each record must contain at least one of the following combinations of data items: (a) First and last name and SSN, (b) First and last name and month and year of birth, (c) SSN and full date of birth and sex.

The current mortality dataset is a flat file containing 2,124 deceased cases. The dataset contains 10 variables that can be linked to other Core MIDUS datasets via the M2ID variable. The focal variables are:

- DECEASED indicates decedent status.

- DOD_M and DOD_Y indicate the month and year of death.

- CAUSE_ICD-9 and CAUSE_ICD-10 contain underlying cause of death based on ICD (International Classification of Diseases) codes. The ICD codes, provided by the NDI Plus search, have not been modified or changed in this dataset, but for convenience to researchers the MIDUS Administrative Core did append descriptive labels to each ICD code using source material provided by NDI. The ICD codes represent the underlying cause of death, which is defined as "(a) the disease or injury which initiated the train of events leading directly to death, or (b) the circumstances of the accident or violence which produced the fatal injury" (World Health Organization; Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death, based on the recommendations of the Ninth Revision Conference, 1975; Geneva; 1977). For more information about how NDI Plus provides cause of death information, see NDI user guide: https://www.cdc.gov/nchs/data/ndi/NDI_Users_Guide.pdf

    o Because the MIDUS Core study began in 1995 and includes deaths from that year onward, the Core mortality dataset contains two sets of ICD codes:
        - CAUSE_ICD-9. This variable contains the 9th revision (ICD-9) of the ICD codes and are used by NDI to classify deaths that occurred from 1979 through 1998. Further information on ICD-9 is available from:
            - https://www.cdc.gov/nchs/icd/icd9.htm
        - CAUSE_ICD-10. This variable contains the 10th revision (ICD-10) of the ICD codes and are used by NDI to classify deaths occurring in 1999 and afterwards. Further information on ICD-10 is also available from:
            - https://www.cdc.gov/nchs/icd/icd10.htm
        - For more information about the differences between ICD-9 and ICD-10 codes, see **Table 1** below.

- ICD_SOURCE. For a small number of cases, the MIDUS Administrative Core was unable to obtain an accurate match to an ICD code. For those cases which had proxy-reported cause of death information obtained via other sources (such as MIDUS Mortality Closeout Interviews or longitudinal sample maintenance activities), the MIDUS Admin Core imputed applicable ICD codes. An ICD_SOURCE variable indicates whether the ICD code was assigned via (1) an NDI match, or (2) information derived from the mortality closeout interview or longitudinal sample maintenance.

Table 1. Key differences between ICD-9-CM and ICD-10-CM and ICD-10-PCS code sets[3]

Differences Between ICD-9-CM and ICD-10 Code Sets		
	ICD-9-CM	**ICD-10 code sets**
Procedure	3,824 codes	71,924 codes
Diagnosis	14,025 codes	69,823 codes
ICD-10 Code Structure Changes (selected details)		
	Old	**New**
Diagnosis Structure	ICD-9-CM • 3-5 characters • First character is numeric or alpha • Characters 2-5 are numeric	ICD-10-CM • 3-7 characters • Character 1 is alpha • Character 2 is numeric • Characters 3 – 7 can be alpha or numeric
Procedure Structure	ICD-9-CM • 3-4 characters • All characters are numeric • All codes have at least 3 characters	ICD-10-PCS • ICD-10-PCS has 7 characters • Each can be either alpha or numeric • Numbers 0-9; letters A-H, J-N, P-Z

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[3] Source: CDC website https://www.cdc.gov/nchs/icd/icd10cm_pcs_background.htm