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

February, 2020

This memo accompanies an updated mortality dataset containing known MIDUS and Milwaukee decedents (N=1,511) as of June, 2018. These decedents include those found through a National Death Index (NDI) Plus[1] search of the finalized death records for 2016, as well as any cases found by the MIDUS Administrative Core via longitudinal sample maintenance through mid 2018. Note that the decedent information through 2016 is considered comprehensive and "complete" due to the NDI search, while decedent data after 2016 are considered partial since they are a byproduct of ongoing longitudinal sample maintenance efforts.

The previous mortality data file (N=1,382) was the result of a National Death Index (NDI) Plus[2] search for cause of death among confirmed MIDUS decedents. This most recent dataset includes 131 additional newly-identified decedents and 2 overturned (from deceased to living) cases. Those 131 new decedents were identified through multiple sources: (1) M3 Re-fielding[3] tracing, (2) M3 Re-fielding mortality closeout interview, (3) the NDI Plus search through the calendar year 2016, or (4) longitudinal sample maintenance.

In preparation of this updated dataset, a total of 713 cases were submitted to a NDI Plus search to confirm their decedent status and obtain information about their underlying cause of death. For the sake of efficiency[4], we did not submit every individual case to a NDI search. Instead, we filtered out presumed living cases using several criteria (e.g., recently contacted cases via participation in MIDUS projects, cases identified as living through M3 Refielding, etc.) and submitted only those suspected deceased cases with sufficient minimum criteria[5] for NDI matching.

There was about a year lag in the availability of NDI Plus results at the time of submission (June 2018). Thus, at that time NDI had the complete death record for deaths that occurred through the year 2016.

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[1] 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. All submitted Refresher cases met this criterion.

[2] Different from the NDI routine search which only gives suspected decedent status, NDI Plus search provides the cause of death (ICD Codes) in addition to the suspected decedent status.

[3] In 2017 an effort was made to "refield" those cases who had not completed the 2015 M3 SAQ or Cognitive data collection.

[4] The NDI does not provide one exact match for each case. Rather, depending on the completeness and uniqueness of each case's submitted information, multiple potential matches per submitted case may be returned. This requires substantial effort by the MIDUS Administrative Core to identify true matches. In addition, submitting all cases without removing presumed living cases is likely to increase the probability of generating false matches.

[5] 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 1,511 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_ICD9 and CAUSE_ICD10 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

    - The dataset contains two sets of ICD codes:
        - CAUSE_ICD9. 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_ICD10. 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 very 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 (primarily other than NDI Plus such as the MIDUS mortality closeout interview or longitudinal sample maintenance activities), the MIDUS Administrative Core imputed applicable ICD codes. An ICD_SOURCE variable indicates whether the ICD code was assigned via (1) information derived from the mortality closeout interview or longitudinal sample maintenance or (2) an NDI match.

The previous decedent status for two cases was overturned after careful consideration of their address history and tracing done through the LexisNexis database: M2ID: 11198 and 12401. Overturning a decedent's status from *dead* to *living* is only done after careful consideration and tracing; other sources must indicate the respondent may be alive and there must be a demonstrable lack of corroborating evidence of death. Tracing to confirm the status of such cases

is performed using the Lexis-Nexis database, contacting sibling or twin family members, and searching online obituaries, grave listings, and funeral home websites.

Table 1. Differences between ICD-9 and ICD-10 code list.[6]

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

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