Acute Myocardial Infarction Issue Brief

Definition of Acute and Subsequent Myocardial Infarction in ICD-9 and ICD-10
CONTENT

Disclaimer

I. Introduction

II. Purpose of this Issue Brief

III. Scope

IV. The Definition of Acute Myocardial Infarction
   ▪ ICD-9
   ▪ ICD-10
   ▪ Implications

V. The Definition of Subsequent Myocardial Infarction
   ▪ ICD-9 & Implications
   ▪ ICD-10 & Implications

VI. GEM Maps

VII. Code Aggregation

VIII. Summary

XX. Acknowledgements
Disclaimer
This document is Copyright © 2012 by The Workgroup for Electronic Data interchange (WEDI). It may be freely redistributed in its entirety provided that this copyright notice is not removed. It may not be sold for profit or used in commercial documents without the written permission of the copyright holder. This document is provided “as is” without any express or implied warranty.

While all information in this document is believed to be correct at the time of writing, this document is for educational purposes only and does not purport to provide legal advice. If you require legal advice, you should consult with an attorney. The information provided here is for reference use only and does not constitute the rendering of legal, financial, or other professional advice or recommendations by the Workgroup for Electronic Data Interchange. The listing of an organization does not imply any sort of endorsement and the Workgroup for Electronic Data Interchange takes no responsibility for the products, tools, and Internet sites listed.

The existence of a link or organizational reference in any of the following materials should not be assumed as an endorsement by the Workgroup for Electronic Data Interchange (WEDI), or any of the individual workgroups or sub-workgroups of the WEDI Strategic National Implementation Process (WEDI SNIP).

Document is for Education and Awareness Use Only
I. Introduction

Myocardial Infarction (MI) represents a high volume, high dollar clinical condition with significant impact on patients as well as on the cost of healthcare for the population. Accurate and consistent coding is vitally important to the appropriate processing, analysis, and reimbursement of many healthcare conditions and services such as those related to MI. When correlating ICD-9 to ICD-10 several challenges exist; these challenges include differences in code definition and coding process. These challenges will be listed for consideration in this brief.

II. Purpose of this Issue Brief

The changes to the definitions of acute myocardial infarction and the guidelines for reporting are significant and will result in impacts to documentation, coding and reporting. This can also lead to downstream impacts to quality metrics and pay for performance models. This issue brief will provide an overview of these changes in order to inform the industry so as to make decisions to mitigate any negative impacts.

III. Scope

This issue brief is limited to the definition of acute myocardial infarction from an ICD-9 and ICD-10 perspective. This also includes current and future guidelines for the reporting of myocardial infarctions.
Acute Myocardial Infarction
Definition of Acute Myocardial Infarction in ICD-9 and ICD-10

IV. The Definition of Acute Myocardial Infarction

ICD-9: The concept of “acute myocardial infarction” applies to those codes that begin with “410” as the first three characters where the stated date of onset is less than 8 weeks. This also includes those codes that begin with “414” where the stated date of onset is less than 8 weeks. (See Fig. 1)

<table>
<thead>
<tr>
<th>410</th>
<th>Acute myocardial infarction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>cardiac infarction</td>
</tr>
<tr>
<td></td>
<td>coronary (artery)</td>
</tr>
<tr>
<td></td>
<td>embolism</td>
</tr>
<tr>
<td></td>
<td>occlusion</td>
</tr>
<tr>
<td></td>
<td>rupture</td>
</tr>
<tr>
<td></td>
<td>thrombosis</td>
</tr>
<tr>
<td></td>
<td>infarction of heart, myocardium, or ventricle</td>
</tr>
<tr>
<td></td>
<td>rupture of heart, myocardium, or ventricle</td>
</tr>
<tr>
<td></td>
<td>ST elevation (STEMI) and non-ST elevation (NSTEMI) myocardial infarction</td>
</tr>
<tr>
<td></td>
<td>any condition classifiable to 414.1-414.9 specified as acute or with a stated duration of 8 weeks or less</td>
</tr>
</tbody>
</table>

The following fifth-digit subclassification is for use with category 410:

0 episode of care unspecified
Use when the source document does not contain sufficient information for the assignment of fifth-digit 1 or 2.

1 initial episode of care
Use fifth-digit 1 to designate the first episode of care (regardless of facility site) for a newly diagnosed myocardial infarction. The fifth-digit 1 is assigned regardless of the number of times a patient may be transferred during the initial episode of care.

2 subsequent episode of care
Use fifth-digit 2 to designate an episode of care following the initial episode when the patient is admitted for further observation, evaluation or treatment for a myocardial infarction that has received initial treatment, but is still less than 8 weeks old.

Fig. 1

Implications:

- The time frame for the definition of acute myocardial infarction differs between ICD-9 and ICD-10 so that analysis, quality metrics or algorithms associated with these codes will not capture the same data or process in the same manner. Comparison over the transition period related to “Acute Myocardial Infarction will be problematic.
- The term “Acute” is not used in the long description of codes in ICD-10 so code term based searches of the code descriptions for “Acute Myocardial Infarction” will not return the appropriate codes.

---

1 ICD-9-CM Tabular List of Diseases (FY12). Published on the CMS website. p. 296
ICD-10: The concept of “acute myocardial infarction” applies to those codes that begin with “I21” as the first three characters.

![ICD-10 Tabular List of Diseases and Injuries](image)

As noted this definition includes myocardial infarction with a stated duration of 4 weeks or less from onset. (See Fig. 2)

V. The Definition of Subsequent Myocardial Infarction

ICD-9: The concept of “Subsequent” in ICD-9 refers to a “Subsequent episode of care” for an acute myocardial infarction as defined 8 weeks or less from onset. The use of the term “Subsequent” is quite different than the same term in ICD-10. In addition there is no way to go “Subsequent episode of care” for acute myocardial infarctions defined under 414.-- (Other forms of chronic ischemic heart disease)

Implications:
- The definition of the term “Subsequent” can lead to considerable confusion when redefining rules or metrics based on these codes.

---

*ICD-10-CM TABULAR LIST of DISEASES and INJURIES. Published on the CMS website. 390-392*
Acute Myocardial Infarction
Definition of Acute Myocardial Infarction in ICD-9 and ICD-10

- In some quality measures codes related to “Subsequent” are excluded from the measure. The definition of comparable denominators in these measure will be problematic.
- Those codes that fall into the “414” category may include instances of “Acute Myocardial” infarction, but unlike the “410” codes there is no qualifier to distinguish “subsequent encounter of care”.

ICD-10: The concept of Subsequent in ICD-10 refers to a “Subsequent Myocardial Infarction” or another myocardial infarction that occurs within 4 weeks of a prior myocardial infarction. It includes all codes that start with I22. (See Fig. 3)

---

**Fig. 3**

**ICD-10: CM TABULAR LIST of DISEASES and INJURIES. Published on the CMS website. 392-393**
Implications:
- As noted above it is not clear how a “subsequent episode of care” for an acute myocardial infarction will be coded. Quality measures that look at the use of Beta-blockers for example may not be able to consistently differentiate between an initial vs. a subsequent episode of care.

VI. GEM Maps

Because of the inconsistent definitions between codes, GEM mapping may be confusing. For example, I22.1 (Subsequent ST elevation (STEMI) myocardial infarction of inferior wall) maps to:

- 410.11 (Acute Myocardial Infarction of Other Anterior wall; Initial Episode of Care)
- 410.21 (Acute Myocardial Infarction of Inferolateral wall; Initial Episode of Care)
- 410.31 (Acute Myocardial Infarction of Inferoposterior wall; Initial Episode of Care)
- 410.41 (Acute Myocardial Infarction of Other Inferior wall; Initial Episode of Care)

Implications:
- Based on the strict interpretation of the definition (a subsequent acute myocardial infarction), this is technically a correct mapping, but may be interpreted quite differently by those who equate the definition of “Subsequent”.
- Using GEM maps uni-directionally or bi-directionally to convert between ICD-9 and ICD-10 codes for the purpose of quality or other analytics is likely to result in unintended and unpredictable results.

VII. Code Aggregation

The aggregation of codes to meet some particular intent related to policies, rules and analytic categories poses a number of challenges when looking at Acute Myocardial Infarctions. Consider the following scenario:

- All claims for the initial episode of care for an acute myocardial infarction.
  - (ICD-9) The 5th character “1” or the “410” codes will identify the appropriate claims, however other episodes that meet this criteria would be lost for claim that include “414”.
  - (ICD-10) The definition of the initial episode of care cannot be defined accurately in ICD-10.

---

4 2013 General Equivalence Mappings - Diagnosis Codes and Guide Published on the CMS website. (File Download)
VIII. Summary

- The meaning of “acute MI” does not exist in ICD-10; acute can reference an initial or a subsequent MI, but does not define the time frame of the MI.
- The change in the definition of “acute” from “8 weeks” to “4 weeks” will change the nature of comparing cases over the transition period.
- The meaning of “subsequent” is different between the ICD-9 and ICD-10.
- The complexity of these changes and definitions is likely to result in confusion and inconsistency in coding.
- Comparability and trending of quality metrics and other types of analytic reporting across the transition period will be compromised on several levels.
- The ability to identify initial episodes of care in ICD-10 based on the code alone will not be possible.

Acknowledgements

- Joe Nichols, MD
- Walter G. Suarez, MD
- Mandy Willis, CCS

The co-chairs wish to express their sincerest thanks and appreciation to the members of the Clinical Subworkgroup who participated in the creation of this document.