Crosswalk Options for Legacy Systems: Implementing Near-Term Tactical Solutions for ICD-10

By Vijaya Kumar Bhuttar

Payers that are not ready to migrate from legacy systems are looking at tactical solutions for making their existing systems ICD-10 compliant in the near term. Most solutions involve a crosswalk between old and new code sets, created from four basic options.

For a long time, legacy benefit systems have been the IT backbone of large health insurance companies. Mainframe legacy applications have provided the scalability and reliability payers need to process large claim volumes. However, high maintenance costs, inflexibility to market changes, and a shortage of skilled resources have pushed some payers to look for more efficient alternatives in recent years.

As more payers attempt to migrate to contemporary, off-the-shelf claim products to sustain increased competition and the cost pressures of healthcare reform, a number of payers are viewing the required compliance with ICD-10-CM/PCS as the perfect opportunity to begin a proper migration initiative.

At the outset, it may appear that the inflexibility of the legacy system to adapt to ICD-10 is the primary driver for such a migration. Thus, migration may be considered a viable solution only when implementing ICD-10 in the legacy system is a cost-prohibitive proposition. However, this perspective is narrow and one dimensional since a holistic evaluation shows that the present is the best possible time for companies to initiate migration from legacy systems to modern claim products.

Migrating from a legacy system is a complicated and time-consuming process that can take from two to five years to complete depending on the complexity of the existing system and the membership base. Such a process means that the legacy platform must be made ICD-10 compliant for anywhere between a few months to a couple of years. In some cases, where the compliance will be a close shave and the migration will be completed close to the ICD-10 deadline, it is prudent to make the legacy system ICD-10 compliant.

To overcome these challenges and ensure a successful ICD-10 migration, payers need to choose a tactical approach that makes legacy systems ICD-10 compliant for a short period of time. Such an approach must balance the incurred costs and possible risks of not making these systems compliant.

Drivers for a Tactical Solution

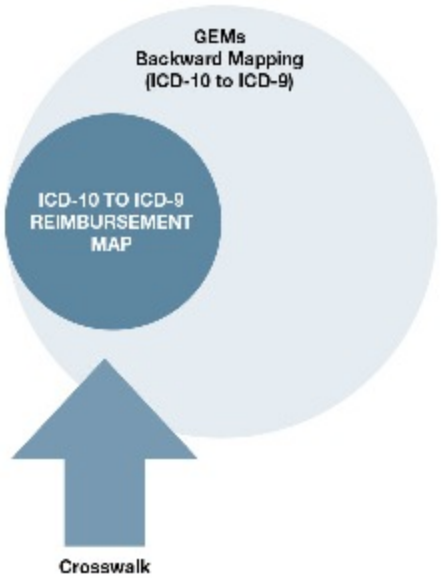
Key drivers for a tactical solution include:

- **Investment**. It may be more economical to select an off-the-shelf product due to the significant investments needed for migration.
- **Time frame**. It may be difficult to complete a comprehensive remediation of legacy systems in the time remaining.
- **Risk**. There is a high level of risk in implementing large, enterprise-wide change.
- **Cost**. It may be cost-prohibitive to test for risk mitigation.

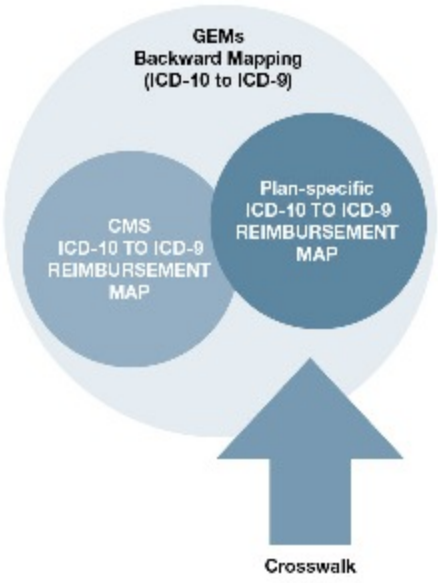
For a successful and timely migration, ICD-10 must be implemented as a strategic business transformation program at the organization level. The tactical approach is optimum for inefficient legacy systems that are scheduled to be retired in the coming few years. However, organizations need to first focus on a detailed assessment and cost-benefit analysis of the complete process.

Crosswalk Options

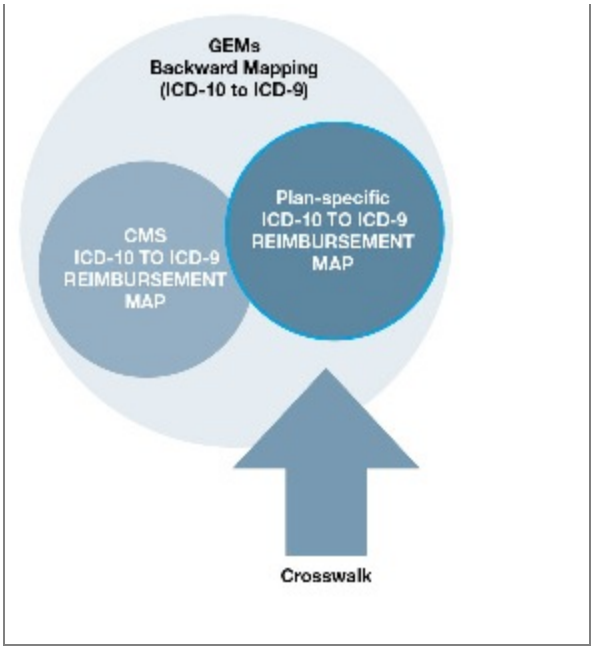
CMS Reimbursement Mapping



Plan-Specific Static Reimbursement Mapping



Plan-Specific Dynamic Reimbursement Mapping



Tactical Solution Challenges

A tactical ICD-10 solution involves a crosswalk. Although several definitions exist, in this article the term "crosswalk" defines a technical component that can convert an ICD-10 code to ICD-9 by employing the mappings provided by the Centers for Medicare and Medicaid Services or plan-specific (or "applied") custom mappings.

CMS has developed two types of mappings to assist with the ICD-10 implementation.

The General Equivalence Mappings (GEMs) are based on clinical equivalency between codes. They are two mappings: forward mapping from ICD-9 to ICD-10 and backward mapping from ICD-10 to ICD-9. Backward mapping is often perceived as simple and straightforward, while forward mapping is seen as a complex process. However, there are challenges with backward mapping. For example, approximately 4,000 ICD-10 diagnosis codes and 3,000 ICD-10 procedure codes cannot be mapped backward to unique ICD-9 codes.

Reimbursement mapping is a subset of backward mapping that refines backward mapping from a reimbursement standpoint. The reimbursement mapping provided by CMS is able to significantly resolve the reimbursement shortcomings of the GEMs backward mapping. However, reimbursement mapping that is based on limited claims data used by CMS may be erroneous, because it could be a poor representation of the claims data of commercial health plans.

Backward and reimbursement mappings are not able to provide significant straightforward deterministic mappings of several ICD-10 codes. Organizations using these mapping options face a significant risk of incorrect claims processing. If such omitted codes represent a large volume of claims or a significant sum of claims paid in the past few years to a specific payer, a large number of claims could fall out of the auto-adjudication process.

The above challenges reflect the inflexibility of legacy systems and the complexity of implementing a crosswalk solution. While static mappings can be introduced as a straightforward database table, more complex mappings may require integration using Web and software services.

Mapping Options for Building Crosswalks

At a broad level, crosswalks may be created through four mapping options. Depending on the legacy platform, different options or a hybrid of options can be used within a payer organization.

Option	Mapping Option	Success Rate	Implementation Cost	Conversion Accuracy
1	GEMs backward mapping	95%	Low	High
2	CMS reimbursement mapping	>99%	Low	Medium
3	Plan-specific static reimbursement mapping	>99%*	Medium	Medium to High
4	Plan-specific dynamic reimbursement mapping	~100%*	High	High

*Success rate will vary based on the past claims data.

Crosswalk Options

At a broad level, crosswalks may be created through four mapping options. Depending on the legacy platform, different options or a hybrid of options can be used within a payer organization.

1. GEMs Backward Mapping

GEMs backward mapping is based on clinical equivalency between ICD-10 and ICD-9 codes. About 95 percent of diagnosis codes and 97 percent of procedure codes are either exact or approximate matches in backward mapping.[1] An analysis and profile of an organization's past claims data can indicate whether a majority of claims fall within the successful range of backward mapping. In such cases, this mapping can be implemented as a simple crosswalk table at entry and exit points of the legacy system.

A certain percentage of claims cannot successfully map from ICD-10 to ICD-9. Such claims can be sent to a processor, who can review them, seek additional information from the provider's office (if needed), and assign an appropriate ICD-9 code for processing the claim.

2. CMS Reimbursement Mapping

The CMS reimbursement mapping is a subset of GEMs backward mapping.

CMS developed reimbursement mapping to address the code conversion rate of backward mapping. The mapping selects the dominant ICD-9 code for a given ICD-10 code that mapped to multiple ICD-9 codes. The dominant code (based on higher frequency of occurrence in claims) was selected by reviewing approximately 11 million Medical Provider Analysis and Review (or MedPAR) records and four million payer records from the California Office of Statewide Health Planning and Development.[2]

This option does not resolve mapping for approximately 500 procedure and 500 diagnosis codes. Further, the claims based on which the reimbursement mapping was developed may not accurately represent the distribution of claims in a commercial payer organization.

Profiling and analysis of past claims can provide important information regarding the suitability of a crosswalk created from backward mapping for a specific legacy system. The reduction in auto-adjudication as a result of unmapped ICD-10 codes

must be factored into the total cost of the solution.

3. Plan-Specific Static Reimbursement Mapping

Payers may choose a plan-specific (or applied) static reimbursement mapping in cases where the claims used to develop CMS reimbursement mapping do not accurately represent their own claims volume.

The option enables payers to develop a customized static reimbursement mapping solution within the scope of GEMs backward mapping. It may or may not have an overlap with CMS reimbursement mapping.

A plan-specific static reimbursement map must be selected based on extensive analysis of past claims data within the plan. The analysis used can be similar to that conducted by CMS in developing reimbursement mapping. Although developing this type of mapping can be expensive, it integrates easily with legacy systems using a simple crosswalk table.

Since this option is to be developed within the scope of the GEMs, the payer will require specific crosswalk records for approximately 7,000 ICD-10 codes. A majority of the complex ICD-10 to ICD-9 mappings exist within the injuries and poisoning sections of the ICD-9 code set. Hence, a quick profiling of past claims data may point to the financial exposure and degree of effort involved in developing mappings for these approximately 7,000 ICD-10 codes.

However, plan-specific static mapping may still fail to map a small number of codes, thereby causing a drop in auto-adjudication.

4. Plan-Specific Dynamic Reimbursement Mapping

The fourth crosswalk option relies on the transaction context for mapping an ICD-10 code to ICD-9. Such a mapping may or may not overlap with the CMS reimbursement mapping and, in specific situations, may even be external to GEMs backward mapping.

A crosswalk built using dynamic mapping requires a robust rules engine that allows several transaction functions, such as evaluation of data elements present in X12 claim files, eligibility inquiry transaction, and any other relevant transaction formats the legacy system processes. In cases where the tactical solution is required for a few months to a couple of years it is acceptable to employ coding rules that depend on a low level of member, provider, or claim data elements.

Dynamic mapping can increase the conversion success rate to nearly 100 percent while significantly reducing legal risks due to incorrect conversion of codes.

Since there is a significant cost for implementing such dynamic mapping, payers should consider this option only when the three previously described options are not suited to the organization's needs.

Choosing an Option

ICD-10 must be implemented as a business transformation program in all health plans. Legacy systems that are scheduled to be redundant in the months following the compliance deadline are perfect cases for a tactical solution. Crosswalks can be used as a means to achieve compliance for such systems.

The architectural inflexibility of legacy systems may require middleware to integrate the crosswalk. The crosswalk may also impact response times in online systems and the batch window for claims processing. Payers should assess these impacts thoroughly before selecting an option.

Profiling and analysis of past claims data can indicate which solution is most suitable for the organization's needs. Because the conversion rate and accuracy of the crosswalk can adversely impact auto-adjudication and accuracy of claim payments, organizations must carry out detailed assessments and cost-benefit analyses before selecting a specific option for implementation.

Note: Because CMS revises the GEMs periodically, the numbers quoted in this article might be dated; however, any variance in numbers will have little impact on the solution options described.

Notes

1. Centers for Medicare and Medicaid Services. "ICD-10-CM/PCS to ICD-9-CM Reimbursement Mappings, 2009 Version: Documentation and User's Guide." www.cms.gov/ICD10/downloads/reimb_map_guide_2009.pdf.
2. Ibid.

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