

ICD-10

A MASTER DATA CHALLENGE

ICD -10 is mandated at a difficult time of many changes.

By John Wollman

Savvy healthcare organizations are already starting to remediate for ICD-10, well ahead of the mandated Oct. 1, 2013 deadline for implementation of the new coding system. In the meantime, they also have to meet the Jan. 1, 2012 deadline for HIPAA 5010, as well as new requirements introduced by the Patient Protection and Affordable Care Act and meaningful-use requirements established by the HITECH Act. That's a huge amount of business process adaptation and IT work to be handled in a short period of time. Many payers and providers don't have the resources or the time to get it all done.

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For ICD-10 in particular, adopting a master data management (MDM) approach can resolve several challenges with implementation of this new code set by establishing a single, centralized, controlled point of

reference for disease/procedure codes, rules, mappings and translations that can be applied uniformly to all applications and processes.

ICD-10 complexities inhibit adoption

ICD-10 vastly increases the number and complexity of disease and procedure codes over ICD-9, the previous standard enacted in 1977. ICD-10 contains 141,060 codes, a whopping 712 percent increase over the 19,817 codes in ICD-9. Given the dramatic increase in codes from ICD-9 to ICD-10, one might expect that there would be a one-to-many relationship between ICD-9 and ICD-10, which would make it fairly straightforward to link across the code sets. However, the relationship is many to many, as illustrated within diabetes mellitus.

As expected, one ICD-9 code can relate to many ICD-10 codes (see Figure 1).

But, unexpectedly, one ICD-10 code can also relate to many ICD-9 codes (see Figure 2).

ICD-9 Code	ICD-9 Description	ICD-10 Code	ICD-10 Description
249.50	Secondary diabetes mellitus with ophthalmic manifestations, not stated as uncontrolled, or unspecified	E09311:	Drug or chemical induced diabetes mellitus with unspecified diabetic retinopathy with macular edema
		E09319:	Drug or chemical induced diabetes mellitus with unspecified diabetic retinopathy without macular edema
		E09321:	Drug or chemical induced diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema
		E09329:	Drug or chemical induced diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema
		E09331:	Drug or chemical induced diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema
		E09339:	Drug or chemical induced diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema
		E09341:	Drug or chemical induced diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema
		E09349:	Drug or chemical induced diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema
		E09351:	Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy with macular edema
		E09359:	Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy without macular edema
		E0936:	Drug or chemical induced diabetes mellitus with diabetic cataract
		E0939:	Drug or chemical induced diabetes mellitus with other diabetic ophthalmic complication

Figure 1

ICD-10 Code	ICD-10 Description	ICD-9 Code	I-9 Description
E10311:	Type 1 diabetes mellitus with unspecified diabetic retinopathy with macular edema	250.51:	Diabetes with ophthalmic manifestations, type 1 [juvenile type], not stated as uncontrolled
		16201:	Background diabetic retinopathy
		36207:	Diabetic macular edema

Figure 2

To help facilitate care and commerce, the government has invested in providing mappings between ICD-9 and ICD-10 and vice-versa. There are two such mappings endorsed by CMS: the GEMS maps (for both ICD-9 to ICD-10 and ICD-10 to ICD-9) and the reimbursement maps (for ICD-10 to ICD-9 only). GEMS, which stands for “general equivalency maps,” establishes links among codes that are generally equivalent in each code set. The reimbursement maps were created after the GEMS maps and are more specific, identifying the top candidate mappings from within GEMS.

Some statistics may illuminate the challenges inherent in linking across the code sets.

- In the GEMS maps for procedures from ICD-9 to ICD-10:
- There are 255 instances where a single ICD-9 code can map to more than 50 ICD-10 codes.
- There are 119 instances where a single ICD-9 code can map to more than 100 ICD-10 codes.

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In the GEMS maps from ICD-10 to ICD-9:

- There are 7,239 instances in the mappings for diseases where a single ICD-10 code can map to more than one ICD-9 code.
- There are 7,241 instances in the mappings for procedures where a single ICD-10 code can map to more than one ICD-9 code.

In the reimbursement maps from ICD-10 to ICD-9:

- There are 3,684 instances in the mappings for diseases where a single ICD-10 code can map to more than one ICD-9 code.
- There are 2,135 instances in the mappings for procedures where a single ICD-10 code can map to more than one ICD-9 code.

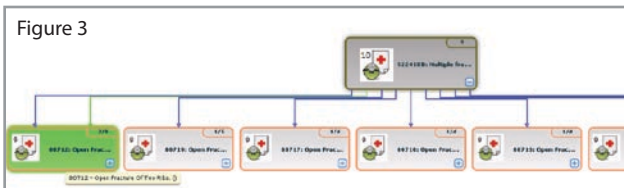
It's clear that the depth and breadth of ICD-10 and the increased specificity of diseases and procedures create many opportunities for payers and providers to promote better health while constraining costs. Yet the many-to-many nature of the relationships makes it challenging for healthcare payers and providers to:

- Process transactions;
- Analyze their businesses; and
- Maintain compliance with regulatory requirements.

Different rules for different purposes

While CMS has tried to create clarity with GEMS and reimbursement mappings, the results aren't encouraging – GEMS ICD-10 to ICD-9 mappings have 5.1 percent exact matches for diseases and only .10 percent exact matches for procedures; GEMS ICD-9 to ICD-10 mappings have 20.1 percent exact matches for diseases and 1.2 percent exact matches for procedures. With so few exact matches, organizations will need to define their own business rules for specific trading partners and business functions that override the government mappings.

For example, consider the ICD-10 code S2241XB: Multiple fractures of ribs, right side, initial encounter for open fracture.

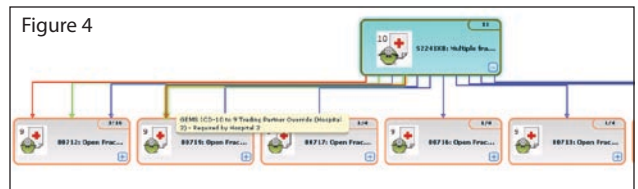


According to GEMS mappings (represented by blue lines in **Figure 3**) and reimbursement mappings (represented by the green lines), this ICD-10 code can map to:

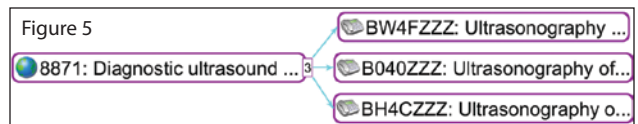
- 807.12: Open Fracture of Two Ribs
- 807.13: Open Fracture of Three Ribs
- 807.14: Open Fracture of Four Ribs
- 807.15: Open Fracture of Five Ribs
- 807.16: Open Fracture of Six Ribs
- 807.17: Open Fracture of Seven Ribs
- 807.18: Open Fracture of Eight or More Ribs

- 807.19: Open Fracture Of Multiple Ribs Unspecified

The reimbursement map entry for this ICD-10 code is to 807.12, Open Fracture of Two Ribs. Consider a situation where a few trading partners are dominant in a given market and may be strong enough to dictate policy. For example, hospital A might dictate to payer A that the proper mapping for them is to 807.19 (unspecified ribs fractured) and hospital B might dictate to payer A that the proper mapping for them is 807.12. In this situation, an organization needs to be able to override the government mappings, as represented by the red lines in **Figure 4**.



Additionally, the mappings might be overridden differently by business process or function. For example, consider the ICD-9 code 88.71: Diagnostic ultrasound of head and neck.



According to GEMS (represented by light blue lines in **Figure 5**), this ICD-9 code can map to:

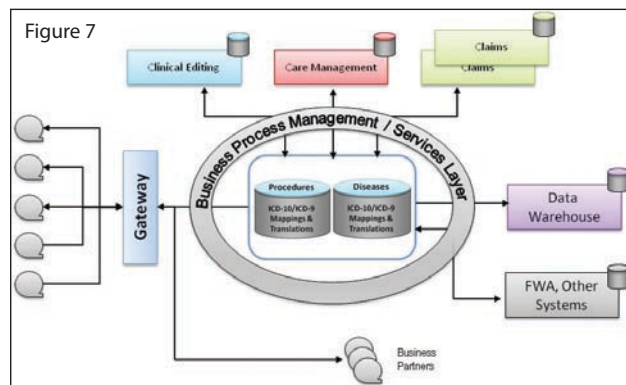
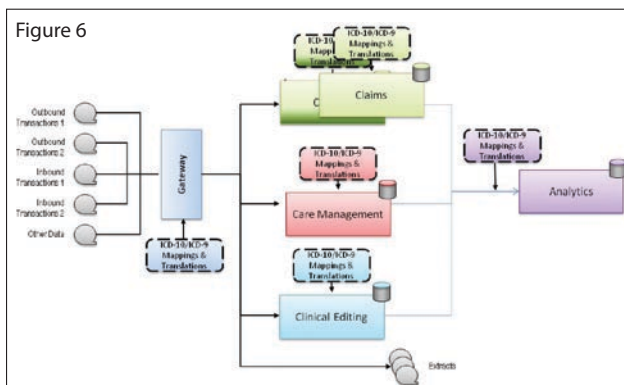
- ICD-10 BW4FZZZ: Ultrasonography of Neck
- ICD-10 B040ZZZ: Ultrasonography of Brain
- ICD-10 BH4CZZZ: Ultrasonography of Head and Neck

For financial purposes, assuming that there is significant differentiation in cost and reimbursement between an ultrasound of the brain and an ultrasound of the neck, the default mapping would likely be to ICD-10 B040ZZZ. However, for clinical purposes, the default mapping might be to the more inclusive ICD-10 BH4CZZZ. Other business or analytic purposes might map differently as well.

Software vendor crosswalk variations

Independent packaged software vendors (ISVs) will have different offerings and divergent approaches to crosswalking; some may support sophisticated rules and others won't. Either way, if medical systems, claims systems and financial systems house divergent rules, things will get messy in a hurry.

Consider a typical payer organization, payer A, with two claims systems (a legacy system from vendor A and a modern system from vendor B), a care management system from vendor C, a clinical editing/fraud waste and abuse system from vendor D, and an EDI gateway from vendor E. Each vendor will need to provide some way to crosswalk ICD-9 to ICD-10 and vice versa (for dual periods, migrations, analytics, etc.) as depicted in **Figure 6**.



Any business rules for mappings would need to be entered and stored in at least five systems, plus any analytics systems that source data from the applications. With 252,752 GEMS mappings, 148,885 reimbursement mappings, and 162,685 ICD-9/ICD-10 codes to manage (564,322 records in total) and potentially tens of thousands of overrides in addition to the GEMS and reimbursement maps, the potential for errors and rework is huge.

Trending and analytics with historical data

Most payers and providers require at least three years of historical data for trending and analysis purposes. On Sept. 30, 2013, all of this history will be encoded in ICD-9 nomenclature. On the following day and going forward, the “neo history” will start to be encoded in ICD-10. Any type of trending will either require a migration of all of the history to ICD-10 or some mechanism for stepping up ICD-9 codes to ICD-10 or stepping back ICD-10 codes to ICD-9 for analysis (and maybe both). Migrating or stepping up from ICD-9 to ICD-10 is non-trivial and will require a standard, business rule-driven approach to avoid really skewed analytics.

The solution: master data management

A master data management approach will resolve many of the aforementioned challenges, both conceptually and practically. The MDM Institute defines master data management as an “authoritative, reliable foundation for data used across many applications and constituencies with the goal to provide a single view of the truth no matter where it lies.”

Applied to ICD-10, a master data management approach would provide a central, managed storage and access point for processes and systems that need to consume ICD-9 or ICD-10 codes, mappings and translations (GEMS, reimbursement, overrides and any other desired mappings or hierarchies). **Figure 7** illustrates how the fictional (but realistic) payer A ecosystem could look with an MDM solution providing a centralized storage point for disease and procedure codes and mappings, accessible via a business process management/services layer. In this context, a single set of business rules, mappings and translations can be applied uniformly to all processes and supporting applications.

The benefits of implementing a master data management approach are widespread:

- Applies consistent business rules uniformly to all processes and supporting applications without having to maintain the rules in multiple places with redundant maintenance processes.
- Facilitates consistency in approach and rules when major applications are sourced from multiple software vendors and integrated with homegrown applications.
- Lets firms select which systems to remediate without sacrificing compliance or analytic excellence.
- Supports standard CMS mappings (GEMS and reimbursement), but permits the organization to override or extend the standard mappings based upon customer/trading partner, business process or function.
- Makes it easy to update systems with future changes in mappings (ICD-11 or other future code sets) or additional value-added mappings (diseases to procedures or DRG mappings).
- Promotes analytic excellence by ensuring consistent results when transactions across multiple systems are aggregated for analysis.

Conclusion

Healthcare organizations burdened with meaningful use, healthcare reform and HIPAA 5010 requirements may lack the time, resources and budget to remediate all of their systems to ICD-10 by the Oct. 1, 2013 deadline. The common approach to implementation – allowing vendors to remediate core systems while using crosswalks for in-house, legacy systems – is rife with challenges. These problems include divergent approaches to crosswalking, difficulties in obtaining meaningful analytics with data in ICD-9 and/or ICD-10 codes, and the inability to deal with overrides and exceptions to the standard government mappings.

A master data management approach solves these challenges by centralizing and controlling rules, mappings and translations that can be applied uniformly to all applications. This facilitates a consistent approach, enables selective remediation without sacrificing best practices, allows for overrides and can be easily updated with future mapping changes.

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