Preparing and Implementing a Comprehensive ICD-10 Testing Strategy

Executive Summary

The move from ICD-9 to ICD-10 promises long-term benefits in efficiency and accuracy, but it also poses a staggeringly complex remediation challenge. This new version of the International Classification of Diseases involves a four-fold leap in the diagnostic codes and a 22-fold leap in the procedure codes used in every part of the clinical and business value chain. While this will eventually help improve care and drive efficiencies, the complexity and breadth of this shift requires organizations to begin remediation and testing now, in close cooperation with business stakeholders, to ensure compliance by the proposed Oct. 1, 2013 deadline.

Effective ICD-10 testing must focus not just on technical requirements but also on business objectives, such as clinical equivalency, benefit neutrality, financial integrity and operational stability. The test plan should take a risk-based approach to prioritizing testing of the most critical functions and scenarios. It should take into account internal constraints — such as competition for funding — as well as external constraints, such as delays in the availability of ICD-10-compliant products from vendors. Because each organization has its own mix of applications with unique dependencies and process flows, ICD-10 testing requires each healthcare payer to properly schedule its unique sequence of unit and end-to-end testing.

Healthcare payers must also coordinate ICD-10 testing with the ongoing QA of other enterprise applications. Finally, there is the challenge of creating accurate test data for an ICD-10 application environment that does not yet exist. This requires not only tools but also an analytical approach and method that depends on human input and decision-making.

This white paper describes a testing strategy that, if healthcare organizations begin now, can help ensure compliance without endangering critical business operations.

ICD-10 Remediation

ICD-10 will replace ICD-9 with a fundamental shift of how treatment and conditions are described. Its objective is to provide more precise descriptions of diagnoses and treatments and thus enable more accurate payments, better tracking of treatment results and more efficient claim coding and productivity. To achieve this improved granularity, the number of diagnosis codes will increase from about 14,000 to 68,000, with procedure codes increasing from about 4,000 to 87,000.

Because of the expansion in the code base and the near-simultaneous adoption of the Version 5010 transaction standard, this migration will have a significant impact on people, processes, partners and technology, both within and across healthcare enterprises (see Figure 1). Redefining

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rules and policies concerning business processes will impact business trend analysis reporting, claims payment and processing decisions, along with analytical systems used for claims adjudication, reimbursement, benefits administration, referral and authorization processes and quality measurement.

Business impacts include changes in validation logic, retention of original code and changes to technology. Because of these challenges, experts predict the transition to ICD-10 will have a greater impact on payers than the implementation of HIPAA 5010 and the Y2K remediation effort, combined.

Because ICD-10 codes are not an exact one-to-one match with ICD-9, approximations and mismatches will affect operations. The U.S. Department of Health and Human Services predicts that claim errors will rise to between 6% and 10% of all claims, up from an annual 3% under ICD-9.[1]

Operational stability will be further challenged for the many payers with legacy systems that will need to implement additional manual processes to comply. Many payers will also need to make changes to their IT infrastructure either for compliance purposes or to position themselves to take advantage of the more detailed information available under ICD-10.

There are four overarching business objectives of ICD-10 remediation and testing, which must be central to each organization's path through the process:

- **Clinical equivalency:** This is achieved when the use of either the ICD-9 or equivalent ICD-10 codes define the same characteristics of patient care, and the suggested outcomes meet medical necessity.
- **Benefit neutrality:** This means that the use of ICD-9 or the equivalent ICD-10 codes result in the same member coverage, with no increase in member premiums or out-of-pocket expense.
- **Financial integrity:** This is achieved when the use of either set of codes results in the payment of appropriate benefits by the insurer and the appropriate financial contribution by the recipient.
- **Operational stability:** This is achieved when critical accuracy measures such as rates of auto-adjudication and claims payment accuracy are maintained at optimum levels under either the old or new codes.

Path to Remediation

The first step toward remediation is to assess the impacts that ICD-10 will have on people, processes, partners and application portfolios. This analysis should extend to the impact categorized by ICD-based rules and the associated processes, codes, volume and functions such as payments and benefits applications.

ICD-10 Testing: What's Different

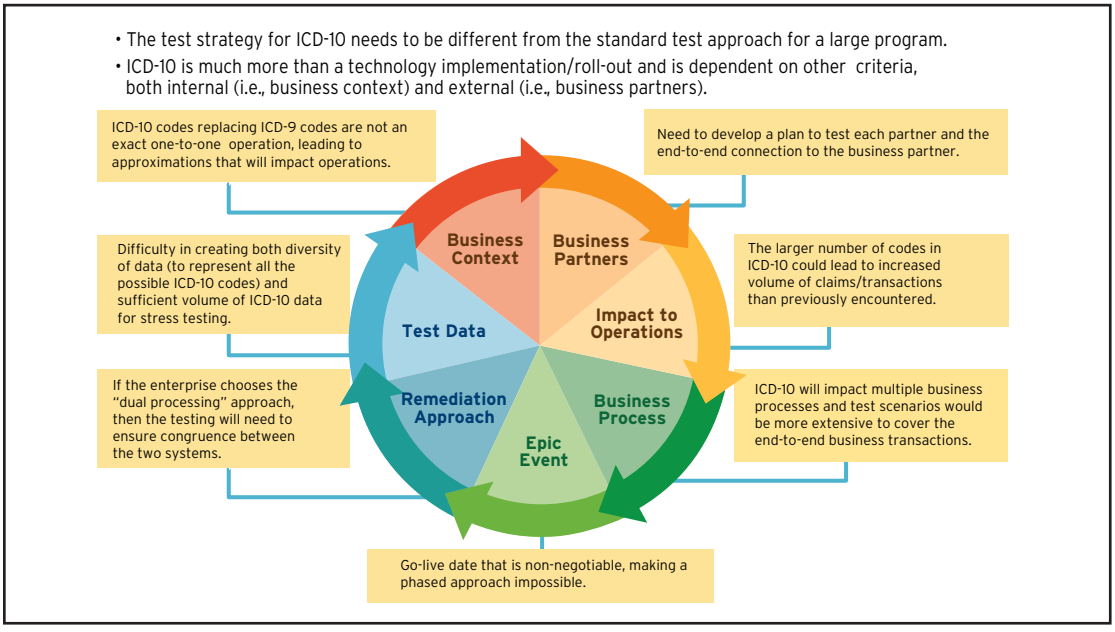

Figure 1

Remediation itself begins with choosing a remediation option, with the standard choices being direct utilization, dual utilization and crosswalk. The "direct" option involves remediating or replacing systems to make them completely ICD-10 compliant. Dual utilization allows the processing of both ICD-9 and ICD-10. Direct or dual utilization of ICD-10 is the desired end state of all payers regardless of their initial choice, since it will require the minimal amount of manual intervention, be supported post-2015 and allow the payer to realize the benefits of the enhanced ICD-10 data.

The "crosswalk" option involves creating maps to convert data from ICD-9 to ICD-10, or vice versa, and is used for legacy systems that are either too difficult or too expensive to remediate and are targeted for sun-setting in the near future. One drawback is that the use of crosswalks is only acceptable until 2015, when all systems must be fully ICD-10 compliant (see Figure 2). Another is that crosswalks will fail to resolve issues around the "downstream" reporting of medical information, such as to medical management systems, or to resolve questions around the use of ICD-10 codes in pricing and contracting.

Whichever approach an organization takes, it is essential to involve business partners to ensure those doing the remediation and testing understand how ICD codes are used by various processes and applications within the organization and with business partners. This business perspective is especially critical given the wide variety of scenarios involved, and the need to assure clinical equivalency, benefit neutrality, financial integrity and operational stability.

The next step is to develop the business requirements, technical requirements and use cases for the macro processes affected by the transition. Understanding and prioritizing these use cases also requires close cooperation among the business, IT and testing functions. The fact that ICD codes affect all clinical and business processes, as well as the number of potential use cases, means that an unsuccessful transition may have serious financial and operational implications. Comprehensive ICD-10 testing, strategy, planning and execution are critical to meeting these requirements and mitigating potential threats to the core of the business.

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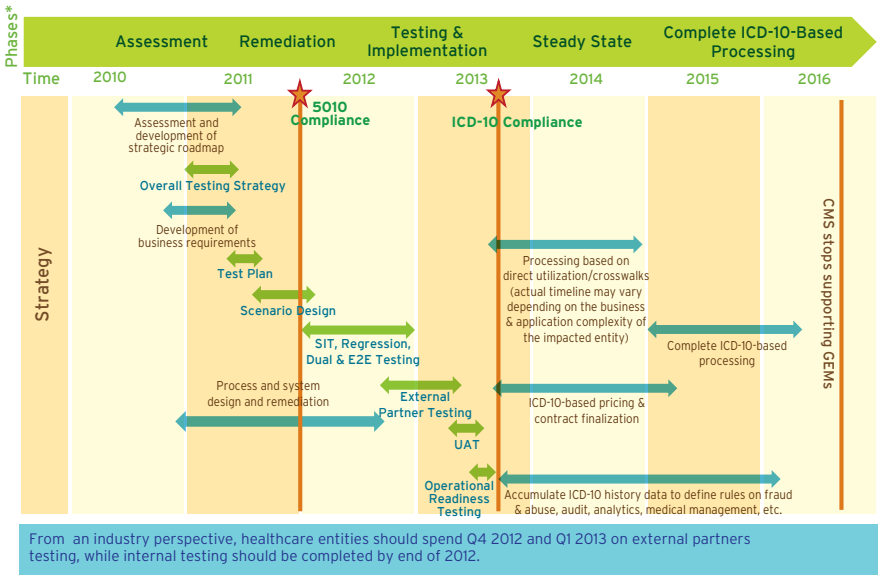
Timelines for ICD-10 Implementation and Testing



* Timeline is based on current CMS compliance deadline of Oct. 2013.

Figure 2

How Testing Meets the Challenge

Testing plays an especially important role in ICD-10 remediation because of the breadth and depth of how the codes are used in both clinical and business processes, as well as the need to ensure the transition does not harm clinical decisions, financial or operational processes.

Because very few organizations will be able to test all scenarios, they will need to turn to risk-based testing to prioritize which scenarios are most critical.

However, because of the unique requirements of ICD-10 remediation, standard system testing lifecycle models will not suffice. Because very few organizations will be able to test all scenarios, they will need to turn to risk-based testing to prioritize which scenarios are most critical. Another unique challenge is creating test data, as the central component of that data (the diagnoses codes) is being changed as part of the transition and cannot be simply converted from ICD-9 based claims.

The first step is creating a clear test strategy and detailed test plan. This plan must go beyond testing technical and functional application requirements, to include outcome-based testing of business scenarios and macro processes such as customer service, customer enrollment and provider management. This will ensure that the defined goals are met at the business, financial, benefit, clinical and operational levels. Performance testing is also very important, as the larger number of codes and information in ICD-10 could lead to a longer processing cycle time.

The next step is the development of business scenarios that represent the ICD-related processes that generate the highest volume of transactions and processes and thus could have the greatest financial impact on the payer organization. This domain-intensive, prioritized testing requires involvement from domain experts who have deep knowledge about how ICD-10 will impact their particular business, and ensures the most critical scenarios and processes are tested first.

Next, the scenarios are executed through end-to-end testing that validates the full execution of a business process with a business partner. This testing should ensure that all of the payer's IT systems, as well as the external trading partner's systems, are integrated, interoperable and ready to accept and process the new codes and formats. It should validate medical policies, ICD-10-remediated business processes, payment policies, claims adjudication rules and edits, technology platforms, databases and applications to ensure successful integration and interfacing among clearinghouses, providers, payers and other healthcare entities.

System performance testing and tuning will ensure that both applications and their associated databases can accommodate volume changes in areas such as claims adjudication, billing and customer/provider services. Financial integrity testing will ensure that the payer or provider is not underpaid or overpaid due to the use of ICD-10 codes. Benefit neutrality testing ensures that the ICD-10 implementation will not result in either over- or under-usage of benefits within any particular LOB/product combination, including within medical policies.

Testing Requirements

The design of the test environment, test data, test strategy, test scenarios and test execution should be built around the aim of returning to "business as usual" after the implementation of the ICD-10 codes.

The creation of the test environment begins with identifying the hardware and software requirements for all relevant applications, as well as which existing test environments can be reused for ICD-10 testing, such as those used for enterprise system and Version 5010 compliance.

It is also critical to understand how the current test environment will be impacted by ICD-10 enterprise testing. This is especially challenging in the case of ICD-10 because, in a regular test cycle, an organization maintains multiple test environments to run various scenarios. Since under ICD-10 the scenarios involve all core systems, it is much more difficult to create dedicated test environments.

Because of the hard deadline, a phased approach to testing and implementation is not possible. All forms of testing, from unit to end-to-end testing, must be completed for the most critical processes by the "go-live" date. This, again, increases the importance of prioritizing which scenarios and processes to test first, and the need to involve business partners in identifying and aligning them.

Business Objectives for ICD-10 Testing

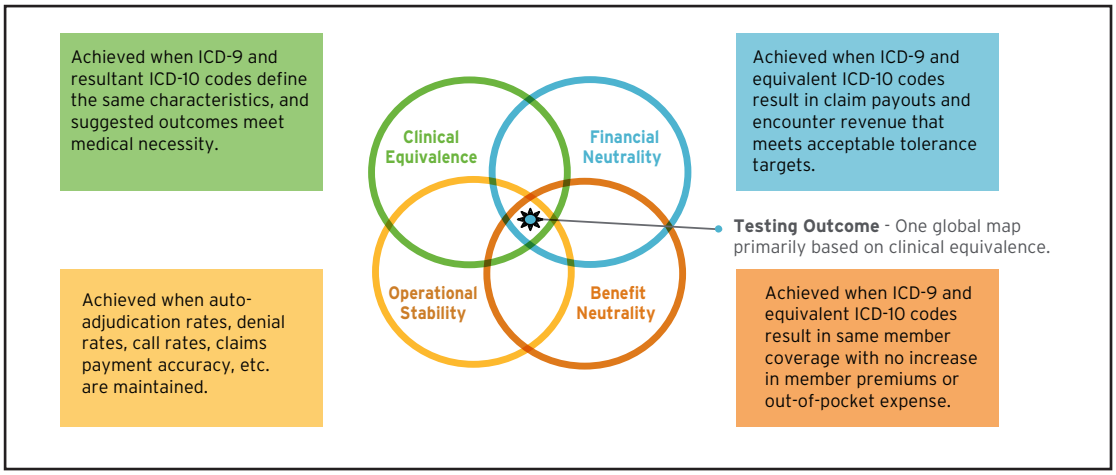


Figure 3

Creating test data is another unusual challenge because it requires a wide variety and sufficient volume of ICD-10-based data to perform testing on a wide variety of processes. The generation and management of a high volume of contextual test data may require direct coding of clinical data, in addition to using converted historical claims transactions. While automated tools can help, an analytical approach that includes human input and decision-making is required when it is impossible to perform a simple mapping of ICD-9 codes to ICD-10. Such mapping may be unfeasible because of the added granularity and detail in the newer codes, which may mean either one-to-many or no matches and may cloud the intent of the associated rule.

Test data must be created for use in a dedicated test environment, such as for performance testing, as well as for testing to ensure that high-level business objectives are met (see Figure 3).

Testing Approach

Given the breadth and depth of the impact of ICD-10, very few organizations will have time and budget to test all scenarios. For this reason, a risk-based approach is recommended to define test data and test data requirements, as well as the use of test data management tools and processes. Such risk-based prioritization should be conducted in close cooperation with internal business stakeholders and external partners. It should also consider the potential business impact of failures, the number of business units affected, and which codes and functions are involved in the most critical processes.

Scenario development is critical to risk-based testing, to ensure a clear understanding of how ICD-9 codes are being used, critical dependencies and which application modules use which codes. With this information, testers can align those codes to scenarios and build the test data, based on the requirements of those scenarios. Testing is then performed based on the prioritization of the scenarios.

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Organizations should also consider the use of accelerators, which are tools and/or processes from outside partners that can help them meet the strict time and functionality requirements of ICD-10 compliance. These may include:

- **Reusable test assets such as ICD-10 test scenarios and test cases** that reduce the effort and time required for ICD-10 testing. Reusable scenarios are especially useful for high-level functions that can be reused for areas such as claims adjudication, claims adjustment and benefit verification.
- **Existing feasibility studies that can provide an understanding of ICD-10 test tools** and their proper use, as well as test infrastructure needs.
- **Benchmark data on areas such as claims payments** to ensure optimum coverage during neutrality testing.

- **Automated tools to compare values for various parameters,** such as claims payment during neutrality testing. Tools that assist in the generation of test data will also come in handy.

Begin Now

Moving from ICD-9 to ICD-10 will have a significant effect on virtually every business process, policy and IT system used in healthcare. Based on industry estimates and our client experience, it is vital for all healthcare payers to define a comprehensive strategy of remediation and testing immediately, based on tight collaboration between business and IT.

While ICD-10 testing is more complex than traditional testing, it is critical for ensuring that payers can make the most effective use of the detailed new information provided by ICD-10. Taking a risk-based approach that prioritizes testing based on extensive and continuing input from the business helps ensure success in this challenging yet rewarding move forward in medical payment and results tracking.

Footnotes

[1] Anne Zieger, "Switch to ICD-10 Should Prove Very Costly," Fierce Health Finance, Aug. 27, 2008, http://www.fiercehealthit.com/story/switch-icd-10-should-be-very-costly/2008-08-2008-08-27.

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About Cognizant

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