Instruction Manual Part 2a
Instructions for Classifying the Underlying Cause of Death
Errata for Year 2009

Due to the limited number of changes required for coding instructions in 2009, the 2a Instruction Manual will not be reprinted this year. The *2a Errata for Year 2009* provides replacement pages for the 2008 2a Instruction Manual. Please discard the pages indicated on the errata cover sheet and insert the replacement pages provided. This will update the coding instructions for 2009 classification purposes.

Page#	Content to be Corrected	Corrections
3-4	Major Revisions from previous manuals	Corrected page attached
14-18	Edit created code categories I610-I694 to include "bilateral"	Corrected page attached
50	Change first code span in B948/B949 instruction such that it ends in A099	Corrected page attached
52	Category E640-E649, instruction (b), delete "A chronic condition or"	Corrected page attached
53	Category E68, instruction (b) delete "A chronic condition or" **AND** Category G09, instruction (b), delete "A chronic condition or"	Corrected page attached
54	1st sentence, change the span of numbers to exclude I672 and I673 **AND** Instruction (b), delete "A chronic condition or" **AND** Instruction (c), edit span of numbers to exclude I672 and I673 and delete chronic.	Corrected page attached
55	First example, change the condition on (a): **AND** Category I690-I698, instruction d, edit span of numbers to exclude I672 and I673 and delete chronic. **AND** Category O97, b, delete "A chronic condition or"	Corrected page attached
58	Under instruction 2, a, delete the first bullet and edit code spans in the next to last bullet	Corrected page attached
75	Add a new Intent of Certifier "0" for A099 as the first category in Section III.	Corrected page attached
91	Delete the Intent of Certifier for Pneumonia/ Bronchopneumonia (#21)	Corrected page attached

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2a Errata for Year 2009 *continued*…

Page#	Content to be Corrected	Corrections
111	Add "associated with" to the list of terms	Corrected page attached
114	Add "Etiology uncertain" to the list of terms	Corrected page attached
118	Delete A09, category title, and 1st paragraph	Corrected page attached
188	Delete instruction c. and example	Corrected page attached
203	Instruction 2, delete "chronic"	Corrected page attached
204	Delete instruction 5 and example and renumber	Corrected page attached
207	Add B33.4 Hantavirus (cardio)-pulmonary syndrome [HPS] [HCPS] as a new Rare Cause	Corrected page attached

Major Revisions from Previous Manuals

1.   Section I, D, <u>Created Codes</u>, the created code categories involving multiple cerebrovascular diseases have been edited to also include the modifier "bilateral."

2.   Section II, Rule F, <u>Sequela</u>, references to "chronic" were removed from sequela instructions for categories: E640-E649, E68, G09, I690-I698 and O97.

3.   Rule F, <u>Sequela</u>, I690-I698 code spans were adjusted to exclude I672 and I673 from sequela instructions and example changed.

4.   Section III, Editing and Interpreting Entries, Guides for the determination of the probability of sequence, <u>Interpretation of "highly improbable"</u>, deleted diarrhea and gastroenteritis of infectious origin from the list of infections that may be accepted as "due to" any other disease.

5.   Section III, Editing and Interpreting Entries, <u>Intent of certifier</u>, added a new category for A099 as a # 0. When reported due to infectious categories, A099 terms are assigned to A090; when reported due to noninfectious categories, A099 terms are assigned to K529.

6.   Section III, Editing and Interpreting Entries, <u>Intent of certifier</u>, deleted instruction # 21 Pneumonia and Bronchopneumonia. Since terms meaning immobility are now assigned to R263, this instruction can be handled in the 2c Modification Tables.

7.   Section III, Editing and Interpreting Entries, <u>Interpretation of nonmedical connecting terms used in reporting</u>, added "associated with" to list of terms implying that the conditions are meant to remain on the same line.

8.   Section III, Editing and Interpreting Entries, <u>Terms that stop the sequence</u>, added "Etiology uncertain" to list of terms that stop the sequence.

9.   Section IV, Classification of categories, A09, <u>Diarrhea and gastroenteritis of presumed infectious origin</u>, deleted instruction since terms in the A09 category are no longer assumed to be noninfectious in developed countries. The A09 category has been expanded to include 4th characters; code assignments and code spans were corrected throughout the manual.

10.   Section IV, Classification of categories, X40-X49, <u>Accidental poisoning by and exposure to noxious substances</u>, deleted instruction 1, c, since drug dependence is no longer preferred over poisoning.

11.   Section IV, Classification of categories, Y85-Y89, <u>Sequela of external causes of morbidity and mortality</u>, references to "chronic" were removed from instructions.

12.   Appendix A, <u>Infrequent and Rare Cause-of-Death Edits</u>, added B334 Hantavirus (cardio)-pulmonary syndrome [HPS] [HCPS] as a new rare cause category

Other manuals available from NCHS which contain information related to coding causes of death are:

Part 2b, NCHS Instructions for Classifying Multiple Causes of Death, 2008 and 2b Errata for Year 2009

Part 2c, ICD-10 ACME Decision Tables for Classifying Underlying Causes of Death, 2009.

Part 2s, SuperMICAR Data Entry Instruction, 2008 and 2s Errata for Year 2009

I428   Other cardiomyopathies
     Excludes: Any term indexed to I428 qualified as familial, idiopathic,
         or primary (I4280)
      *I4280   Familial other cardiomyopathies
             Idiopathic other cardiomyopathies
             Primary other cardiomyopathies
             Includes: Any term indexed to I428 qualified as familial,
                idiopathic, or primary

I429   Cardiomyopathy, unspecified
     Excludes: Any term indexed to I429 qualified as familial, idiopathic,
         or primary (I4290)
      *I4290   Familial cardiomyopathy
             Idiopathic cardiomyopathy
             Primary cardiomyopathy
             Includes: Any term indexed to I429 qualified as familial,
                idiopathic, or primary

I500   Congestive heart failure
     Excludes: Any term indexed to I500 qualified as advanced, grave, severe, or
         with a similar qualifier (I5000)
      *I5000   Advanced congestive heart failure
             Grave congestive heart failure
             Severe congestive heart failure
             Includes: Any term indexed to I500 qualified as advanced, grave,
                severe, or with a similar qualifier

I514   Myocarditis, unspecified
     Excludes: Any item indexed to I514 qualified as
         arteriosclerotic (I5140)
      *I5140   Arteriosclerotic myocarditis
             Includes: Any term indexed to I514 qualified as
                arteriosclerotic

I515   Myocardial degeneration
    Excludes: Any term indexed to I515 qualified as
                  arteriosclerotic (I5150)
    *I5150   Arteriosclerotic myocardial degeneration
          Includes: Any term indexed to I515 qualified as
                  arteriosclerotic

I600   Subarachnoid hemorrhage from carotid siphon and bifurcation
    Excludes: Ruptured carotid aneurysm (into brain) (I6000)
    *I6000   Ruptured carotid aneurysm (into brain)

I606   Subarachnoid hemorrhage from other intracranial arteries
    Excludes: Ruptured aneurysm (congenital) circle of Willis (I6060)
    *I6060   Ruptured aneurysm (congenital) circle of Willis

I607   Subarachnoid hemorrhage from intracranial artery, unspecified
    Excludes: Ruptured berry aneurysm (congenital) brain (I6070)
                  Ruptured miliary aneurysm (I6070)
    *I6070   Ruptured berry aneurysm (congenital) brain
                  Ruptured miliary aneurysm

I608   Other subarachnoid hemorrhage
    Excludes: Ruptured aneurysm brain meninges (I6080)
                  Ruptured arteriovenous aneurysm (congenital) brain (I6080)
                  Ruptured (congenital) arteriovenous aneurysm cavernous sinus I6080)
    *I6080   Ruptured aneurysm brain meninges
                  Ruptured arteriovenous aneurysm (congenital) brain
                  Ruptured (congenital) arteriovenous aneurysm cavernous sinus

I609   Subarachnoid hemorrhage, unspecified
    Excludes: Ruptured arteriosclerotic cerebral aneurysm (I6090)
                  Ruptured (congenital) cerebral aneurysm NOS (I6090)
                  Ruptured mycotic brain aneurysm (I6090)
    *I6090   Ruptured arteriosclerotic cerebral aneurysm
                  Ruptured (congenital) cerebral aneurysm NOS
                  Ruptured mycotic brain aneurysm

I610   Intracerebral hemorrhage in hemisphere, subcortical
    Excludes: Any term indexed to I610 qualified as bilateral or multiple (I6100)
    *I6100   Bilateral or multiple intracerebral hemorrhages in hemisphere,
                subcortical
          Includes: Any term indexed to I610 qualified as bilateral or
                    multiple

I611   Intracerebral hemorrhage in hemisphere, cortical
        Excludes: Any term indexed to I611 qualified as bilateral or
                    multiple (I6110)
        *I6110   Bilateral or multiple intracerebral hemorrhages in hemisphere, cortical
            Includes: Any term indexed to I611 qualified as bilateral or
                      multiple

I612   Intracerebral hemorrhage in hemisphere, unspecified
        Excludes: Any term indexed to I612 qualified as bilateral or
                    multiple (I6120)
        *I6120   Bilateral or multiple intracerebral hemorrhages, unspecified
            Includes: Any term indexed to I612 qualified as bilateral or
                      multiple

I613   Intracerebral hemorrhage in brain stem
        Excludes: Any term indexed to I613 qualified as bilateral or
                    multiple (I6130)
        *I6130   Bilateral or multiple intracerebral hemorrhages in brain stem
            Includes: Any term indexed to I613 qualified as bilateral or
                      multiple

I614   Intracerebral hemorrhage in cerebellum
        Excludes: Any term indexed to I614 qualified as bilateral or
                    multiple (I6140)
        *I6140   Bilateral or multiple intracerebral hemorrhages in cerebellum
            Includes: Any term indexed to I614 qualified as bilateral or
                      multiple

I615   Intracerebral hemorrhage, intraventricular
        Excludes: Any term indexed to I615 qualified as bilateral or
                    multiple (I6150)
        *I6150   Bilateral or multiple intracerebral hemorrhages, intraventricular
            Includes: Any term indexed to I615 qualified as bilateral or
                      multiple

I618   Other intracerebral hemorrhage
        Excludes: Any term indexed to I618 qualified as bilateral or
                    multiple (I6180)
        *I6180   Bilateral or multiple other intracerebral hemorrhages
            Includes: Any term indexed to I618 qualified as bilateral or
                      multiple

I619   Intracerebral hemorrhage, unspecified
        Excludes: Any term indexed to I619 qualified as bilateral or
            multiple (I6190)
      *I6190   Bilateral or multiple intracerebral hemorrhages, unspecified
           Includes: Any term indexed to I619 qualified bilateral or
              multiple

I630   Cerebral infarction due to thrombosis of precerebral arteries
        Excludes: Any term indexed to I630 qualified as bilateral or
            multiple (I6300)
      *I6300   Cerebral infarction due to bilateral or multiple thrombi
          of precerebral arteries
           Includes: Any term indexed to I630 qualified as bilateral or
              multiple

I631   Cerebral infarction due to embolism of precerebral arteries
        Excludes: Any term indexed to I631 qualified as bilateral or
            multiple (I6310)
      *I6310   Cerebral infarction due to bilateral or multiple emboli of precerebral
          arteries
           Includes: Any term indexed to I631 qualified as bilateral or
              multiple

I632   Cerebral infarction due to unspecified occlusion or stenosis of
      precerebral arteries
        Excludes: Any term indexed to I632 qualified as bilateral or
            multiple (I6320)
      *I6320   Cerebral infarction due to bilateral or multiple unspecified occlusions

          or stenosis of precerebral arteries
           Includes: Any term indexed to I632 qualified as bilateral or
              multiple

I633   Cerebral infarction due to thrombosis of cerebral arteries
        Excludes: Any term indexed to I633 qualified as bilateral or
            multiple (I6330)
      *I6330   Cerebral infarction due to bilateral or multiple thrombi
          of cerebral arteries
           Includes: Any term indexed to I633 qualified as bilateral or multiple.

I634   Cerebral infarction due to embolism of cerebral arteries
           Excludes: Any term indexed to I634 qualified as bilateral or
                       multiple (I6340)
          *I6340   Cerebral infarction due to bilateral or multiple emboli
                   of cerebral arteries
                Includes: Any term indexed to I634 qualified as bilateral or
                           multiple

I635   Cerebral infarction due to unspecified occlusion or stenosis of cerebral arteries
           Excludes: Any term indexed to I635 qualified as bilateral or
                       multiple (I6350)
          *I6350   Cerebral infarction due to bilateral or multiple unspecified occlusions
                   or stenosis of cerebral arteries
                Includes: Any term indexed to I635 qualified as bilateral or
                           multiple

I636   Cerebral infarction due to cerebral venous thrombosis, nonpyogenic
           Excludes: Any term indexed to I636 qualified as bilateral or
                       multiple (I6360)
          *I6360   Cerebral infarction due to bilateral or multiple cerebral venous
                   thrombi, nonpyogenic
                Includes: Any term indexed to I636 qualified as bilateral or
                           multiple

I638   Other cerebral infarction
           Excludes: Any term indexed to I638 qualified as bilateral or
                       multiple (I6380)
          *I6380   Bilateral or multiple other cerebral infarctions
                Includes: Any term indexed to I638 qualified bilateral or
                           multiple

I639   Cerebral infarction, unspecified
           Excludes: Any term indexed to I639 qualified as bilateral or
                       multiple (I6390)
          *I6390   Bilateral or multiple cerebral infarctions, unspecified
                Includes: Any term indexed to I639 qualified as bilateral or
                           multiple

I64   Stroke, not specified as hemorrhage or infarction
           Excludes: Any term indexed to I64 qualified as bilateral or
                       multiple (I6400)
          *I6400   Bilateral or multiple strokes, not specified as hemorrhage or infarction
                Includes: Any term indexed to I64 qualified as bilateral or
                           multiple

I691   Sequelae of intracerebral hemorrhage
        Excludes: Any term indexed to I691 qualified as bilateral or
                 multiple (I6910)
        *I6910   Sequela of bilateral or multiple intracerebral hemorrhages
              Includes: Any term indexed to I691 qualified as bilateral or
                     multiple

I693   Sequelae of cerebral infarction
        Excludes: Any term indexed to I693 qualified as bilateral or
                 multiple (I6930)
        *I6930   Sequela of bilateral or multiple cerebral infarctions
              Includes: Any term indexed to I693 qualified as bilateral or
                     multiple

I694   Sequelae of stroke, not specified as hemorrhage or infarction
        Excludes: Any term indexed to I694 qualified as bilateral or
                 multiple (I6940)
        *I6940   Sequela of bilateral or multiple strokes, not specified as
              hemorrhage or infarction
              Includes: Any term indexed to I694 qualified as bilateral or
                     multiple

J101   Influenza with other respiratory manifestations, influenza virus identified
        Excludes: Influenza, flu, grippe (viral), influenza virus identified
                 (without specified manifestations) (J1010)
        *J1010   Influenza, flu, grippe (viral), influenza virus identified
               (without specified manifestations)

J111   Influenza with other respiratory manifestations, virus not identified
        Excludes: Influenza, flu, grippe (viral), influenza virus not identified
                 (without specified manifestations) (J1110)
        *J1110   Influenza, flu, grippe (viral), influenza virus not identified
               (without specified manifestations)

J841   Other interstitial pulmonary diseases with fibrosis
        Excludes: Chronic pneumonia, not elsewhere classified (J8410)
        *J8410   Chronic pneumonia, not elsewhere classified

J849   Interstitial pulmonary disease, unspecified
        Excludes: Interstitial pneumonia, not elsewhere classified (J8490)
        *J8490   Interstitial pneumonia, not elsewhere classified

J984   Other disorders of lung
        Excludes: Lung disease (acute) (chronic) NOS (J9840)
        *J9840   Lung disease (acute) (chronic) NOS

B94.1   Sequela of viral encephalitis

Use this subcategory for the classification of viral encephalitis (conditions in A830-A839, A840-A849, A850-A858, A86) if:

(a) A statement of a late effect or sequela of the viral encephalitis is reported.

                                                             Code for Record
    I   (a) Late effects of viral   B941
             encephalitis

    Code to sequela of viral encephalitis (B941) as indexed.

(b) A chronic condition or a condition with a duration of one year or more that was due to the viral encephalitis is reported.

                                                             Codes for Record
    I   (a) Chronic brain syndrome   F069
        (b) Viral encephalitis   B941

    Code to sequela of viral encephalitis (B941), since a resultant chronic condition is reported.

(c) The viral encephalitis is stated to be ancient, history of, old, remote, or the interval between onset of the viral encephalitis and death is indicated to be one year or more whether or not the residual (late) effect is specified.

                                                             Code for Record
    I   (a) St. Louis encephalitis-1 yr   B941

    Code to sequela of viral encephalitis (B941), since a duration of 1 year is reported.

                                                             Code for Record
    I   (a) Old viral encephalitis   B941

    Code to sequela of viral encephalitis (B941), since it is stated "old."

(d) Brain damage, CNS damage, cerebral fungus, epilepsy, hydrocephalus, mental retardation, paralysis (G810-G839) is reported due to the viral encephalitis.

		Codes for Record
I	(a) Paralysis	G839
	(b) Viral encephalitis	B941

Code to sequela of viral encephalitis (B941) since paralysis is reported due to viral encephalitis.

B94.2   Sequela of viral hepatitis

Use this category for the classification of viral hepatitis (conditions in B150-B199) if:

A statement of a late effect or sequela of the viral hepatitis is reported.

B94.8   Sequela of other specified infectious and parasitic diseases
B94.9   Sequela of unspecified infectious and parasitic diseases

Use B948 for the classification of specified infectious and parasitic diseases (conditions in A000-A099, A200-A289, A310-A70, A740-A799, A811-A829, A870-B09, B250-B89)

AND

Use B949 for the classification of only the terms "infectious disease NOS" and "parasitic disease NOS" if:

(a) A condition that is stated to be a late effect or sequela of the infectious or parasitic disease is reported.

(b) The infectious or parasitic disease is stated to be ancient, arrested, cured, healed, history of, inactive, old, quiescent, or remote, whether or not the residual (late) effect is specified, unless there is evidence of activity of the disease.

     (c) A chronic condition or a condition with a duration of one year or more that was due to the infectious or parasitic disease is reported.

		Codes for Record
I	(a) Reye's syndrome - 1 yr.	G937
	(b) Chickenpox	B948

Code to sequela of other specified infectious and parasitic diseases (B948) since chickenpox caused a condition with a duration of one year or more.

		Codes for Record
I	(a) Chronic brain syndrome	F069
	(b) Meningococcal encephalitis	B948

Code to sequela of other specified infectious and parasitic diseases (B948) since the infectious disease caused a chronic condition.

    (d) There is indication that the interval between onset of the infectious or parasitic disease and death was one year or more, whether or not the residual (late) effect is specified.

E640-E649   Sequela of malnutrition and other nutritional deficiencies

Use Sequela Code	For Categories
E640	E40-E46
E641	E500-E509
E642	E54
E643	E550-E559
E648	E51-E53 E56-E60 E610-E638
E649	E639

Use these subcategories for the classification of malnutrition and other nutritional deficiencies (conditions in E40-E639) if:

(a) A statement of a late effect or sequela of malnutrition and other nutritional deficiencies is reported.

                                                         Codes for Record

I (a) Cardiac arrest   I469
     (b) Sequela of malnutrition   E640

Code to sequela of protein-energy malnutrition (E640) since I(b) is stated as "sequela of."

(b) A condition with a duration of one year or more is qualified as rachitic or that was due to rickets is reported.

                                                         Codes for Record

I (a) Thyroid disorder - 3 years   E079
     (b) Rickets   E643

Code to sequela of rickets (E643) since rickets caused a condition with a duration of one year or more.

E68   Sequela of hyperalimentation

Use this category for the classification of hyperalimentation (conditions in E67 and hyperalimentation NOS in R632) if:

(a) A statement of a late effect or sequela of the hyperalimentation is reported.

(b) A condition with a duration of one year or more that was due to hyperalimentation is reported.

G09   Sequela of inflammatory diseases of central nervous system

Use this category for the classification of intracranial abscess or pyogenic infection (conditions in G000-G009, G030-G049, G060-G069, G08, except those marked with an asterisk) if:

(a) A statement of a late effect or sequela of the condition in G000-G009, G030-G049, G060-G069, G08 is reported.

(b) A condition with a duration of one year or more that was due to the condition in G000-G009, G030-G049, G060-G069, G08 is reported.

(c) The condition in G000-G009, G030-G049, G060-G069, G08 is stated to be ancient, history of, old, remote, or the interval between onset of this condition and death is indicated to be one year or more, whether or not the residual (late) effect is specified.

			Codes for Record
I	(a)	Compression of brain	G935
	(b)	Old cerebral abscess	G09

Code to sequela of cerebral abscess since stated as old.

(d) Brain damage, CNS damage, cerebral fungus, epilepsy, hydrocephalus, mental retardation, paralysis (G810-G839) is reported due to a condition in G000-G009, G030-G049, G060-G069, G08.

			Codes for Record
I	(a)	Hydrocephalus	G919
	(b)	Meningitis	G09

Code to sequela of inflammatory diseases of CNS (G09) since meningitis (G039) is reported as causing hydrocephalus.

I690-I698   Sequela of cerebrovascular disease

Use this category for the classification of cerebrovascular disease (conditions in I600-I64, I670-I671, I674-I679) if:

(a) A statement of late effect or sequela of a cerebrovascular disease is reported.

                                                              Code for Record

I   (a)   Sequela of cerebral infarction   I693

Code to sequela of cerebral infarction (I693) since "sequela of" is stated.

(b) A condition with a duration of one year or more was due to one of these cerebrovascular diseases.

                                                              Codes for Record

I   (a)   Hemiplegia   1 year   G819
      (b)   Intracranial hemorrhage   I692

Code to sequela of other nontraumatic intracranial hemorrhage (I692) since the residual effect (hemiplegia) has a duration of one year.

(c) The condition in I600-I64, I670-I671, I674-I679 is stated to be ancient, history of, old, remote, or the interval between onset of this condition and death is indicated to be one year or more, whether or not the residual (late) effect is specified.

                                                              Codes for Record

I   (a)   Brain damage   G939
      (b)   Remote cerebral thrombosis   I693

Code to sequela of cerebral thrombosis (I693) since the cerebral thrombosis is reported as remote.

                                                              Code for Record

I   (a)   Old intracerebral hemorrhage   I691

Code to sequela of intracerebral hemorrhage since the intracerebral hemorrhage is stated as old.

Code for Record

I (a) Cerebrovascular occlusion   6 years   I693

<u>Code to</u> sequela of cerebrovascular occlusion since the duration
is one year or more.

Code for Record

I (a) History of CVA   I694

<u>Code to</u> sequela of CVA (I694) since history of CVA is reported.

(d) The condition in I600-I64, I670-I671, I674-I679 is reported with
paralysis (any) stated to be ancient, history of, old, remote, or the
interval between onset of this condition and death is indicated to be
one year or more whether or not the residual (late) effect is
specified.

Codes for Record

I (a) CVA with old hemiplegia   I694 G819

<u>Code to</u> sequela of CVA (I694) since it is reported with
hemiplegia stated as old.

O97   Sequela of direct obstetric cause

Use this category for the classification of a direct obstetric cause
(conditions in O00-O927) if:

(a) A statement of a late effect or sequela of the direct obstetric cause is
reported.

(b) A condition with a duration of one year or more that was due to the
direct obstetric cause is reported.

(c) The direct obstetric cause has a duration of one year or more.

Y85-Y89   Sequela of external causes of morbidity and mortality.

Refer to Section IV, Y85-Y89, Sequela of external causes of morbidity
and mortality.

NOTE: After application of the modification rules (A-F), selection Rule 3 should be reapplied.

Codes for Record

I (a) Generalized arteriosclerosis	I709	
II Cerebral embolism, endocarditis	I634	I38

Code to endocarditis (I38). Arteriosclerosis, selected by the General Principle links (LMP) with cerebral embolism. Cerebral embolism is considered a direct sequel (DS) of the endocarditis.

SECTION III
EDITING AND INTERPRETING ENTRIES IN THE MEDICAL
CERTIFICATION

Selection of the underlying cause is based on selecting a single condition on the lowest used line in Part I since this condition is presumed to indicate the certifier's opinion about the sequence of events leading to the immediate cause of death. However, it is recognized that certifiers do not always report a single condition on the lowest used line, nor do they always enter the related conditions in a proper order of sequence. Therefore, it is necessary to edit the conditions reported during the selection process. For this reason, standardized rules and guides are set forth in this manual.

The international coding guides are provided in this section. Also included are instructions for use in the United States designed to bring assignments resulting from reporting practices particular to the United States into closer alignment with the intent of the International Classification procedures.

The interpretations and instructions in this section are general in nature and are to be used whenever applicable. Those in Section IV apply to specific categories.

A. Guides for the determination of the probability of sequence

    1. Assumption of intervening cause. Frequently on the medical certificate, one condition is indicated as due to another, but the first one is not a direct consequence of the second one. For example, hematemesis may be stated as due to cirrhosis of the liver, instead of being reported as the final event of the sequence, liver cirrhosis → portal hypertension → ruptured esophageal varices → hematemesis.

        The assumption of an intervening cause in Part I is permissible in accepting a sequence as reported, but it must not be used to modify the coding.

		Codes for Record
I	(a) Cerebral hemorrhage	I619
	(b) Chronic nephritis	N039

        Code to chronic nephritis (N03.9). It is necessary to assume hypertension as a condition intervening between cerebral hemorrhage and the underlying cause, chronic nephritis.

<div align="right">Codes for Record</div>

I (a) Mental retardation   F79
    (b) Premature separation   P021
    (c)   of placenta

Code to premature separation of placenta affecting fetus or newborn (P02.1). It is necessary to assume birth trauma, anoxia or hypoxia as a condition intervening between mental retardation and the underlying cause, premature separation of placenta.

2. Interpretation of "highly improbable." The expression "highly improbable" has been used since the Sixth Revision of the ICD to indicate an unacceptable causal relationship. As a guide to the acceptability of sequences in the application of the General Principle and the selection rules, the following relationships should be regarded as "highly improbable":

a. an infectious or parasitic disease (A00-B99) reported as "due to" any disease outside this chapter, except that:

- septicemia (A40-A41, B94.8)
- erysipelas (A46, B94.8)
- gas gangrene (A48.0, B94.8)
- bacteremia (A49.0-A49.9, B94.8)
- Vincent's angina (A69.1, B94.8)
- mycoses (B35-B49, B94.8)

> May be accepted as "due to" any other disease

- any infectious disease may be accepted as "due to" disorders of the immune mechanism such as human immunodeficiency virus [HIV] disease or AIDS

- any infectious disease may be accepted as "due to" immunosuppression by chemicals (chemotherapy) and radiation

- any infectious disease classified to A000-A090, A162-B199 or B250-B64 reported as "due to" a malignant neoplasm will also be an acceptable sequence

- varicella and zoster infections (B01-B02) may be accepted as "due to" diabetes, tuberculosis and lymphoproliferative neoplasms;

b. a malignant neoplasm reported as "due to" any other disease, except human immunodeficiency virus [HIV] disease;

c. hemophilia (D66, D67, D68.0-D68.2) reported as "due to" any other disease;

	Codes for Record
I (a) Subdural hematoma	S065
(b) Open wound of head	S019
II Fell in hospital	W19

┌─────────────┐
│ Natural   │
└─────────────┘

Code to unspecified fall (W19). Even though Natural is reported in the Manner of Death box, the subdural hematoma is reported due to an injury.

J. Intent of certifier

In order to assign the most appropriate code for a given diagnostic entity, it may be necessary to take other recorded information and the order in which the information is reported into account. It is important to interpret this information properly so the meaning intended by the certifier is correctly conveyed. The following instructions help to determine the intent of the certifier. Apply Intent of Certifier instructions to "See also" terms in the Index as well.

For the following conditions, use the causation tables to determine if the NOS code from the title or the alternative code listed below the title should be used in determining a sequence. If the alternative code forms an acceptable sequence with the condition reported below it, then that sequence should be accepted.

0. Other and unspecified gastroenteritis and colitis of unspecified origin (A099)

a. Code A090 (Gastroenteritis and colitis of infectious origin)

When reported due to:

A000-B99
R75
Y431-Y434
Y632
Y842

	Codes for Record
I (a) Enteritis	A090
(b) Listeriosis	A329

Code to A329. The code A329 is listed as a subaddress to A090 in the causation table so this sequence is accepted.

b. Code K529 (Noninfective gastroenteritis and colitis, unspecified) when reported due to conditions listed in the causation table under address code K529.

		Codes for Record
I (a)	Enteritis	K529
(b)	Abscess of intestine	K630

Code to K630. The code K630 is listed as a subaddress to K529 in the causation table, so this sequence is accepted.

1. Spinal Abscess (A180)

Code M462 (Nontuberculous spinal abscess) when reported due to conditions listed in the causation table under address M462:

I (a)	Spinal abscess	M462
(b)	Staphylococcal septicemia	A412

Code to A412, staphylococcal septicemia. The code A412 is listed as a subaddress to M462 in the causation table; therefore, this sequence is accepted.

2. Charcot's Arthropathy (A521)

Code G98 (Arthropathy, neurogenic, neuropathic (Charcot's), nonsyphilitic):

When reported due to:

A30	Leprosy	G608	Hereditary sensory neuropathy
E10-E14	Diabetes mellitus	G901	Familial dysautonomia
E538	Subacute combined degeneration (of spinal cord)	G950	Syringomyelia
		Q059	Spina bifida, unspecified
		Y453	Indomethacin
F101	Alcohol abuse	Y453	Phenylbutazone
F102	Alcoholism	Y427	Corticosteroids
G600	Hypertrophic interstitial neuropathy		
G600	Peroneal muscular atrophy		

		Codes for Record
I (a)	Charcot's arthropathy	G98
(b)	Diabetes	E149

Code to diabetes (E149). The code E149 is listed as a subaddress for G98 in the causation tables so this sequence is accepted.

20. Varices NOS and Bleeding Varices NOS (I839)

    a. Code I859 (Esophageal varices) or

    b. Code I850 (Bleeding esophageal varices):

When reported due to or on same line with:

    Alcoholic disease classified to: F101-F109
    Liver diseases classified to: B150-B199, B251, B942, K700-K769
    Toxic effect of alcohol classified to: T510-T519, T97

<div align="right">Codes for Record</div>

I (a) Varices   I859
    (b) Cirrhosis of liver   K746

Code to K746. The code K746 is listed as a subaddress to I859 in the causation table; therefore, this sequence is accepted.

21. DELETED: Pneumonia in J188 or J189
                           Bronchopneumonia (J180)
                           (See page 3, Major revisions)

22. Pneumoconiosis (J64)

   Code J60 (Coal worker's pneumoconiosis):

   When Occupation is reported as:

   Coal miner
   Coal worker
   Miner

		Codes for Record
Occupation: Coal Miner		
I (a) Bronchitis		J40
(b) Pneumoconiosis		J60

   Code to J60. Pneumoconiosis becomes coal worker's pneumoconiosis when occupation is reported as coal miner.

23. Alveolar Hemorrhage (diffused) (K088)

   Code R048 (Lung hemorrhage) when reported with conditions listed in the causation table under address R048.

I (a) Respiratory failure	J969
(b) Alveolar hemorrhage	R048

   Code to R048. The code R048 is listed as a subaddress to J969 in the causation table; therefore, this sequence is accepted.

24. Diaphragmatic Hernia in K44.-

   Code Q790 (Congenital diaphragmatic hernia) when reported as causing hypoplasia or dysplasia of lung NOS (Q336).

	Codes for Record
I (a) Lung dysplasia	Q336
(b) Diaphragmatic hernia	Q790
(c)	

   Code to congenital diaphragmatic hernia (Q790). The code Q790 is listed as a subaddress to Q336 in the causation tables; therefore, this sequence is accepted.

The following terms imply that the conditions are meant to remain on the same line. They are separated by "and" or by another connecting term that does not imply a "due to" relationship:

and	with ($\overline{c}$)
accompanied by	precipitated by
also	predisposing (to)
associated with	superimposed on
complicated by	
complicating	
consistent with	

P.   Deletion of "due to" on the death certificate

When the certifier has indicated conditions in Part I were not causally related by marking through items I(a), I(b), I(c) and/or I(d), or through the printed "due to, or as a consequence of" which appears below items I(a), I(b), and I(c) on the death certificate, proceed as follows:

1.   If the deletion(s) indicates none of the conditions in Part I were causally related, consider as though all of the conditions had been reported on the uppermost used line.

		Codes for Record		
I	~~(a)~~ Heart disease	I519	I10	N039
	~~(b)~~ Malignant hypertension			
	~~(c)~~ Chronic nephritis			
II	Cancer of kidney	C64		

Code to heart disease, unspecified (I519), by Selection Rule 2.

                                                    <u>Codes for Record</u>

I (a) Congestive heart failure   I500   I251
   (b) ASHD
   (c)
II Pneumonia   J189

<u>Code to</u> arteriosclerotic heart disease (I251). Congestive heart failure, selected by Rule 2, is a direct sequel (DS) to ASHD.

2. If only item, I(c) or the printed "due to, or as a consequence of" (which appears below line I(b)) is marked through, consider the condition(s) reported on line I(c) as though reported as the last entry (or entries) on the preceding line.

                                                      <u>Codes for Record</u>

I (a) Heart block   I459
   (b) Chronic myocarditis   I514   I619
   (c) Cerebral hemorrhage
II   Bronchopneumonia   J180

<u>Code to</u> myocarditis, unspecified (I514) by Selection Rule 1.

3. If only one item, for example, "I(b)" or the printed "due to, or as a consequence of" (which appears below line I(a)) is marked through, consider the condition(s) reported on line I(b) as though reported as the last entry (or entries) on the preceding line.

                                                      <u>Codes for Record</u>

I (a) Cardiac arrest   I469   K746
   (b) Cirrhosis of liver
   (c) Alcoholism   F102

<u>Code to</u> alcoholic cirrhosis of liver (K703). Alcoholism is selected by the General Principle, and is linkage with mention of combination (LMC) with cirrhosis of liver.

   4.   If the "due to, or as a consequence of" is partially deleted, consider as if completely deleted.

<table>
<tr><td></td><td></td><td></td><td>Codes for Record</td></tr>
<tr><td>I</td><td>(a)</td><td>Cardiorespiratory failure
Due to, or as a consequence of</td><td>R092</td></tr>
<tr><td></td><td>(b)</td><td>Infarction of brain
Due to or, as a consequence of</td><td>I639   I251</td></tr>
<tr><td></td><td>(c)</td><td>Coronary arteriosclerosis</td><td></td></tr>
</table>

Code to infarction of brain (I639) by applying Rule 1. Consider coronary arteriosclerosis as the second entry on I(b).

Q.   Numbering of causes reported in Part I

Where the certifier has numbered all causes or lines in Part I, that is, 1, 2, 3, etc., the originating antecedent is selected by applying Selection Rule 2. In the application of this rule, consideration is given to all causes which are numbered whether or not the numbering is extended into Part II. This provision applies whether or not the "due to" on lines I(b), I(c), and/or I(d) are marked through.

<table>
<tr><td></td><td></td><td></td><td>Codes for Record</td></tr>
<tr><td>I</td><td>(a)</td><td>1. Coronary occlusion</td><td>I219 E149 I10 I709 N289 J1110</td></tr>
<tr><td></td><td>(b)</td><td>2. Diabetes, chronic, severe</td><td></td></tr>
<tr><td></td><td>(c)</td><td>3. Hypertension and arteriosclerosis</td><td></td></tr>
<tr><td></td><td></td><td>4. Renal disease</td><td></td></tr>
<tr><td>II</td><td></td><td>5. Influenza, 1 week</td><td></td></tr>
</table>

Code to coronary occlusion (I219) by applying Selection Rule 2.

Where part of the causes in Part I are numbered, the interpretation is made on an individual basis.

<table>
<tr><td></td><td></td><td></td><td>Codes for Record</td></tr>
<tr><td>I</td><td>(a)</td><td>Bronchopneumonia</td><td>J180</td></tr>
<tr><td></td><td>(b)</td><td>1. Cancer of stomach</td><td>C169   E149</td></tr>
<tr><td></td><td>(c)</td><td>2. Diabetes</td><td></td></tr>
</table>

Code to cancer of stomach (C169) by applying Selection Rule 1. The conditions numbered 1. and 2. are considered as if they were reported on I(b).

R. Terms that stop the sequence

Includes:

Cause not found	Immediate cause unknown
Cause unknown	No specific etiology identified
Cause undetermined	No specific known causes
Could not be determined	Nonspecific causes
Etiology never determined	Not known
Etiology not defined	Obscure etiology
Etiology uncertain	Undetermined
Etiology unexplained	Uncertain
Etiology unknown	Unclear
Etiology undetermined	Unexplained cause
Etiology unspecified	Unknown
Final event undetermined	? Cause
Immediate cause not determined	? Etiology

Codes for Record

I   (a) Cardiac arrest   I469
   (b) Stroke   I64
   (c) Cause unknown
   (d) Diabetes   E149

Code to stroke (I64) using Rule 1. "Cause unknown" on line (c) stops the sequence.

Codes for Record

I   (a) Pneumonia   J189
   (b) Intestinal obstruction   K566
   (c) Undetermined
   (d) Ulcerative colitis   K519

Code to ulcerative colitis (K519). "Undetermined" on line (c) stops the sequence.
Intestinal obstruction, selected by Rule 1, is considered a direct sequel (DS) of the
ulcerative colitis.

Codes for Record

I (a) Gastric ulcer, cause unknown   K259
  (b) Rheumatoid arthritis
  (c)   M069

Code to gastric ulcer (K259). "Cause unknown" on line (a) stops the sequence.

SECTION IV
CLASSIFICATION OF CERTAIN ICD CATEGORIES

A. Infrequent and Rare Causes of Death in the United States

The ICD contains conditions which are infrequent causes of death in the United States. If one of these conditions (see Appendix A) is reported as a cause of death, the diagnosis should have been confirmed by the certifier or the State Health Officer when it was first reported. A notation of confirmation should be recorded on the copy of the certificate sent to NCHS. In the absence of this notation, the NCHS coder will code the disease as stated; the State Health Officer will be contacted at the time of reconciliation of rejected data record by control cycle to confirm the accuracy of the certification.

B. Coding Specific Categories

The following are the international linkages and notes with expansions and additions concerning the selection and modification of conditions classifiable to certa categories. They are listed in tabular order. Notes dealing with linkages appear at the category from which the combination is EXCLUDED. Therefore, reference should be made to the category or code within parentheses before making the final code assignment. For a more complete listing, refer to NCHS Instruction Manual, Part 2c, ICD-10 ACME Decision Tables for Classifying the Underlying Causes of Death, 2008.

The following notes often indicate that if the provisionally selected code, as indicated in the left-hand column, is present with one of the conditions listed below it, the code to be used is the one shown in **bold** type. There are two types of combination:

"*with mention of*" means that the other condition may appear anywhere on the certificate;

"*when reported as the originating antecedent cause of*" means that the other condition must appear in a correct causal relationship or be otherwise indicated as being "due to" the originating antecedent cause.

A00-B99   Certain infectious and parasitic diseases

Except for human immunodeficiency virus [HIV] disease (B20-B24), when reported as the originating antecedent cause of a malignant neoplasm, code **C00-C97**.

A15.-   Respiratory tuberculosis, bacteriologically and histologically confirmed

      Not to be used for underlying cause mortality coding.

A16.0   Tuberculosis of lung, bacteriologically and histologically negative
A16.1   Tuberculosis of lung, bacteriological and histological examination not
       done

      Not to be used for underlying cause mortality coding.

A16.2-.9 Respiratory tuberculosis, not confirmed bacteriologically or histologically

      with mention of:

      J60-J64 (Pneumoconiosis), code **J65**

A17.-   Tuberculosis of nervous system
A18.-   Tuberculosis of other organs

      with mention of:

      A16.- (Respiratory tuberculosis), code **A16**.-, unless reported as the
      originating antecedent cause of and with a specified duration exceeding
      that of the condition in A16.-

A22.-   Anthrax

      Not to be used as the underlying cause if reported with accident, homicide,
      suicide anywhere on the record, could not be determined in the
      Manner of Death box only, or designated as an act of terrorism. Code
      **accident (X58), homicide (Y08), suicide (X83), could not be
      determined (Y33), or terrorism (U016)**

Codes for Record

I (a) Suffocated by smoke   T598 X00
 (b) Home burned after being
 (c) struck by lightning

Code to exposure to uncontrolled fire in building or structure (X00). Category X33 includes only those injuries resulting from direct contact with lightning.

Codes for Record

I (a) Ruptured diaphragm   S278
 (b) Driver of auto which struck   V475
 (c) landslide covering road

Code to car occupant injured in collision with fixed or stationary object, driver (V475).

X40-X49   Accidental poisoning by and exposure to noxious substances

1. Poisoning by drugs

 a. When the following statements are reported, see Table of drugs and chemicals for the external cause code and code as accidental poisoning unless otherwise indicated.

 Interpret all these statements to mean poisoning by drug and code as poisoning whether or not the drug was given in treatment:

 drug taken inadvertently
 lethal (amount) (dose) (quantity) of a drug
 overdose of drug
 poisoning by a drug
 toxic effects of a drug
 toxic reaction to a drug
 toxicity (of a site) by a drug
 wrong dose taken accidentally
 wrong drug given in error

  Male, 2 years   Codes for Record
  I (a) Overdose of aspirin T390 X40
   (b) Flu and cold   J1110 J00
   (c)
  II Aspirin given for fever - 10 days T390 R509

  Code to X40, accidental poisoning by and exposure to nonopioid analgesics, antipyretics, and antirheumatics.

                                        Codes for Record
  I (a) Poisoning by barbiturates   T423   X41

Code to X41, accidental poisoning by and exposure to anti-epileptic, sedative-hypnotic, anti-parkinsonism and psychotropic drugs, not elsewhere classified.

b. Interpret "intoxication by drug" to mean poisoning by drug unless indicated or stated to be due to drug therapy or as a result of treatment for a condition. Refer to Section IV, B, Y40-Y59 for instructions regarding intoxication by drug.

                                        Codes for Record
  I (a) Respiratory failure   J969
      (b) Digitalis intoxication   T460   X44

Code to X44, digitalis intoxication as poisoning when there is no indication the drug was given for therapy.

Y883   Sequela of surgical and medical procedures as the cause of
           abnormal reaction of the patient, or of later complication,
           without mention of misadventure at the time of the procedure
Y890   Sequela of legal intervention
Y891   Sequela of war operations
Y899   Sequela of unspecified external cause

1. Stated sequela of external causes, injuries or trauma unless the
   interval between date of external cause and date of death is less
   than 1 year.

                                                         Codes for Record
       I   (a)   Sequela of hip fracture   T931
           (b)
           (c)
       II   Y86

       Code to Y86 since a sequela of hip fracture is reported.

2. Injuries described as ancient, healed, history of, late effect of, old,
   remote or delayed union, malunion or nonunion of a fracture
   regardless of duration.

                                                         Codes for Record
       I   (a)   Old head injuries   T909
           (b)   Gunshot wound   T941   Y870
       II Attempted suicide

       Code to Y870, sequela of intentional self-harm, since injuries are
       "old."

3. External causes described as ancient, history of, old, remote,
   regardless of reported duration.

                                                         Codes for Record
       I   (a)   Old fall, fractured hip   6 months   T931   Y86
           (b)
           (c)
       II Accident   Fell and fractured hip   T931
                        6 months ago

       Code to Y86, sequela of other accidents, since the external
       cause is stated as "old."

4. External causes, injuries, or trauma when interval between occurrence and death is 1 year or more.

		Codes for Record
I	(a) Fractured spine	T911
	(b) Automobile accident, 18 mos ago	Y850

Code to Y850, sequela of automobile accident, since duration is one year or more.

		Codes for Record
I	(a) Renal failure	N19
	(b) Intestinal obstruction	K566
	(c) Adhesions	K918
II	Surgery – 16 months ago	Y883

Code to Y883, sequela of surgical and medical procedures, since surgery was performed one year or more before death.

5. A condition with a duration of one year or more reported due to the external cause, injuries, or trauma.

			Codes for Record
I	(a) Respiratory failure		J969
	(b) Paraplegia	2 years	T913
	(c) Motorcycle accident		Y850

Code to Y850, sequela of motor vehicle accident, since a condition with a duration of one year or more is reported due to the external cause. Category Y850 includes categories classified to V01-V89.

APPENDIX A

Infrequent and Rare Cause-of-Death Edits for Underlying and Multiple Cause-of-Death Classification

A92	Other mosquito-borne viral fevers
A93	Other arthropod-borne viral fevers including Oropouche fever, sandfly fever, Colorado tick fever and other specified
A94	Unspecified arthropod-borne viral fever
A95	Yellow fever
A96	Arenaviral hemorrhagic fever
A98-A99	Other viral hemorrhagic fevers including Crimean-Congo, Omsk, Kyasanur Forest, Ebola virus, Hanta virus
B01	Varicella (chickenpox)
B03	Smallpox
B04	Monkeypox
B05	Measles
B06	Rubella
B08.0	Other orthopoxvirus (cowpox and paravaccinia)
B15	Acute hepatitis A - less than 20 years of age
B16	Acute hepatitis B - less than 20 years of age
B26	Mumps
B33.0	Epidemic myalgia (epidemic pleurodynia)
B33.4	Hantavirus (cardio-)-pulmonary syndrome [HPS] [HCPS]
B50-B54	Malaria
B55	Leishmaniasis
B56	African trypanosomiasis (trypanosomiasis)
B57	Chagas' disease (trypanosomiasis)
B65	Schistosomiasis

APPENDIX A

Infrequent and Rare Cause-of-Death Edits for Underlying and Multiple Cause-of-Death Classification

B66	Other fluke infections (other trematode infection)
B67	Echinococcosis
B68	Taeniasis
B69	Cysticercosis
B70	Diphyllobothriasis and sparganosis
B71	Other cestode infections
B72	Dracunculiasis (dracontiasis)
B73	Onchocerciasis
B74	Filariasis (filarial infection)
J09	Influenza due to identified avian influenza virus
P35.0	Congenital rubella syndrome
U04.9	Severe acute respiratory syndrome (SARS), unspecified
W88-W91	Exposure to radiation
Y36.5	War operation involving nuclear weapons

Causing adverse effects in therapeutic use:

Y58	Bacterial vaccines
Y59.0	Viral vaccines
Y59.1	Rickettsial vaccines
Y59.2	Protozoal vaccines
Y59.3	Immunoglobulin