Transitioning to ICD-10-CM: Resources and tools to facilitate injury morbidity research

Holly Hedegaard, MD, MSPH
Annual Exploration of Injury and Emergency Health Data Issues
APHA Conference
November 3, 2015

Overview
- On-line resources on ICD-10-CM for injury
- The proposed ICD-10-CM Injury Matrices
  - External cause matrix
  - Injury Diagnosis Matrix
- Proposed ICD-10-CM surveillance case definitions
- Assessment efforts
- ICD-10-CM and injury severity measures

What is this “transition to ICD-10-CM”?
- Transition from ICD-9-CM to ICD-10-CM to code health information in administrative datasets
- ICD-10-CM is more complex than ICD-9-CM
  - Injury diagnosis codes
    2,600 in ICD-9-CM; 43,000 in ICD-10-CM
  - External cause codes
    1,300 in ICD-9-CM; 7,500 in ICD-10-CM
- Standard case definitions, reporting frameworks, analytic software programs, etc. need to be updated for ICD-10-CM

On-line Webinars from CDC
www.cdc.gov/nchs/icd/icd10cm_pcs_trainings.htm
- ICD-10-CM Transition Overview
- Overview of the ICD-10-CM Codes
- Understanding the General Equivalence Mapping files
- A Proposed External Cause of Injury Framework for Presenting Injury Data
- A Proposed Framework for Presenting ICD-10-CM Injury Diagnosis Data

ICD-10-CM Online
www.cdc.gov/nchs/icd/icd10cm.htm#icd2015
1. Scroll down to “FY 2016 release of ICD-10-CM”
2. Select “ICD-10-CM PDF Format”
3. Select “ICD10CM_FY2015_Full_PDF.zip”
4. Select “FY15_Tabular.PDF”
5. Select Chapter 19 (injury diagnosis codes) or Chapter 20 (external cause codes)

Presenter Disclosures
Holly Hedegaard, MD, MSPH
The following personal financial relationships with commercial interests relevant to this presentation existed during the past 12 months:
No relationships to disclose
General Equivalence Mappings (GEMs)

• A code to code reference dictionary for ICD-9-CM and ICD-10-CM
• Offers possible acceptable translation alternatives
• One ICD-9-CM code can be represented by multiple ICD-10-CM codes and vice versa
• Some codes in ICD-10-CM do not have a comparable code in ICD-9-CM

ICD-10-CM GEMS and MapIT

General Equivalence Mappings (GEMS)
www.cdc.gov/nchs/icd/icd10cm.htm
1. Scroll down to “FY 2016 release of ICD-10-CM”
2. Select “General Equivalence Mapping Files”

MapIT
www.qualityindicators.ahrq.gov/resources/Toolkits.aspx
• Downloadable software tool developed by AHRQ to map ICD-9-CM to ICD-10-CM using the GEMS

Basic Framework for External Cause Matrices

<table>
<thead>
<tr>
<th>Mechanism of Injury</th>
<th>Intent of Injury</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unintentional</td>
</tr>
<tr>
<td></td>
<td>Intentional</td>
</tr>
<tr>
<td></td>
<td>Self-harm</td>
</tr>
<tr>
<td></td>
<td>Assault</td>
</tr>
<tr>
<td></td>
<td>Legal</td>
</tr>
<tr>
<td></td>
<td>Intervention</td>
</tr>
<tr>
<td></td>
<td>War Operations</td>
</tr>
<tr>
<td>Cut/pierce</td>
<td></td>
</tr>
<tr>
<td>Drowning/submersion</td>
<td></td>
</tr>
<tr>
<td>Fall</td>
<td></td>
</tr>
<tr>
<td>Fire/Flame</td>
<td></td>
</tr>
<tr>
<td>Hot object/substance</td>
<td></td>
</tr>
<tr>
<td>Firearm</td>
<td></td>
</tr>
<tr>
<td>Machinery</td>
<td></td>
</tr>
<tr>
<td>Transportation</td>
<td></td>
</tr>
<tr>
<td>etc.</td>
<td></td>
</tr>
</tbody>
</table>

External Cause of Injury Framework

Proposed Framework for Presenting Injury Data using ICD-10-CM External Cause of Injury Codes

ICD-10-CM All but Poisoning Matrix
www.cdc.gov/injury/wisqars/dataandstats.html

ICD-10-CM Poisoning Matrix
www.cdc.gov/injury/wisqars/dataandstats.html

Basic Framework for Injury Diagnosis Matrices

<table>
<thead>
<tr>
<th>Body Region</th>
<th>Nature of Injury</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fracture</td>
</tr>
<tr>
<td></td>
<td>Dislocation</td>
</tr>
<tr>
<td></td>
<td>Internal</td>
</tr>
<tr>
<td></td>
<td>organ</td>
</tr>
<tr>
<td></td>
<td>Open wound</td>
</tr>
<tr>
<td></td>
<td>etc.</td>
</tr>
<tr>
<td>Head/ Neck</td>
<td>TBI</td>
</tr>
<tr>
<td></td>
<td>Other head</td>
</tr>
<tr>
<td></td>
<td>Neck</td>
</tr>
<tr>
<td>Spine/ Upper Back</td>
<td>Spinal cord</td>
</tr>
<tr>
<td></td>
<td>Vertebral column</td>
</tr>
<tr>
<td>Torso</td>
<td>Thorax</td>
</tr>
<tr>
<td></td>
<td>Abdomen</td>
</tr>
<tr>
<td></td>
<td>Pelvis/lower back</td>
</tr>
<tr>
<td>Extremity</td>
<td>Upper extremity</td>
</tr>
<tr>
<td></td>
<td>Lower extremity</td>
</tr>
<tr>
<td></td>
<td>etc.</td>
</tr>
</tbody>
</table>

Special Thanks to Lee Annest

**Injury Diagnosis Framework**

- Will be published as a *National Health Statistics Report* by the CDC/National Center for Health Statistics (NCHS)
- Available on the web by end of year

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**PROPOSED ICD-10-CM Surveillance Definition for Traumatic Brain Injury**

<table>
<thead>
<tr>
<th>ICD-10-CM code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>S02.0, S02.1-</td>
<td>Fracture of skull</td>
</tr>
<tr>
<td>S02.8, S02.91</td>
<td>Fracture of other specified skull and facial bones; Unspecified fracture of skull</td>
</tr>
<tr>
<td>S04.02, S04.03-, S04.04-</td>
<td>Injury of optic chiasm; injury of optic tract and pathways; injury of visual cortex</td>
</tr>
<tr>
<td>S06-</td>
<td>Intracranial injury</td>
</tr>
<tr>
<td>S07.1</td>
<td>Crushing injury of skull</td>
</tr>
<tr>
<td>T74.4</td>
<td>Shaken infant syndrome</td>
</tr>
</tbody>
</table>

*:* indicates any 4th, 5th or 6th character
7th character of A or B for S02.0, S02.1-, S02.8 and S02.91
7th character of A for S04.02, S04.03-, S04.04-, S06-, S07.1 and T74.4

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**Proposed Surveillance Case Definitions**

**Traumatic Brain Injury**

- Collaborative effort between NCHS/NCIPC, completed in 2014
- Applied GEMS to current ICD-9-CM case definition
  - 800.0-801.9, 803.0-804.9, 850.0-854.1, 950.1-950.3, 995.55, 995.01
- Input solicited from other federal agencies
- Input from injury research, surveillance and prevention partners

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**Consensus Methods for Initial Testing and Validation of the ICD-10-CM Injury Diagnosis and External Cause Frameworks**

**Safe States Injury Surveillance Workgroup 9 (ISW9)**

- Participants from CDC, CSTE, SAVIR, State Health Departments
- To assist states in the transition to ICD-10-CM
- To develop analysis methods and data presentation tables for use in testing the ICD-10-CM injury frameworks

For more information, contact the Safe States Alliance at info@safestates.org

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**CDC Surveillance Quality Improvement (SQI) Year 5 project**

- CDC funding to four states (CO, MA, NC, UT)
- Medical record review
- Proposal to dual code injury records in both ICD-9-CM and ICD-10-CM to assess comparability
  - Injury diagnosis
  - External cause
  - Activity

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**ICD-10-CM and Injury Severity Measures**

- NHTSA Request for Information in 2014 to identify interest/need for software to map ICD-10-CM to AIS05
- Work by Mark Zonfrillo and AAAM to map ICD-10-CM to AIS 3+ Severity Injury
- Work by Turner Osler and others to map ICD-10-CM to AIS05
Summary

• Intensive effort to prepare for the transition to ICD-10-CM for injury morbidity data

• Multiple tools and training materials are available
  – Subject to revision after testing and assessment using ICD-10-CM coded data

• More work is needed
  – Additional surveillance definitions, e.g., SCI
  – Definitions for injury indicators
  – Exploration of codes outside the injury chapters

For more information:

Holly Hedegaard, MD, MSPH
National Center for Health Statistics
Office of Analysis and Epidemiology
Injury Statistics Program
301-458-4460
hdh6@cdc.gov