Understanding the Impact of the Differences in ICD-9-CM and ICD-10-CM and Its Potential Impact on Data Analysis

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Overview

• History of ICD
• Overview of ICD-10
• Overview of ICD-10-CM
  – Development/Testing
  – Benefits
• Structure/Conventions
• Chapter-specific Overview
• Guidelines
• General Equivalence Maps (GEMs)
History of the ICD
# ICD Revisions

<table>
<thead>
<tr>
<th>ICD Revision No.</th>
<th>Year of Conference When Adopted</th>
<th>Year in Use in the U.S.</th>
<th>ICD, Clinical Modification</th>
<th>Year in Use in the U.S.</th>
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<td>H-ICDA-2</td>
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</table>
World Health Organization and ICD-10 Implementation

- W.H.O. has authorized the publication of ICD-10 versions in 30+ languages
- Death certificates in U.S. have been coded using ICD-10 since data year 1999
- More than 90 countries having implemented ICD-10 (or a clinical modification) for morbidity applications.
International Statistical Classification of Diseases and Health Related Problems, Tenth Revision (ICD-10)

ICD-10 represents the broadest scope of any ICD revision to date. Changes include:

- Alphanumeric codes
- Restructuring certain chapters/ categories
- Addition of new features
- Expansion of detail (2,033 categories; 855 more than ICD-9)
  - Diseases of the Eye and Adnexa (Chapter 7)
  - Diseases of the Ear and Mastoid Process (Chapter 8)
International Statistical Classification of Diseases and Health Related Problems, Tenth Revision (ICD-10)

Alphanumeric

• A00-B99 Infectious and parasitic diseases
• C00-D48 Neoplasms
• E00-E90 Endocrine, nutritional and metabolic diseases
• S00 - T98 Injury, poisoning and certain other consequences of external causes
International Statistical Classification of Diseases and Health Related Problems, Tenth Revision (ICD-10)

• Chapters where major changes have occurred were field-tested by WHO:
  – Chapter V, Mental and behavioral disorders
  – Chapter XIX, Injury, poisoning and certain other consequences of external causes
  – Chapter XX, External causes of morbidity and mortality
## Expanded Detail in ICD-10

### ICD-9

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>250</td>
<td>Diabetes</td>
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</table>

- 4th digit to identify type of manifestation

### ICD-10

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>E10</td>
<td>Insulin-dependent</td>
</tr>
<tr>
<td>E11</td>
<td>Non-insulin dependent</td>
</tr>
<tr>
<td>E12</td>
<td>Malnutrition-related</td>
</tr>
<tr>
<td>E13</td>
<td>Other specified</td>
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</table>

4th digit to identify type of manifestation
Expanded Detail in ICD-10
External Causes of Injuries

ICD-9 (E800-E999)

Transport accidents E800-E848
Intentional self-harm E950-E959
Complic. med/surg care E870-E876

ICD-10 (V00-Y98)

Transport accidents V01-V99
Intentional self-harm X60-X84
Complic. med/surg care Y40-Y84
ICD-10-CM
ICD-10 Evaluation Contract

In September 1994 NCHS awarded a contract to the Center for Health Policy Studies (CHPS) to evaluate the International Statistical Classification of Diseases and Related Health Problems (ICD-10).

Assess whether ICD-10 significant improvement over ICD-9-CM to warrant implementation for morbidity reporting.

Recommend additional improvements to ICD-10 and to correct any problems identified during the course of evaluation.

ICD-10 not significantly better than ICD-9-CM for morbidity applications to warrant implementation.

A clinical modification of the ICD-10 would be a significant improvement and worth implementing.
ICD-10-CM Development

• Three phases of development
  Phase 1 - Prototype developed under contract
  Phase 2 - Enhancements by NCHS
  Phase 3 - Further enhancements based on physician groups, other classification users and public comments
ICD-10-CM
Partial List Phase II Reviewers

- American Academy of Dermatology
- American Academy of Neurology
- American Academy of Oral and Maxillofacial Surgeons
- American Academy of Orthopedic Surgeons
- American Academy of Pediatrics
- American Burn Association
- American College of Obstetricians and Gynecologists
- American Diabetes Association
- American Nursing Association
- American Psychiatric Association
- American Urological Association
- ANSI Z16.2 Workgroup (Workers Comp)
- Nat’l Assoc. of Children’s Hosps & Related Institutions
ICD-10-CM Testing

• Draft of Tabular List and crosswalks posted on NCHS website for 3 month open public comment period (1997)
• Pre-release version of ICD-10-CM posted on NCHS website (May 2002)
• AHIMA/AHA jointly conduct pilot test of ICD-10-CM (June – July 2003)
Benefits of Adopting the New Coding System

• Updated medical terminology and classification of diseases;
• Allows easier comparison of mortality and morbidity data
• Provides better data for:
  – Measuring care provided to patients;
  – Designing payment systems;
  – Processing claims;
  – Making clinical decisions;
  – Tracking public health;
  – Identifying fraud and abuse; and
  – Conducting research
HI PAA Administrative Simplification: Modifications to Medical Data Code Set Standards

• Published January 16, 2009
  • Adopts ICD-10-CM and ICD10-PCS as replacements for ICD-9-CM

• October 1, 2013 – Compliance date for implementation of ICD-10-CM and ICD-10-PCS

• Single implementation date for all users
  – Date of service for ambulatory and physician reporting
  – Date of discharge for inpatient and other settings
HIPAA Administrative Simplification: Modifications to Medical Data Code Set Standards

• February 16, 2012 - HHS Secretary announced intent to delay implementation
• New NPRM published April 2012
  • Adopts ICD-10-CM and ICD10-PCS as replacements for ICD-9-CM
    – October 1, 2014 – New proposed compliance date for implementation of ICD-10-CM and ICD-10-PCS
    – Public comment period closed May 17, 2012
ICD-10 Code Freeze Decision

- Last regular, annual updates to both ICD-9-CM and ICD-10 would be made on October 1, 2011
- Only limited ICD-9-CM & ICD-10 updates for new technologies and new diseases on October 1, 2012, and October 1, 2013
- Regular updates to ICD-10 code sets to begin October 1, 2014 (?)
ICD-9-CM Coordination and Maintenance Committee

- Public updating process has been in place to update ICD-9-CM since 1985
- Process will continue to allow for updating of ICD-10-CM and ICD-10-PCS
  - Two meetings each year (March and September)
  - Any approved changes discussed during the freeze to be held until October 1, 2014 (?) unless related to new disease or new technology
You Aren’t A HIPAA-covered Entity But Are You Affected?

• Do you code using ICD-9-CM as part of your organization/program activities?
• Do you receive ICD-9-CM coded data?
• Do you receive verbatim diagnosis/procedure information that you code?
• Do you have a contractor that codes your data?
Secondary Use of ICD-9-CM codes at CDC

- Hospitals
- Healthcare Plans
- Healthcare Providers
- State/Local Health Depts

Secondary use
- Analysis
- Surveillance
- Trends
- Reports
- Datasets
CDC’s ICD-10 Transition Workgroup

- Information Resources Governance (IRG) formed the ICD-10 Transition Workgroup as an entity under the Public Health Domain Committee, April 2011

- Goals of the workgroup
  - To identify common needs and gaps across CDC that could potentially be addressed by shared solutions
  - To leverage the use of existing processes and tools to optimize efficiency in resource usage
  - To document successes and challenges that programs have already faced in their planning efforts to facilitate the sharing of lessons learned
ICD-10-CM
Structure/ Conventions
ICD-10-CM Structure

ICD-9-CM (14,025 codes)
- 3 - 5 characters
- First character is numeric or alpha (E or V)
- Characters 2-5 are numeric
- Always at least 3 characters
- Use of decimal after 3 characters

ICD-10-CM (68,069 codes)
- 3 - 7 characters
- Character 1 is alpha (all letters except U are used)
- Character 2 is numeric
- Characters 3 - 7 are alpha or numeric
- Use of decimal after 3 characters
- Use of dummy placeholder “x”
- Alpha characters are not case-sensitive
ICD-10-CM Differences

• New instructional notes
• Expanded codes for greater specificity
  – Expansions for laterality (e.g. right vs. left) and specific body areas
  – Added code extensions for injuries & external causes of injuries
• Placeholder “x”
  – for some codes for future expansion
  – Fill out characters when a code contains fewer than 6 characters and a 7th character applies

• 7th Characters
  – Used in certain chapters to provide additional information about the encounter
  – Must always be in the 7th position
  – If code has applicable 7th character, the code must be reported with appropriate 7th character value to be a valid code
Structural Differences: ICD-10-CM

• Placeholder “x” is used
  – as a 5th character placeholder at certain 6 character codes to allow for future expansion
  – When a base 3-5 character codes requires a 7th digit
    • means “x” is placed in otherwise unfilled placeholder as the 5th and/or 6th character

• Base code S50.02 Contusion of left elbow
  – Use S50.02xD to report a subsequent encounter
• Base code S47.1 Crushing injury of right shoulder and upper arm
  – Use S47.1xxA to report the initial encounter
Structural Differences
ICD-10-CM Diagnoses

• ICD-10-CM codes are 3 – 7 digits

  – A78 Q fever
  – A69.20 Lyme disease, unspecified
  – O9A.311 Physical abuse complicating pregnancy, first trimester
  – S42.001A Fracture of unspecified part of right clavicle, initial encounter for closed fracture
ICD-10-CM
Major Modifications
[continued]

• Added trimesters to OB codes (fifth-digits from ICD-9-CM will not be used)
• Revised diabetes mellitus codes (5th digits from ICD-9-CM will not be used)
• Expanded codes (e.g., injury, diabetes)
• Added code extensions for injuries and external causes of injuries
ICD-10-CM
Major Modifications
[continued]

• Expanded categories for postoperative complications
• Addition of sixth and seventh characters
• Addition of laterality
• Combination codes for common diagnosis and symptoms
ICD-9-CM
Postoperative complications

- 998.1 Hemorrhage or hematoma or seroma complicating a procedure
- 998.2 Accidental puncture or laceration during a procedure
ICD-10-CM
Postoperative complications

• G97.3 Hemorrhage or hematoma complicating a nervous system procedure
  – G97.31 Intraoperative hemorrhage/hematoma of nervous system organ or structure complicating nervous system procedure
  – G97.32 Intraoperative hemorrhage/hematoma of nervous system organ or structure complicating other procedure
ICD-10-CM
Postoperative complications

• H95.3 Accidental puncture or laceration during an ear procedure
  – H95.31 Accidental puncture and laceration of the ear and mastoid process following procedure on ear and mastoid process
  – H95.32 Accidental puncture and laceration of ear and mastoid process following other procedure
Diagnosis/ Symptom Combination Codes

- I25.110 Atherosclerotic heart disease with unstable angina
- K71.51 Toxic liver disease with chronic active hepatitis with ascites
- K50.012 Crohn’s disease of small intestine with intestinal obstruction
ICD-10-CM
Structure/Conventions

• Format
  – Tabular List and Alphabetic Index
  – Index
    • Alphabetic Index of Diseases and Injuries
    • Alphabetic Index of External Causes of Injuries
    • Table of Neoplasms
    • Table of Drugs and Chemicals
ICD-10-CM
Structure/ Conventions
(continued)

• Format – Tabular
  – Valid codes may be 3-6 characters in length and are in **BOLD** typeface
  – 4\textsuperscript{th} character can be a letter or a number
  – Codes longer than 3 characters have decimal point after first 3 characters
  – Must code to highest level of detail, using the codes
  – Full code titles are used
Full code titles

ICD-9-CM

143  Malignant neoplasm of gum
    143.0 Upper gum
    143.1 Lower gum

ICD-10-CM

C03  Malignant neoplasm of gum
    C03.0 Malignant neoplasm of upper gum
    C03.1 Malignant neoplasm of lower gum
ICD-10-CM
Structure/ Conventions
(continued)

• Exclude Notes
  – Exclude1: Means NOT CODED HERE
    • Code being excluded is never used with code
    • The two conditions cannot occur together
    • Examples –
      B06  Rubella [German measles]
        Excludes1: congenital rubella (P35.0)
ICD-10-CM Conventions (continued)

• Exclude Notes
  – Exclude2: Means NOT INCLUDED HERE
    • Excluded condition is not part of the condition represented by the code
    • Acceptable to use both codes together if patient has both conditions
  • Example:
    J04.0 Acute laryngitis
    Excludes2: chronic laryngitis (J37.0)
ICD-10-CM Conventions (continued)

- Code First Notes
  - Used when certain conditions have both an underlying etiology and multiple body system manifestations
  - Requires the underlying condition be sequenced first followed by the manifestation
  - Proper sequencing order of the codes: etiology followed by manifestation (same coding convention as ICD-9-CM)
ICD-10-CM Conventions (continued)

• Code Also Notes
  – A code also note instructs that 2 codes may be required to fully describe a condition but the sequencing of the two codes depends on the circumstances of the encounter.
Chapter-specific Overview
Chapter 1: Infectious and Parasitic Diseases

• HIV
  – B20, Human Immunodeficiency [HIV] disease
  – O98.7, HIV complicating pregnancy, childbirth and puerperium (new code)
  – R75, Inconclusive laboratory evidence of human immunodeficiency virus [HIV]
  – Z20.6, Contact with and (suspected) exposure to human immunodeficiency virus [HIV]
  – Z21, Asymptomatic human immunodeficiency virus [HIV] infection status

• New section (A50-A64)
  – Infections with predominantly sexual mode of transmission
Chapter 1: Infectious and parasitic diseases

• Streptococcal sore throat
  – Moved from Chapter 1 (034.0) to Chapter 10 - Diseases of Respiratory System (J02.0)

• Tetanus neonatorum
  – Moved from Chapter 15 (771.3) to Chapter 1 (A33)

• OB tetanus
  – Moved from Chapter 11 (670.8) to Chapter 1 (A34)
Chapter 2: Neoplasms

• Melanoma in situ
  – Category 172, Malignant melanoma of skin to unique ICD-10-CM category D03-, Melanoma in situ

• Waldenstrom’s macroglobulinemia
  – Moved from Ch. 3 (disorders of plasma protein) to C88 Malignant immunoproliferative diseases in Chapter 2

• Leukemias and lymphomas
Example: Laterality in Chapter 2

C50.1 Malignant neoplasm, of central portion of breast

C50.111 Malignant neoplasm of central portion of right female breast

C50.122 Malignant neoplasm of central portion of left male breast
Chapter 3: Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism

Mainly conditions/diseases from Chapter 4 of ICD-9-CM but also from Chapter 3, (Endocrine) and Chapter 1 (Infectious and Parasitic)

- Moved Immunity Diseases from “Endocrine, Nutritional and Metabolic Disorders” to “Diseases of the Blood”
  - Diseases of the Blood and Blood Forming Organs and Certain Disorders Involving the Immune Mechanism (Chapter 3)
Chapter 4: Endocrine, nutritional, and metabolic diseases

- Diabetes Mellitus (categories E08-E14)
  - E08 Diabetes mellitus due to underlying condition
  - E09 Drug or chemical induced diabetes mellitus
  - E10 Type 1 diabetes mellitus
  - E11 Type 2 diabetes mellitus
  - E13 Other specified diabetes mellitus
  - E14 Unspecified diabetes mellitus
# Diabetes mellitus

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<td>E13 Other specified diabetes mellitus</td>
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<td>E14 Unspecified</td>
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4th digit for type of complication

5/6th digit for type of complication

- 5th digit “1” identified juvenile-onset
- 5th digit “0” identified adult-onset
Diabetes mellitus

• The common fifth-digit subclassification in ICD-9-CM for diabetes mellitus will not be used in ICD-10-CM (Controlled/uncontrolled)

• The diabetes categories have been fully revised to reflect revisions to the classification of diabetes issued by the American Diabetes Association
Diabetes mellitus
Examples

- E09.01 Drug or chemical induced diabetes mellitus with hyperosmolarity with coma
- E10.11 Type 1 diabetes mellitus with ketoacidosis with coma
- E11.40 Type 2 diabetes mellitus with diabetic nephropathy, unspecified
- E13.621 Other specified diabetes mellitus with foot ulcer
Chapter 6: Diseases of nervous system

- Sense organs separated from nervous system
- Dominant/nondominant side (e.g., G81, Hemiplegia and hemiparesis)
- Basilar and carotid artery syndromes, transient global amnesia, transient cerebral ischemia, were in Chapter 7 in ICD-9-CM now reside in Chapter 6 in ICD-10-CM
Chapter 9: Diseases of circulatory system

- Hypertension – no distinction for malignant/benign in ICD-10-CM or ICD-10
- Binswanger’s disease
  - Moved from Chapter 5 to Chapter 9
- Gangrene from Chapter 16, Signs and Symptoms to Chapter 9
- STEMI, non-STEMI included in code titles
Chapter 9: Diseases of circulatory system (continued)

• Initial and subsequent acute myocardial infarction
• AMI time frames
  – From 8 weeks or less in ICD-9-CM to four weeks or less in ICD-10-CM (consistent with ICD-10)
• Sequelae of cerebrovascular disease
  • Expansion of all subcategories to specify laterality and greater detail about the sequela
• Intraoperative and postprocedural circulatory system complications
Chapter 10: Diseases of respiratory system

• Asthma (distinction for extrinsic/intrinsic no longer used)
  • Mild, moderate, severe
  • Intermittent versus persistent

• Strep throat
  • Moved from Chapter 1
Chapter 12: Diseases of the skin and subcutaneous tissue

Decubitus ulcers

– Required use of two codes in ICD-9-CM
– ICD-10-CM one combination code
– Site, laterality, severity

Decubitus ulcer, stage 3 of sacrum

– 707.03 and 707.23 (ICD-9-CM)
– L89.153 (ICD-10-CM)
Chapter 13:
Diseases of the musculoskeletal system and connective tissue

• Site: joint vs. bone/limb
• Laterality
• Gout
  – Moved from Chapter 3 (Endocrine, nutritional, metabolic, in ICD-9-CM)
  – Gout distinctions: idiopathic, drug-induced, lead-induced
• Polyarteritis nodosa
  – Moved from Chapter 7, Diseases of circulatory system
Chapter 13:
Diseases of the musculoskeletal system and connective tissue (continued)

• 7th character extensions for osteoporosis
The appropriate 7th character is to be added to each code from category M80:

A - initial encounter for fracture
D - subsequent encounter for fracture with routine healing
G - subsequent encounter for fracture with delayed healing
K - subsequent encounter for fracture with nonunion
P - subsequent encounter for fracture with malunion
S - sequela
Chapter 15: Pregnancy, childbirth, and the puerperium

- ICD-9-CM 5\textsuperscript{th} digits not used in ICD-10-CM
- Trimesters indicated with final character
- Supervision of high-risk pregnancy
  - Moved from Supplementary chapter in ICD-9-CM to OB chapter in ICD-10-CM
- Timeframe for abortions and fetal deaths changed from 22 weeks to 20 weeks
- Timeframe for early and late vomiting in pregnancy changed from 22 weeks to 20 weeks
O15 Eclampsia
  O15.0  Eclampsia in pregnancy
    O15.00  Eclampsia in pregnancy, unspecified trimester
  O15.02  Eclampsia in pregnancy, second trimester
  O15.03  Eclampsia in pregnancy, third trimester
Chapter 15:
Pregnancy, childbirth, and the puerperium (continued)

O31
Complications specific to multiple gestation
One of the following 7th characters is to be assigned to each code under category O31. 7th character 0 is for single gestations and multiple gestations where the fetus is unspecified. 7th characters 1 through 9 are for cases of multiple gestations to identify the fetus for which the code applies. The appropriate code from category O30, Multiple gestation, must also be assigned when assigning a code from category O31 that has a 7th character of 1 through 9.

0 - not applicable or unspecified
1 - fetus 1
2 - fetus 2
3 - fetus 3
4 - fetus 4
5 - fetus 5
9 - other fetus
Chapter 16: Certain conditions originating in the newborn (perinatal) period

- Change in terminology
  - 760-763, Maternal causes of perinatal morbidity and mortality; P00-P04, Newborn affected by maternal factors and by complications of pregnancy, labor, and delivery

- Consistent use of terminology
Chapter 17: Congenital malformations, deformations and chromosomal abnormalities

Expansions at many categories and subcategories

– Chromosomal anomalies
  • One category (758.x in ICD-9-CM)
  • Nine categories in ICD-10-CM for anomalies not elsewhere classified (Q90 – Q99)
Chapter 18: Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified

- SIRS of non-infectious origin (with and without acute organ failure); severe sepsis with and without septic shock
- Glasgow coma scale
  - Primarily for use in trauma registries
- Bradycardia
  - Moved from Chapter 7, Circulatory, to Chapter 18
- Pleurisy
  - Moved from Chapter 8, Respiratory, to Chapter 18
Chapter 19: Injury, poisoning and certain other consequences of external causes

Injuries Restructured

ICD-9

Fractures  800-829
Dislocations  830-839
Sprains/Strains  840-848

ICD-10

Injuries to head  S00-S09
Injuries to neck  S10-S19
Injuries to thorax  S20-S29
### Chapter 19: Injury, poisoning and certain other consequences of external causes

<table>
<thead>
<tr>
<th>Type of injury at 3rd character</th>
<th>Description</th>
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<tbody>
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<td>0</td>
<td>Superficial injuries</td>
</tr>
<tr>
<td>1</td>
<td>Open wounds</td>
</tr>
<tr>
<td>2</td>
<td>Fractures</td>
</tr>
<tr>
<td>3</td>
<td>Dislocations and sprains</td>
</tr>
<tr>
<td>4</td>
<td>Injury of nerves</td>
</tr>
<tr>
<td>5</td>
<td>Injury of blood vessels</td>
</tr>
<tr>
<td>6</td>
<td>Injury of muscles and tendons</td>
</tr>
<tr>
<td>9</td>
<td>Other and unspecified</td>
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### Chapter 19:
Injury, poisoning and certain other consequences of external causes

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<tr>
<th>Code</th>
<th>Description</th>
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<td>S00</td>
<td>Superficial injury of head</td>
</tr>
<tr>
<td>S10</td>
<td>Superficial injury of neck</td>
</tr>
<tr>
<td>S20</td>
<td>Superficial injury of thorax</td>
</tr>
<tr>
<td>S30</td>
<td>Superficial injury of abdomen, lower back, and pelvis</td>
</tr>
<tr>
<td>S01</td>
<td>Open wound of head</td>
</tr>
<tr>
<td>S11</td>
<td>Open wound of neck</td>
</tr>
<tr>
<td>S21</td>
<td>Open wound of thorax</td>
</tr>
<tr>
<td>S31</td>
<td>Open wound of abdomen, lower back, and pelvis</td>
</tr>
<tr>
<td>S02</td>
<td>Fracture of skull and facial bones</td>
</tr>
<tr>
<td>S12</td>
<td>Fracture of neck</td>
</tr>
<tr>
<td>S22</td>
<td>Fracture of rib(s), sternum and thoracic spine</td>
</tr>
<tr>
<td>S32</td>
<td>Fracture of lumbar spine and pelvis</td>
</tr>
</tbody>
</table>
Injury codes in ICD-9-CM/ICD-10

Open wounds
- laceration w/foreign body
- laceration w/o foreign body
- puncture wound w/foreign body
- puncture wound w/o foreign body
- bite

Superficial wounds
- abrasion
- blister
- contusion
- external constriction
- superficial foreign body
- insect bite
Detail for open wounds added at 5th digit

S41.01- Laceration without foreign body of shoulder

S41.02- Laceration with foreign body of shoulder

S41.03- Puncture wound without foreign body of shoulder
ICD-10-CM
Expanded Injury Codes

S00.411  Abrasion of ear, right ear
S50.351  Superficial foreign body of right elbow
S81.012  Laceration without foreign body, left knee
Fracture codes in ICD-9-CM/ICD-10

Fractures, closed
- Comminuted
- Depressed
- Elevated
- Fissured
- Greenstick
- Linear
- Spiral

Fractures, open
- Compound
- Infected
- Missile
ICD-10-CM
Expanded Injury Codes

S42.31- Greenstick fracture of shaft of humerus
S42.32- Transverse fracture of shaft of humerus
S42.33- Oblique fracture of shaft of humerus
S42.42- Comminuted supracondylar fracture without intercondylar fracture of humerus
Chapter 19: 
7th character - Fractures

A  Initial encounter for closed fracture
B  Initial encounter for open fracture
D  Subsequent encounter for fracture with routine healing
G  Subsequent encounter for fracture with delayed healing
K  Subsequent encounter for fracture with nonunion
P  Subsequent encounter for fracture with malunion
S  Sequela
Chapter 19:
7th character - Open fractures

The open fracture designations are based on the Gustilo open fracture classification.

The appropriate 7th character is to be added to each code from category S52:
A - initial encounter for closed fracture
B - initial encounter for open fracture type I or II
C - initial encounter for open fracture type IIIA, IIIB, or IIIC
D - subsequent encounter for closed fracture with routine healing
E - subsequent encounter for open fracture type I or II with routine healing
F - subsequent encounter for open fracture type IIIA, IIIB, or IIIC with routine healing
G - subsequent encounter for closed fracture with delayed healing
H - subsequent encounter for open fracture type I or II with delayed healing
J - subsequent encounter for open fracture type IIIA, IIIB, or IIIC with delayed healing
K - subsequent encounter for closed fracture with nonunion
M - subsequent encounter for open fracture type I or II with nonunion
N - subsequent encounter for open fracture type IIIA, IIIB, or IIIC with nonunion
P - subsequent encounter for closed fracture with malunion
Q - subsequent encounter for open fracture type I or II with malunion
R - subsequent encounter for open fracture type IIIA, IIIB, or IIIC with malunion
S - sequela
Chapter 19:
7th character - Type of encounter

Types of encounters: Initial, subsequent, sequela

• Active treatment: surgical treatment, ER encounter, evaluation and treatment by new physician
• Subsequent encounter: routine care, during healing phase (e.g., cast change/removal, removal of external fixation device)
• Sequela: complications or conditions that arise as a direct result of an injury
Chapter 19:
Injury, poisoning and certain other consequences of external causes (continued)

- 5th character “x” dummy place holder
  - Example: T36.0x1 Poisoning by penicillins, accidental (unintentional)
Chapter 19: Injury, poisoning and certain other consequences of external causes (continued)

• New concepts:
  – Underdosing – taking less of a medication than is prescribed by the provider whether inadvertently or deliberately with resulting negative consequence
  – Additional code for patient noncompliance (Z91.12, Z91.13-) or failure in dosage in medical care (Y63.-)
Poisoning/ External Cause
ICD-9-CM

Accidental poisoning by thyroid hormones

962.7 (Poisoning) Thyroid and thyroid derivatives and
E858.0 Accidental poisoning, Hormones and synthetic substitutes
Poisoning/External Cause
ICD-10-CM Combination Codes

T38.1x1  Poisoning by thyroid hormones and substitutes, accidental (unintentional)
T38.1x2  Poisoning by thyroid hormones and substitutes, intentional self-harm
T38.1x3  Poisoning by thyroid hormones and substitutes, assault
T38.1x4  Poisoning by thyroid hormones and substitutes, undetermined
T38.1x5  Adverse effect of thyroid hormones and substitutes
Poisoning/External Cause
ICD-10-CM Combination Codes

Codes in T36- T50 (Poisoning by, adverse effects of and underdosing of drugs, medicaments and biological substances) include detail for:

- Substance
- External cause (accidental, intentional, assault, undetermined, adverse effect)
- Use of external cause of injury code is unnecessary
Poisoning/ External Cause
ICD-10-CM Combination Codes

T36   Poisoning by, adverse effect of and underdosing of systemic antibiotics

The appropriate 7th character is to be added to each code from category T36
A - initial encounter
D - subsequent encounter
S - sequela

T36.0   Poisoning by, adverse effect of and underdosing of penicillins
    T36.0X   Poisoning by, adverse effect of and underdosing of penicillins
        T36.0X1   Poisoning by penicillins, accidental (unintentional)
        T36.0X2   Poisoning by penicillins, intentional self-harm
        T36.0X3   Poisoning by penicillins, assault
        T36.0X4   Poisoning by penicillins, undetermined
        T36.0X5   Adverse effect of penicillins
        T36.0X6   Underdosing of penicillins
Poisoning/ External Cause
ICD-10-CM Combination Codes

T58  Toxic effect of carbon monoxide
Includes: asphyxiation from carbon monoxide; toxic effect of carbon monoxide from all sources

The appropriate 7th character is to be added to each code from category T58
A - initial encounter
D - subsequent encounter
S - sequela

T58.0  Toxic effect of carbon monoxide from motor vehicle exhaust
Toxic effect of exhaust gas from gas engine
Toxic effect of exhaust gas from motor pump

T58.01, Toxic effect of carbon monoxide from motor vehicle exhaust, accidental (unintentional)
T58.02, Toxic effect of carbon monoxide from motor vehicle exhaust, intentional self-harm
T58.03, Toxic effect of carbon monoxide from motor vehicle exhaust, assault
T58.04, Toxic effect of carbon monoxide from motor vehicle exhaust, undetermined
Burns and corrosions

Distinct ion between burns and corrosions
Burns: thermal (except sunburn)
Corrosions: Due to chemicals
T20 – T25  Burns and corrosions of external body surface, specified by site
T26 – T28  Burns and corrosions confined to eye and internal organs

T31, Burns classified according to extent of body surface involved
T32, Corrosions classified according to extent of body surface involved

T21.3-, Burn of third degree of trunk
T21.7-, Corrosion of third degree of trunk
Chapter 19: Injury, poisoning and certain other consequences of external causes (continued) 

Adult and Child Abuse

Distinction between suspected and confirmed abuse

T74, Adult and child abuse, neglect and other maltreatment, confirmed
T76, Adult and child abuse, neglect and other maltreatment, suspected

T74.3 Psychological abuse, confirmed
   T74.31 Adult psychological abuse, confirmed
   T74.32 Child psychological abuse, confirmed

T76.3 Psychological abuse, suspected
   T76.31 Adult psychological abuse, suspected
   T76.32 Child psychological abuse, suspected
ICD-10-CM Code Examples

ICD-9-CM

996.1 Mechanical complication of other vascular device, implant, and graft

ICD-10-CM

9 codes differentiating aortic graft, carotid arterial graft, femoral graft from catheters.

Examples:

T82.49xA Other complication of vascular dialysis catheter, initial encounter

T82.591A Other mechanical complication of surgically created arteriovenous shunt, initial encounter

T82.593A Other mechanical complication of balloon (counterpulsation) device, initial encounter

T82.595A Other mechanical complication of umbrella device, initial encounter
ICD-10-CM Code Examples

ICD-9-CM
998.2 Accidental puncture or laceration during a procedure

ICD-10-CM
21 codes indicating accidental puncture and laceration specifying organ or body system and type of procedure

Examples:

D78.11 Accidental puncture and laceration of spleen during a procedure on the spleen

D78.12 Accidental puncture and laceration of spleen during other procedure
Chapter 20: External causes of morbidity

- Uses letters V, W, X, Y
  - U00 – U49 reserved for use by WHO for provisional assignment of new diseases with uncertain etiology
  - U50 – U99 for national use in research e.g., when testing an alternative subclassification for a special project
- Some external cause codes deactivated; concepts added to the injury/poisoning codes
  - New concept
    - Blood alcohol level (Y90)
Certain External Cause of Injury Codes Added to the Injury Codes

X44  Accidental poisoning by and exposure to other and unspecified drugs, medicaments and biological substances

X64  Intentional self-poisoning by and exposure to other and unspecified drugs, medicaments and biological substances

Y14  Poisoning by and exposure to other and unspecified drugs, medicaments and biological substances, undetermined intent
Place of Occurrence

Y92.0x Home
Y92.1x Residential institution
Y92.2x School, other institution and public administrative area
Y92.3x Sports and athletic area
Y92.4 Street and highway
Y92.5x Trade and service areas
Y92.6 Industrial and construction area
Y92.7 Farm
Y92.8x Other specified place
Activity

Y93.0x  Injured while engaged in sports activity
Y93.1  Injured while engaged in leisure activity
Y93.3x Injured while engaged in other types of work
Y93.4  Injured while resting, sleeping, eating or engaging in other vital activities
Y93.8  Injured while engaged in personal hygiene
Y93.9  Injured during unspecified activity
Chapter 21: Factors influencing health status and contact with health service

New Features

Z72 Problems related to lifestyle
  Z72.3 Lack of physical exercise
  Z72.4 Inappropriate diet and eating habits

Z73 Problems related to life-management difficulty
  Z73.1 Type A behavior pattern
  Z73.2 Lack of relaxation and leisure
Chapter 21:
Factors influencing health status and contact with health service

Other new features
Do not Resuscitate (Z66)
Blood type (Z67)

Z code categories
- Uncomplicated abortions (elective, legal, therapeutic)
  - Moved from OB Chapter (Chapter 11) in ICD-9-CM to Chapter 21 in ICD-10-CM
Chapter 21: Factors influencing health status and contact with health service (continued)

- Deactivated Z code categories
  - Z27, Need for immunization against combinations of infectious diseases

- Expansions for certain concepts
ICD-10-CM Code Examples

ICD-9-CM
V15.81  Noncompliance with medical treatment

ICD-10-CM
Z91.11  Patient's noncompliance with dietary regimen
Z91.120 Patient's intentional underdosing of medication regimen due to financial hardship
Z91.128 Patient's intentional underdosing of medication regimen for other reason
Z91.130 Patient's unintentional underdosing of medication regimen due to age-related debility
Z91.138 Patient's unintentional underdosing of medication regimen for other reason
Z91.14  Patient's other noncompliance with medication regimen
Z91.15  Patient's noncompliance with renal dialysis
Z91.19  Patient's noncompliance with other medical treatment and regimen
ICD-10-CM Guidelines
ICD-10-CM
Official Guidelines for Coding and Reporting

• Apply to use of ICD-10-CM in acute short-term and long-term hospital inpatient, physician office, and other outpatient settings

• Divided into 3 sections:
  – Section I: ICD-10-CM conventions
  – Section II: General coding guidelines
  – Section III: Chapter-specific guidelines
ICD-10-CM Official Guidelines for Coding and Reporting (continued)

• ICD-10-CM Official Guidelines for Coding and Reporting accompany and complement ICD-10-CM conventions and instructions

• Adherence to the official coding guidelines in all health care settings is required under the Health Insurance Portability and Accountability Act
NCHS ICD-10 Transition for Mortality

• Death certificates in U.S. have been coded using ICD-10 since data year 1999
• Statistical impact and comparability
  – Measurement of discontinuity
    • Comparability ratio which results from dual-coding a large sample of 1996 death certificates from the national mortality data file
    • Ratios used to understand/explain discontinuities from 1998 and 1999 impact the shifts away from some categories and into others
Comparability of Cause of Death Between ICD-9 and ICD-10: Preliminary Estimates

by Robert N. Anderson, Ph.D.; Arialdi M. Minino, M.P.H.; Donna L. Hoyert, Ph.D.; and Harry M. Rosenberg, Ph.D.

Abstract

Objectives—This report presents preliminary results describing the effects of implementing the Tenth Revision of the International Classification of Diseases (ICD-10) on mortality statistics for selected causes of death effective with deaths occurring in the United States in 1999. The report also describes major features of the Tenth Revision (ICD-10), including changes from the Ninth Revision (ICD-9) in classification and rules for selecting underlying causes of death. Application of comparability ratios is also discussed.

Methods—The report is based on cause-of-death information from a large sample of 1996 death certificates filed in the 50 States and the District of Columbia. Cause-of-death information in the sample includes underlying cause of death classified by both ICD-9 and ICD-10. Because the data file on which comparability information is derived is incomplete, results are preliminary.

Results—Preliminary comparability ratios by cause of death are presented for deaths occurring in 1999 in the United States. These provisional ratios are presented by cause of death and for the population as a whole. The comparability ratios present the numbers and percentages of deaths that could be classified using ICD-10 in comparison with deaths classified using ICD-9 for deaths occurring in 1999 in the United States. Preliminary results indicate significant differences in comparability for some causes of death, and these differences are influenced by the presence or absence of specific medical conditions.

Introduction

This report presents preliminary data describing the effects of the implementation of the Tenth Revision of the International Classification of Diseases (ICD-10) on mortality statistics for selected causes of death. ICD-10 was implemented in the United States beginning with deaths occurring in 1999 and replaces the Ninth Revision of the ICD (ICD-9), which was implemented in the United States with 1979 mortality data.

The International Classification of Diseases has been revised approximately every 10 years since 1900 (1) (table A). The purpose of the revision is to stay abreast of medical advances in terms of disease nomenclature and etiology. The introduction of new classifications is costly to the Federal government and the States, and often introduces major disruptions in time series of mortality and morbidity statistics. However, revisions are essential to stay current with advances in medical science and to ensure the international comparability of health statistics.
What are GEMs?

- Used to facilitate linking between the codes in ICD-9-CM and ICD-10 code sets
- Use of GEMs very important in identifying differences that would have been highlighted if dual-coding could have been undertaken
- The GEMs can also be used for general reference
- The GEMs can be used to assist in
  - Converting ICD-9 based systems or applications to ICD-10 based applications
    - For more information on converting ICD-9 based systems and applications to ICD-10, see the MS-DRG conversion project report at: [http://www.cms.gov/ICD10/17_ICD10_MS_DRG_Conversion_Project.asp](http://www.cms.gov/ICD10/17_ICD10_MS_DRG_Conversion_Project.asp)
  - Creating one-to-one backwards mappings (also known as a crosswalk) from incoming ICD-10 based records to ICD-9 based legacy systems
  - Migrating ICD-9-CM historical data to a ICD-10 based representation for comparable longitudinal analysis
  - Creating ICD-10 based test records from a repository of ICD-9 based test records
What are GEMs?

• One entry in a GEM identifies relationships between one code in the source system and its possible equivalents in the target system without consideration of patient medical record information
  – Source is the code one is mapping from
  – Target is the code being mapped to

• Each GEM file contains an entry for every source system code in the file

• A GEM file contains only those target system codes which are plausible translations of the source system code being looked up
  – For example, in the ICD-10-CM to ICD-9-CM GEM, each ICD-10-CM is translated only to the ICD-9-CM code(s) that are plausible translations based on the meaning of the ICD-10-CM code as contained in the code title, instructional notes, and index entries.
Why Do We Need GEMs?

- One ICD-9-CM code represented by multiple ICD-10 codes or one ICD-10 code represented by multiple ICD-9-CM codes
- There are new concepts in ICD-10-CM that have no predecessor in ICD-9-CM (e.g., under dosing, blood type)
- Use of GEMs very important in identifying differences that would have been highlighted if dual-coding could have been undertaken
What GEMs Aren’t?

• **GEMs are not crosswalks**
  – The GEMs are more complex than a simple one-to-one crosswalk, but ultimately more useful. They reflect the relative complexity of the code sets clearly so that it can be managed effectively, rather than masking it in an oversimplified way.
  – They are reference mappings, to help the user navigate the complexity of translating meaning from one code set to the other.

• **GEMs are not a substitute for learning how to use ICD-10-CM and ICD-10-PCS**
How the GEMs Work

Translation depends on source

• Because the translation is based on the meaning of the source system code...
• And these are two different languages of healthcare...
• Then the GEMs may have different content in each direction
  – Not all I-9 codes are used in an I-10 GEM
  – Not all I-10 codes are used in an I-9 GEM

Four ICD-9-CM codes translate to four ICD-10-CM codes

Eight of these ICD-10-CM codes are not in the ICD-9-CM GEM
Example from ICD-10-CM GEM

- Diagnosis mapping
  - ICD-10-CM Source system code on the left side
  - ICD-9-CM Target system code in the middle
  - Flags on the right

- T500x1A  9620  10111
- T500x1A  E8580  10112
- T500x1D  9620  10111
- T500x1D  E8580  10112
- T500x1S  9090  10111
- T500x1S  E9292  10112
• Some codes have approximate equivalence

<table>
<thead>
<tr>
<th>ICD-10-CM Source</th>
<th>to</th>
<th>ICD-9-CM Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>J02.0, Streptococcal pharyngitis</td>
<td>≈</td>
<td>034.0, Streptococcal sore throat</td>
</tr>
</tbody>
</table>
ICD-10-CM $\Rightarrow$ ICD-9-CM

- When ICD-10-CM contains a combination code, it may relate back to 2 distinct ICD-9-CM codes
- What used to require 2 or more codes, now only requires a single code

<table>
<thead>
<tr>
<th>ICD-10-CM Source</th>
<th>to</th>
<th>ICD-9-CM Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>R65.21 Severe sepsis with septic shock</td>
<td>$\approx$</td>
<td>995.92 Severe sepsis and 785.52 Septic shock</td>
</tr>
</tbody>
</table>
ICD-9-CM ⇒ ICD-10-CM

In some cases ICD-9-CM may have had certain specificities that are not being translated to ICD-10-CM

<table>
<thead>
<tr>
<th>ICD-9-CM</th>
<th>ICD-10-CM</th>
</tr>
</thead>
<tbody>
<tr>
<td>010.90 Primary tuberculous infection, unspecified examination</td>
<td></td>
</tr>
<tr>
<td>010.91 Primary tuberculous infection, bacteriological/histological exam not done</td>
<td></td>
</tr>
<tr>
<td>010.92 Primary tuberculous infection, bacteriological/histological exam unknown (at present)</td>
<td></td>
</tr>
<tr>
<td>010.93 Primary tuberculous infection, tubercle bacilli found by microscopy</td>
<td></td>
</tr>
<tr>
<td>010.94 Primary tuberculous infection, tubercle bacilli found by bacterial culture</td>
<td></td>
</tr>
<tr>
<td>010.95 Primary tuberculous infection, tubercle bacilli confirmed histologically</td>
<td></td>
</tr>
<tr>
<td>010.96 Primary tuberculous infection, tubercle bacilli confirmed by other methods</td>
<td></td>
</tr>
<tr>
<td></td>
<td>A15.7 Primary respiratory tuberculosis</td>
</tr>
</tbody>
</table>
ICD-10-CM ⇔ ICD-9-CM

- When there is no ICD-9-CM code for the ICD-10-CM code

<table>
<thead>
<tr>
<th>ICD-10-CM Source</th>
<th>to</th>
<th>ICD-9-CM Target</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>T38.3X6A</strong> Underdosing of insulin and oral hypoglycemic [antidiabetic] drugs, initial encounter</td>
<td>≈</td>
<td>No dx</td>
</tr>
<tr>
<td><strong>T44.7X6A</strong> Underdosing of beta-adrenoreceptor antagonists</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Analysis and Reporting Challenges Report and Publication Redesign

**Table 20. Number of all-listed diagnoses for discharges from short-stay hospitals, by age and diagnosis: United States, 2005**

[Discharges of inpatients from nonfederal hospitals. Excludes newborn infants. Diagnostic groupings and code numbers are based on the International Classification of Diseases, Ninth Revision, Clinical Modification (ICD–9–CM).]

<table>
<thead>
<tr>
<th>All-listed diagnosis and ICD–9–CM code</th>
<th>All ages</th>
<th>Under 15 years</th>
<th>15–44 years</th>
<th>45–64 years</th>
<th>65 years and over</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>169,359</td>
<td>7,242</td>
<td>41,680</td>
<td>42,790</td>
<td>77,647</td>
</tr>
</tbody>
</table>

**Infectious and parasitic diseases**
- Code 001–139
- Code 038

**Septicemia**
- Code 961
- Code 961

**Neoplasms**
- Code 140–239

**Malignant neoplasms**
- Code 140–239
- Code 140–239

**Malignant neoplasm of large intestine and rectum**
- Code 152–154
- Code 152–154

**Malignant neoplasm on trachea, bronchus, and lung**
- Code 162–174
- Code 162–174

**Benign neoplasms**
- Code 210–229

**Endocrine, nutritional, and metabolic diseases, and immunity disorders**
- Code 240–279

**Diabetes mellitus**
- Code 250

**Volume depletion**
- Code 276.5

**Disorders of the blood and blood-forming organs**
- Code 280–289

**Anemias**
- Code 280–285

**Mental disorders**
- Code 290–319

**Drugs and medicinal substances**
- Code 319–399

**Unknown Zone | Protected Mode: Off**
Number of All-listed Diagnoses for discharges from short-stay hospitals, by ICD-9-CM codes, 2010

Detailed diagnosis table

<table>
<thead>
<tr>
<th>Code number</th>
<th>Total number of discharges</th>
</tr>
</thead>
<tbody>
<tr>
<td>034.0</td>
<td>19,000</td>
</tr>
<tr>
<td>462</td>
<td>57,000</td>
</tr>
</tbody>
</table>

Trend Estimate in ICD-10-CM?

- J02- , Acute pharyngitis
  - Includes J02.0, Streptococcal pharyngitis (includes strep sore throat); J02.8, Pharyngitis due to other specified organisms
- Strep tonsillitis goes to J03.00 or J03.01!
ICD-10-CM Resources

ICD-10-CM files (PDF and XML formats)
ICD-10-CM Coding Guidelines
Codes and descriptions (short and long descriptors)
Addenda
General Equivalence Maps with Guide and Technical documents

http://www.cdc.gov/nchs/icd/icd10cm.htm#10update
Questions?

Email: dfp4@cdc.gov