

Talend Infosense Solution Brief

Master Data Management for Health Care Reference Data



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In order to effectively serve health care economics, finance, actuarial, and a number of departmental medical informatics business units, data must be integrated. Data management teams must maintain a variety of data classifications to support a myriad of operational functional areas of a health care organization. Most commonly, these types of solutions are incubated in the form of data repositories, such as analytical data stores, operational data stores, data marts, and data warehouses.

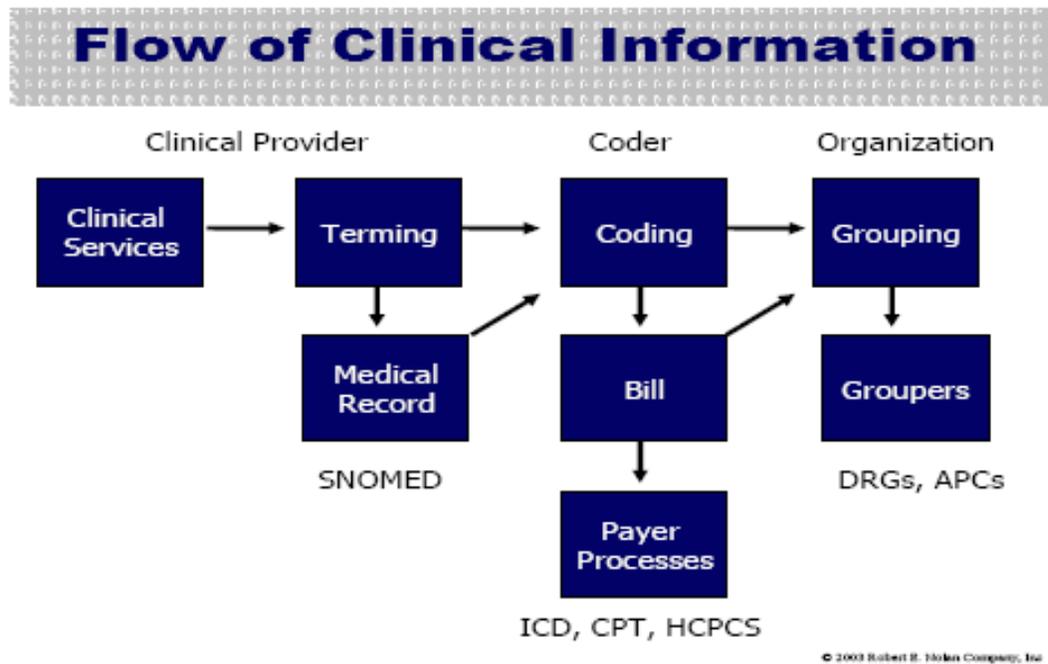
Data governance and data stewardship programs are the primary tools to enabling accountable business and technical staff. In this context, it must be emphasized that controls and governance must be business steward driven for the classification of data domains. For instance:

- therapeutic drugs
- health procedure
- place of service
- diagnosis
- provider specialties and types
- member personas and clustering
- product / health benefit plans
- care management activities and programs
- premium rate setting and reserve setting
- medical conditions
- category of services
- fraud and waste management
- overpayments/cost containment categories
- double billing categories
- national audits

Furthermore, numerous health care data classification is bound to external standards organizations such as: CMS, NCQA, AHFS, NDC, AMA, CDC, and third party vendors such as 3M and HL7. By using external industry standards, most data management teams are alleviated some of the burden to maintain the often cumbersome processes of creating the complex world or clinical and health care reference.

Reference Data Management (RDM) solutions are essential to turning the basis of health care reference codification into a human scalable exercise that can be directly plugged into a company's data integration or business intelligence functions.

As depicted in the following popular clinical data capture and flow, a demonstration of how initial health care semantics are difficult to manage as 'coders' are faced with conversion of ICD-9 to ICD-10. The crux of most of these exercises revolves around having the proper codification at the proper velocity with the right subject matter expertise. This is an exercise best left to a data steward, or in the case of data classification creation, a data scientist.



*H.C. Mullins, MD. Professor

Master reference data not only describes the codifications, but also all the objects, attributes and relationships that define the codes in terms of data lineage, business rules, cross references, taxonomies, and data stewardship owners.

Business Issue: Social Collaboration and Data Stewardship

Since ICD-10 implementation, a health care analytics personnel has been requested to provide a report on high cost patients regarding a descriptive analytics correlated to the hospital standard reporting on medical conditions. The health care analytics personnel have been asked to generate this report using data with ICD-9 in the first year and ICD-10 and the second year portion of this study. The personnel assigned do not have full expertise in all medical conditions and must rely on collaboration with specific medical experts.

* ICD-10: Roughly 155,000 codes exist in ICD-10-CM and ICD-10-PCS. Only 16,000 codes exist in ICD-9.

- Diagnosis ICD-9 Volume 1&2 has 13,000 codes vs. ICD-10 CM, which has 68,000 codes.
- Procedure ICD-9 Volume 3 has 3,000 codes vs. ICD-10 PCS, which has 72,000.

Ask Yourself:

- How can a collaborative effort be enabled by use of an easily handled navigation and classification of 155,000 codifications in ICD-10?
- How can the specific medical experts deal with their domain of expertise and collaborate on the rest of the overall conditions jointly?
- Where can a user determine what type of ICD-10/9 codes are used to group into specific medical conditions for these high cost claimants?
- Does the data used in this study support the hospitals medical conditions and specific episodes of care classification already in place?
- What risk classifications, data and/or statistical models are used in conjunction with ICD-10 for pharmacy, dental, medical, or facility claims in the companies systems?
- What are the General Equivalence Mappings (GEMS) developed by CMS and NCHS for ICD-9 and ICD-10 and what specific codifications are needed to resolved the remaining 5% that are not exact matches?

RDM provides the answers.

Business Issue: Feedback Loop and more Accurate Reporting

An employer group, Acme Inc., has requested to investigate ER Outpatient metrics that appear to be suspicious. The employer group has submitted the request to the insurance payer's director of customer analytics. The insurance payer has assigned a business analyst to review existing requirements for the metrics determined by classification and rules related diagnosis, procedures, and revenue codes. However, the business analysis is not 100% sure if these rules are correct in the system. The business analyst sets up a meeting with the Information Services (I/S) Department and presents the issues. A technical user is assigned to investigate the programs used to produce this report. The technical user isn't certain of the business problem and does not fully understand where the data integration programs might be wrong. The BA has determined the proper new codes and rules and needs to test the revised metrics.

Ask Yourself:

- What if the business analyst could search and review the data rules in an easy to use form for the data structures, data classification, and rule definitions?
- How do I/S department's data integration teams remain proactive and in synch with requested changes?
- Do they even need to? Is a self-service solution possible?
- How can I/S or a BA align with the proper data stewardship owners so that the experts with the proper knowledge can approve any action items needed when analytic results begin to look suspicious?
- How can customer specific data quality detection issue be corrected quickly and with minimal or no impact to the system?

RDM provides the answers

Business Issue: Analytics and Master Reference Data Management

New segmentation of medical conditions has been prescribed by the CMO (Chief Medical Officer). A trend study has been ordered to establish the standard metrics for utilization and cost using these new medical condition segments. Health Care Economics has been asked to provide this result using the standard methodologies, but has been asked to use the new diagnostic categories instead of the currently used categories. The CMO wants to pinpoint the leading indicators of this emerging trend and compare to the previous utilization and cost trends to provide a proposed justification for changing these classifications.

Ask Yourself:

- Current methodologies utilize a combination of diagnosis, hospital room and board, drug, and health procedure codifications to summarize PMPM (per member per month) utilization and cost under current categories of medical condition. How will the same methodology be used quickly without rewriting the whole methodology from scratch?
- How quickly and cost effectively can the request be satisfied in order to act on the emerging trend and remain proactive?
- What are the new classifications the CMO has defined?
- How will these map to the industry standard codes?
- What data structures will be required to establish the trend results?
- Who will understand the current methodologies and classifications the best?

RDM provides the answers.

MDM and RDM Defined

Master Data Management is considered an over arching practice of managing the most important data domains through your organization and across multiple systems in order to create an authoritative source. Master Reference Data Management (RDM) can be defined as a specific domain of MDM practice revolving around codes, classifications, and taxonomies. In fact, these data domains may be something different to every organization. It is important to understand this concept because it will help clarify the business value behind the problems that MDM and RDM address. Some of the typical quick MDM and RDM definitions include:

- Create a single source of the truth
- Provide proactive data quality
- Implement process for data
- Allow cross organization collaboration
- Enable a data governance strategy
- Synchronize and aligns systems
- Improve and enable more accurate reporting
- Provide stronger ties to analytics and operational intelligence

Regardless of definition, a successful MDM or RDM project will employ several functions in order to deliver value over time. The typical set of functions includes the following:

- Profile – Perform regular quality detection assessment on any dataset to detect anomalies and understand data models. Provide insight through user interfaces, reports and data visualization.
- Integrate – Acquire any data from any source and allow the data to be synchronized and made available in batch or real time and in the right formats to the systems and users.
- Standardize – standardize inconsistent data and enrich further. Provide a cross-reference and matching including creation of data rules in order accurately identify and survive matching data across and within analytics or transaction datasets.

- Model & Master – Present intuitive tools to visualize and model any data and define relationships among master data. Secure and provision data by user, group or system. Enable any MDM architectural style.
- Collaborate – Enable a group of users to collaborate on, agree and publish, via workflow controls, a set of accepted master reference data. Supply intuitive audit tools for manual resolution of data tasks.

Talend, Infosense and MDM

Talend provides the only master data management solution that delivers easy to deploy, rapid, end-to-end functionality for data integration, data quality, master data, data stewardship and collaboration workflow of enterprise data in a single solution. The unique, flexible data model allows organizations to quickly model and master any data domain, not just customers or products, and improve access and reliability for both small and large MDM projects. Built on open standards Talend MDM is an open source solution available in two editions. Talend Open Studio for MDM allows for implementation of a complete MDM project or can help to develop an MDM strategy or pilot. It is provided under the GPL license and can be downloaded from talend.com. Talend Platform for MDM contains all the functionality of the Talend Open Studio for MDM and adds advanced features for workflow, multiple users, larger scalability and hierarchy management, amongst others. It is being used by organizations of all sizes to accomplish their master customer data goals.

Infosense provides the only Talend implementation of a reference data management platform plug-in for analytics and business intelligence reporting for health care organizations. The Infosense/Talend solution provides a reference data model-driven approach using Talend Platform for MDM, data management and health care industry data model. Infosense offers industry health care data model accelerators that are easily coupled with technology platform specific data integration, data quality, and reference data solutions. These tools and data models provide a very compelling and proactive mechanism for collaborative data stewardship between IT and business consumer groups.

About Talend

Talend is one of the largest pure play vendors of open source software, offering a breadth of middleware solutions that address both data management and application integration needs.

Since the emergence of data integration and data quality tools in the 1990s, and the more recent appearance of Master Data Management solutions, the data management market has been dominated by a small - and quickly consolidating - number of traditional vendors offering proprietary, closed solutions, which only the largest and wealthiest organizations can afford. The situation in the application integration space is quite similar, with significant consolidation occurring as well. As a result, only a minority of organizations use commercial solutions to meet their data management and application integration needs. Indeed, these solutions not only demand a steep initial investment, but they also often require significant resources to manage implementation and ongoing operation.

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