The Impact of the ICD-9-CM to ICD-10-CM Conversion to Identify Chronic Conditions in Administrative Claims

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INTRODUCTION
On October 1, 2015 the conversion from the 9th version of the International Classification of Diseases (ICD-9-CM) to version 10 (ICD-10-CM) occurred. The ICD-10-CM has more than 70,000 new unique codes compared to approximately 14,000 ICD-9-CM codes. For asthma, there were 14 ICD-9-CM codes associated with multiple ICD-9-CM diagnosis codes.

METHODS
Study Design: Under contract with CMS, NewWave Telecom and Technologies – General Dynamics IT joint venture receives Medicare claim data files which are processed by CMS and are loaded to the CCW database to provide the Chronic Condition data files.

RESULTS
We found no disruption in the receipt of claims after the implementation to ICD-10-CM (Table 1). The CCW Chronic Condition data files, Version 5010, required that all services provided on or after October 1, 2015 utilize ICD-10-CM codes. Among OP and HH claims, slightly fewer claims (~1.4%) were received in the first month after ICD-10-CM implementation. By November and December of 2015, more OP and HH claims were received compared to 2014. The number of DME claims that were received in October and November 2015 were slightly lower than in 2014. However, in December 2015, more DME claims were received than in 2014.

To determine whether the prevalence of conditions was impacted by the conversion to ICD-10-CM, we calculated the prevalence rates of AMI, asthma, and hip/pelvic fractures for the Medicare Fee-for-Service enrolled population for the most recent three years prior to and following the ICD-10-CM conversion.

The prevalence rates for AMI and hip/pelvic fracture were stable in 2015 compared to 2013 and 2014 (Table 3). However, an increased prevalence of 1% was noted in asthma between 2014 and 2015. Examination of the ICD-10-CM diagnosis codes associated with asthma and COPD revealed that the ICD-9-CM codes were added, in accordance with GEM mapping. To ascertain whether the prevalence rates would have appeared stable if ICD-9-CM codes were used, we compared the prevalence of asthma or COPD. An increase in prevalence rates for asthma and/or COPD was still noted.

Table 3. Prevalence rates for AMI, Asthma, and Hip/Pelvic Fracture in 2013, 2014 and 2015 for the Medicare Fee-For-Service enrolled population.

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<thead>
<tr>
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<tbody>
<tr>
<td>AMI</td>
<td>0.9</td>
<td>0.9</td>
<td>0.9</td>
</tr>
<tr>
<td>Asthma</td>
<td>5.2</td>
<td>5.2</td>
<td>6.1</td>
</tr>
<tr>
<td>Asthma/COPD</td>
<td>14.3</td>
<td>14.3</td>
<td>16.7</td>
</tr>
<tr>
<td>Hip/Pelvic Fracture</td>
<td>0.8</td>
<td>0.8</td>
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CONCLUSIONS
No disruption in receiving claims in the CCW database was seen with the conversion from ICD-9-CM to ICD-10-CM. In the first month after implementation of ICD-10-CM, fewer claims were processed than the same time period in 2014 for all claim types. These differences were narrowed over time and in most instances, more claims were received in 2015 compared to 2014.

The ICD-10-CM diagnosis codes provide increased specificity of clinical conditions. The mapping between ICD-9-CM and ICD-10-CM codes associated with asthma and COPD was examined. The number of codes associated with a condition did not necessarily correlate with the prevalence rate. The condition examined with the largest increase in number of unique diagnosis codes in ICD-10-CM compared to ICD-9-CM was hip/pelvic fractures, with over 10 times the number of codes associated ICD-10-CM. The increase in diagnosis codes was associated with the location, type and healing associated with a fracture. Although not conceptually the definition of the condition, the prevalence rates for AMI and hip/pelvic fracture remained stable after the conversion from ICD-9-CM to ICD-10-CM. However, an increase in asthma was detected. Although we suspected that the increase in asthma rates could be attributed to the addition of ICD-10-CM diagnosis codes associated with asthma and/or COPD (Table 3), we could not disprove the potential impact of the new coding system on claims volume.

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IMPLICATIONS
Researchers using the GEMS to map their ICD-9-CM diagnosis codes to ICD-10-CM codes will need to validate their ICD-10-CM codes to identify the disease state of interest. Researchers should use caution when interpreting differences in prevalence rates after the ICD-10-CM conversion.

The material was developed under contract with the Centers for Medicare & Medicaid Services.

The algorithm that includes all ICD-9-CM and ICD-10-CM diagnosis codes used to identify the ICD-9 chronic conditions can be found at: [https://www.cms.gov/]

To obtain the CCW Chronic Condition data files, contact ResDAC at http://www.resdac.org/