

Appendix B1: Poisoning Matrix for ICD-10 Coded Mortality Data

Underlying Cause Codes*					
Type of Poison†	Poisoning by Intent			Poisoning by Intent	
	Unintentional	Self harm/ suicide	Assault/ homicide	Legal Intervention/ Operation of War	Undetermined Intent
DRUG	X40-X44	X60-X64	X85	...	Y10-Y14
Nonopioid analgesics	X40	X60	...	...	Y10
4-Aminophenol derivatives	...	...	...	...	...
Antiepileptic, sedative-hypnotic, anti-Parkinsonism, antidepressant, and other psychotropic drugs, not elsewhere classified	X41	X61	...	...	Y11
Benzodiazepines	...	...	...	...	...
Methamphetamines and other psychostimulants with abuse potential	...	...	...	...	...
Anticoagulants	...	...	...	...	...
Narcotics and psychodysleptics not elsewhere classified****	X42	X62	...	...	Y12
Opiates/opioids	...	...	...	...	...
Heroin	...	...	...	...	...
Pharmaceutical opioids	...	...	...	...	...
Methodone	...	...	...	...	...
Cocaine	...	...	...	...	...
Other and unspecified narcotics*****	...	...	...	...	...
Other drugs acting on the autonomic nervous system	X43	X63	...	...	Y13
Drugs not elsewhere classified or unspecified	X44	X64	X85	...	Y14
NON-DRUG	X45-X49	X65-X69	X86-X90	...	Y15-Y19
Alcohol	X45	X65	...	...	Y15
Ethanol	...	...	...	...	...
Organic solvents, and halogen derivatives of aliphatic and aromatic hydrocarbons	X46	X66	...	...	Y16
Other gases and vapors (including carbon monoxide)	X47	X67	...	...	Y17
Carbon monoxide	...	...	...	...	...
Other specified non-drugs	X48	X68	X86-X89	...	Y18
Other nondrugs not elsewhere classified or unspecified	X49	X69	X90	...	Y19
UNSPECIFIED TYPE OF POISON	*U01.7	Y35.2	...
ALL TYPES OF POISON	X40-X49	X60-X69	X85-X90, *U01.7	Y35.2	Y10-Y19

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Underlying Cause Codes*				
Type of Poison†	Poisoning by Envenomation	Poisoning by Adverse Effect of Drug in Therapeutic Use	Poisoning Secondary to Foodborne Illness: Intoxication	Poisoning Secondary to Mental/ Behavior Disorder: Acute Intoxication***
DRUG		Y40-Y59		[F11 - F16] (.0), F19.0
Nonopioid analgesics		Y45.5		...
4-Aminophenol derivatives		Y45.5		...
Antiepileptic, sedative-hypnotic, anti-Parkinsonism, antidepressant, and other psychotropic drugs, not elsewhere classified		Y46, Y47, Y49 (.0-.5, .7-.9)		...
Benzodiazepines		Y47.1		F13.0‡
Methamphetamines and other psychostimulants with abuse potential		Y49.7		F15.0
Anticoagulants		Y44.2		
Narcotics and psychodysleptics not elsewhere classified****		Y45.0, Y49.6		F11.0, F14.0, F16.0
Opiates/opioids		Y45.0		F11.0
Heroin		...		...
Pharmaceutical opioids		Y45.0		...
Metadone		...		...
Cocaine		...		F14.0
Other and unspecified narcotics*****		...		...
Other drugs acting on the autonomic nervous system		...		...
Drugs not elsewhere classified or unspecified		Y40-Y44.1, Y44 (.3-.9), Y45 (.1-.4, .8,.9), Y48, Y50-Y59		F12.0, F19.0
NON-DRUG	X20-X29		A05 (.0-.2, .4-.9)	F10.0, F17.0, F18.0
Alcohol			...	F10.0
Ethanol			...	...
Organic solvents, and halogen derivatives of aliphatic and aromatic hydrocarbons			...	F18.0
Other gases and vapors (including carbon monoxide)			...	...
Carbon monoxide			...	...
Other specified non-drugs	X20-X28		A05 (.0-.2, .4-.9)	F17.0
Other nondrugs not elsewhere classified or unspecified	X29		...	...
UNSPECIFIED TYPE OF POISON
ALL TYPES OF POISON	X20-X29	Y40-Y59	A05 (.0-.2, .4-.9)	[F10-F19] (.0)

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	Underlying Cause Codes*	
Type of Poison†	Diseases Induced by Drugs and Other Substances ¶	All Codes
DRUG	D52.1, D59 (.0, .2), D61.1, D64.2, E06.4, E16.0, E23.1, E24.2, E27.3, E66.1, [F11-F16] (.1-9), F19 (.1-9), G21.1, G24.0, G25 (.1, .4, .6), G44.4, G62.0, G72.0, I95.2, J70 (.2-4), K85.3, L10.5, L27 (.0, .1), M10.2, M32.0, M80.4, M81.4, M83.5, M87.1, R50.2	X40-X44, X60-X64, X85, Y10-Y14, Y40-Y59, D52.1, D59 (.0, .2), D61.1, D64.2, E06.4, E16.0, E23.1, E24.2, E27.3, E66.1, F11-F16, F19, G21.1, G24.0, G25 (.1, .4, .6), G44.4, G62.0, G72.0, I95.2, J70 (.2-4), K85.3, L10.5, L27 (.0, .1), M10.2, M32.0, M80.4, M81.4, M83.5, M87.1, R50.2
Nonopioid analgesics	...	X40, X60, Y10, Y45.5
4-Aminophenol derivatives	...	Y45.5
Antiepileptic, sedative-hypnotic, anti-Parkinsonism, antidepressant, and other psychotropic drugs, not elsewhere classified	...	X41, X61, Y11, Y46, Y47, Y49 (.0-5, .7-9)
Benzodiazepines	F13‡ (.1-9)	Y47.1, F13‡
Methamphetamines and other psychostimulants with abuse potential	F15(.1-9)	F15, Y49.7
Anticoagulants	...	Y44.2
Narcotics and psychodysleptics not elsewhere classified****	...	X42, X62, Y12, Y45.0, Y49.6, F11.0, F14.0, F16.0
Opiates/opioids	F11 (.1-9)	F11, Y45.0
Heroin	...	...
Pharmaceutical opioids	...	Y45.0
Methodone	...	...
Cocaine	F14 (.1-9)	F14
Other and unspecified narcotics*****	...	...
Other drugs acting on the autonomic nervous system	...	X43, X63, Y13
Drugs not elsewhere classified or unspecified	F12 (.1-9), F16 (.1-9), F19 (.1-9)	X44, X64, X85, Y14, Y40-Y44.1, Y44 (.3-9), Y45 (.1-4, .8, .9), Y48, Y50-Y59, F12, F19
NON-DRUG	E24.4, F10 (.1-9), F17 (.1-9), F18 (.1-9), G31.2, G62.1, G72.1, I42.6, K29.2, K70, K85.2, K86.0	X20-X29, X45-X49, X65-X69, X86-X90, Y15-Y19, A05, E24.4, F10, F17, F18, G31.2, G62.1, G72.1, I42.6, K29.2, K70, K85.2, K86.0
Alcohol	E24.4, F10 (.1-9), G31.2, G62.1, G72.1, I42.6, K29.2, K70, K85.2, K86.0	X45, X65, Y15, E24.4, F10, G31.2, G62.1, G72.1, I42.6, K29.2, K70, K85.2, K86.0
Ethanol	...	...
Organic solvents, and halogen derivatives of aliphatic and aromatic hydrocarbons	F18 (.1-9)	X46, X66, Y16, F18
Other gases and vapors (including carbon monoxide)	...	X47, X67, Y17
Carbon monoxide	...	...
Other specified non-drugs	F17 (.1-9)	X20-X28, X48, X68, X86-X89, Y18, A05, F17
Other nondrugs not elsewhere classified or unspecified	...	X49, X69, X90, Y19, X29
UNSPECIFIED TYPE OF POISON	...	Y35.2, *U01.7
ALL TYPES OF POISON	D52.1, D59(.0, .2), D61.1, D64.2, E06.4, E16.0, E23.1, E24 (.2, .4), E27.3, E66.1, [F10-F19] (.1-9), G21.1, G24.0, G25 (.1, .4, .6), G31.2, G44.4, G62 (.0, .1), G62.1, G72 (.0, .1), I42.6, I95.2, J70 (.2-4), K29.2, K70, K85 (.2, .3), K86.0, L10.5, L27 (.0, .1), M10.2, M32.0, M80.4, M81.4, M83.5, M87.1, R50.2	X20-X29, X40-X49, X60-X69, X85-X90, Y35.2, Y10-Y19, Y40-Y59, *U01.7, A05 (.0-2, .4-9), D52.1, D59 (.0, .2), D61.1, D64.2, E06.4, E16.0, E23.1, E24 (.2, .4), E27.3, E66.1, F10-F19, G21.1, G24.0, G25 (.1, .4, .6), G31.2, G44.4, G62 (.0, .1), G72 (.0, .1), I42.6, I95.2, J70 (.2-4), K29.2, K70, K85 (.2, .3), K86.0, L10.5, L27 (.0, .1), M10.2, M32.0, M80.4, M81.4, M83.5, M87.1, R50.2

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Type of Poison†	Contributing Cause Codes**		
	Drug and Other Non-venom, Non-foodborne Poisoning	Envenomation	Foodborne Illness: Intoxication
DRUG	T36-T50.9		
Nonopioid analgesics	T39		
4-Aminophenol derivatives	T39.1		
Antiepileptic, sedative-hypnotic, anti-Parkinsonism, antidepressant, and other psychotropic drugs, not elsewhere classified	T42, T43		
Benzodiazepines	T42.4		
Methamphetamines and other psychostimulants with abuse potential	T43.6		
Anticoagulants	T45.5		
Narcotics and psychodysleptics not elsewhere classified****	T36-T38.9, T40 (.0-.9), T41, T44, T45 (.0-.4), T45 (.6-.9), T46-T50.8		
Opiates/opioids	T40(.0-.4)		
Heroin	T40.1		
Pharmaceutical opioids	T40.0, T40 (.2-.4)		
Methadone	T40.3		
Cocaine	T40.5		
Other and unspecified narcotics*****	T40.6		
Other drugs acting on the autonomic nervous system	...		
Drugs not elsewhere classified or unspecified	T50.9		
NON-DRUG	T51-T60, T65	T63	T61, T62, T64
Alcohol	T51		...
Ethanol	T51.0		...
Organic solvents, and halogen derivatives of aliphatic and aromatic hydrocarbons	T52, T53		...
Other gases and vapors (including carbon monoxide)	T58, T59		...
Carbon monoxide	T58		...
Other specified non-drugs	T54-T57, T60, T65(.0-.8)	T63	T61-T62, T64
Other nondrugs not elsewhere classified or unspecified	T65.9	...	...
UNSPECIFIED TYPE OF POISON	
ALL TYPES OF POISON	T36-T60, T65	T63	T61, T62, T64

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Footnotes

† **Type of Poison**

Only selected classes of drugs and nondrugs are shown in the table. Classes were chosen based on their public health importance. For example, 4-aminophenol derivatives such as acetaminophen are not the only class of nonopioid analgesics in use, but the other classes are involved in fatal poisonings less frequently. Similarly, many classes of gases and vapors are involved in poisoning deaths, but none as frequently as carbon monoxide. ICD codes associated with radiation exposure and disease are not included as they lack information as to whether the source of the radiation is incorporated into the body.

* **Underlying cause codes**

This set of columns includes only the ICD codes that are used to code the underlying cause of death. These codes can be used to identify deaths of all types caused by each poison type.

Some of these codes and codes from the lists of multiple cause codes may be included on death certificates without being the underlying cause of death.

To identify deaths that may be drug-related but not necessarily drug-caused, selecting for deaths with codes in this column or in the contributing cause column would be valid.

** **Contributing cause codes**

Codes that may be used for any diagnoses included in Part I or Part II of the death certificate. These codes are used to identify the type of poison involved but not the intent of the poisoning. They cannot be used to identify the underlying cause of death.

*** **Poisoning Secondary to Mental/ behavior disorder: Acute Intoxication**

Acute intoxication codes in this column, [F10-F19](.0), have been discontinued. Beginning in 2007, NCHS decided that acute intoxication that was fatal should be coded as an external cause of mortality (injury) rather than a mental or behavioral disorder. F10.0 was discontinued in 2007 data. F11-F19 (.0) were discontinued in 2009 data.

**** **Narcotics and psychodysleptics not elsewhere classified**

The subcategories listed do not represent the full range of agents included in this code category.

***** **Other and unspecified narcotics (T40.6)**

This category is intended for other and unspecified drugs classified pharmacologically as narcotics (opioids/opiates). However, in practice it may also be used for drugs classified legally as narcotics such as cocaine.

The proportion of this category made up by opioids/opiates varies by jurisdiction, so inclusion of this code in any compilation of opioid deaths depends on more detailed analysis of death certificate text and/or medical examiner/coroner records in the jurisdiction.

‡ **Benzodiazepines are not the only class of drug in this code category.**

¶ **Diseases induced by drugs and other substances**

The set of drug-induced disease codes here differs from the drug-induced codes set developed by NCHS by the absence of the F17 codes for mental and behavioral disorders from the use of tobacco and the R78 codes for findings of drugs and other substances in the blood. The F17 codes are found in the "Non-Drug" row of this column because tobacco is not considered a drug by the ISW definition. The R78 codes do not meet the ISW poisoning definition.

A comprehensive list of all ICD-10 codes meeting our conceptual definition of poisoning (eg, including chronic pesticide exposures) has not been developed to date. Its development was considered beyond the scope of this project.

Notes

1. When a set of additional digits are required for International Classification of Diseases codes, the additional digits are in parentheses () and apply to the preceding code or preceding range of codes in brackets [].
2. Empty cells in the matrix indicate that the Tenth Revision of the ICD does not specify that particular type of poisoning for that type of poison. In other words, that category does not apply. Some poison types may be specified only by the contributing cause codes and have no correspondingly specific underlying cause codes.