



Meaningful use. Meaningful data. Meaningful care.

The 3M™ Healthcare Data Dictionary:
Enabling effective health information exchange



Understanding health information exchanges (HIEs)



What is the goal of an HIE?

Improve the quality and efficiency of healthcare delivery through electronic access and exchange of a patient's medical information and reporting to public health agencies.

Easy to embrace, but significant barriers can hinder implementation.

Despite the rapid adoption of electronic health records (EHRs) across the industry, fragmented health information still exists in silos.

Case in point: One patient with a chronic condition potentially can have clinical data stored in many different EHRs or in many different instances within one EHR.

The ONC states that the "overarching goal for health information exchange is for information to **follow a patient where and when it is needed, across organizational, vendor, and geographic boundaries.**"*

*Bolding is ours; see <http://www.healthit.gov/providers-professionals/hie-governance>

Challenge: HIE interoperability hurdles

For an HIE to thrive—and achieve semantic interoperability—it must be able to exchange and use shared healthcare information.

The three levels of HIE **interoperability** are:

1. **Foundational:** The basic ability to send and receive data but without any interpretation of the data.
2. **Structural:** The intermediate ability to define the syntax (structure or format) of the data exchange, so that the electronic message or transaction can be interpreted at the data field level.
3. **Semantic:** The highest level of interoperability, in which the data received can be interpreted and used as if it originates from the home system and its meaning is understood.

Interoperability is ...

HIMSS has provided an industry-standard definition of interoperability as “the ability of two or more systems or components to exchange information and use the information that has been exchanged.”*

*For the complete HIMSS description of interoperability, see <http://ow.ly/wbqvU>



Challenge: HIE interoperability hurdles



But ...

Each information system most likely uses different standards and local terminologies, making semantic interoperability difficult. The codes and terms in one system may mean something different—or absolutely nothing at all—in another.

Sending local codes through an HIE can result in data that is neither meaningful nor fully useable to any other system beyond its source.

So what good is data exchange from one provider to another?

An HIE may therefore require participating systems to “translate” their local codes to standard codes before transmitting them to the HIE.

How can HIEs speak the right healthcare language?

Healthcare data originates from various “domains,” such as patient demographics, laboratory, pharmacy, EHR problem lists, and so forth. As a result, healthcare data is comprised of many different standard terminologies and code sets.

The table below shows how standard code sets recognized in the **meaningful use (MU) requirements** typically match up to healthcare domains:

Code set	Healthcare domain
ISO 639-2	Language and codes
OMB	Race and ethnicity
ICD-10-CM	Encounter diagnosis
Systematized Nomenclature of Medicine Clinical Terms (SNOMED CT®)	Problem, procedure, smoking status, encounter, diagnosis, family history, reportable results
Current Procedural Terminology (CPT®) and HCPCS	Procedures
CVX codes (for vaccines administered) provided by the Health Level 7 (HL7) standards organization	Immunizations
Logical Observation Identifiers Names and Codes (LOINC®)	Laboratory tests and results
RxNorm clinical drug standard	Medications, medication allergies

How can HIEs keep pace with terminology changes?

Medical knowledge, technology and clinical practices do not stand still.

Updates to standard terminologies and code sets are released at differing intervals, in various formats, and by differing methods.

Keeping up with the always-fluid terminologies is tough for individual organizations and HIEs, distracting organizations from their work on MU and other value-added efforts.

Yet if these updates are not maintained, data integrity is compromised, and the HIE's reliability becomes questionable.

The result? Major implications for both quality and patient safety.

Terminology	Release cycle
SNOMED CT®	January and July
LOINC®	Twice a year
RxNorm	Monthly
ICD-9-CM ICD-10-CM	Fiscal year (October 1) with April updates
CPT®	Calendar year with quarterly updates

How can 3M help an HIE?



With 3M™ Terminology Consulting Services and the 3M™ Healthcare Data Dictionary (HDD), organizations can achieve semantic interoperability—and enable successful healthcare information exchange.

How?

Through these 3M core competencies:

- Mapping local codes to standards
- Managing and integrating the most up-to-date terminologies

Our team uses the **3M HDD** to help HIEs map from local codes to standards, which in turn helps meet the objectives laid out by an HIE: *Following patients wherever they are treated for a more accurate picture of their health, along with providing maximum information for ongoing care.*



How does 3M do it?

Our clinical informaticists have extensive terminology management expertise, deep clinical experience, and are members of the industry's leading associations, including:



- The laboratory and clinical committees of **LOINC®**
- The American Medical Informatics Association (**AMIA**)
- The **HL7** Vocabulary Technical Committee
- Healthcare Information and Management Systems Society (**HIMSS**)
- The American Health Information Management Association (**AHIMA**)
- **ITHSDO** committees

What is the 3M™ HDD?

The 3M HDD is a terminology application that integrates standard terminologies together with local codes.

Its concept-based mapping approach means an organization can use its local codes—and so maintain compatibility with historical data—and still crosswalk to standard codes for transmission to an HIE.



Public health reporting...



One of the most compelling value propositions for HIEs is **public health reporting**, which requires all participating systems to report clinical data via standard codes that can be accepted by the public health reporting agency.

The U.S. Centers for Disease Control and Prevention (CDC) annually updates a list of reportable conditions; state and county health departments also have their own reporting requirements.

In the 3M HDD, relationships that are custom-built or obtained from standard terminologies are associated with **concepts**, so data can be grouped as needed. The 3M HDD manages state-specific and nationally reportable lists and links to the conditions, laboratory tests, and result values in its comprehensive **knowledge base**.

...and how the 3M™ HDD can help

For example,

- Mumps are reported to the state in Utah and Mississippi and nationally to the CDC
- But *campylobacteriosis*, an intestinal infection caused by *Campylobacter bacteria*, is reported to Utah but not to Mississippi or the CDC

By leveraging the 3M HDD, an HIE can take local code A from one system and local code B from another system and map them to the same laboratory test for mumps and report to the CDC, Mississippi, and Utah, using the appropriate standard codes.

Similarly, the 3M HDD allows an HIE with local codes C and D for *Campylobacter* to recognize that reporting needs to be done for Utah but not Mississippi—and the HIE can then truly fulfill its interoperability mission.

The 3M advantage



Huge amounts of healthcare data are gathered by multiple information systems, but very little can be shared in a meaningful way for treatment decisions, reporting and analysis.

To leverage electronic healthcare data and the investment in an EHR, that data must be consistent and compatible, regardless of the application.

The 3M™ HDD incorporates all the major standards and enables data to be standardized and normalized for an HIE—**and more**.*

*And what exactly do we mean by “and more”?

The 3M advantage: The “more”



The 3M HDD facilitates MU reporting, population health and other data-driven processes by:

- Normalizing and operationalizing local data, enabling apples-to-apples comparisons
- Providing a holistic view of all healthcare data and the ability to manage that data
- Helping organizations get the most accurate and consistent terminology with our expert team of 3M clinical informaticists
- Consistently making information available to all types of users, from patients to caregivers to administrators

Ultimately, the 3M HDD gives organizations complete and accurate data across the enterprise without uprooting current systems or disrupting daily operations.

As the need for **data exchange** increases, the 3M HDD is the tool that offers **comprehensive terminology content** and **an expert community** to help your organization achieve accurate, consistent vocabulary standardization essential to a successful HIE.





About 3M Health Information Systems

Best known for our market-leading coding system and ICD-10 expertise, **3M Health Information Systems** delivers innovative software and consulting services designed to raise the bar for clinical documentation improvement, computer-assisted coding, case mix and quality outcomes reporting, and document management. Our robust healthcare data dictionary and terminology services also support the expansion and accuracy of your electronic health record (EHR) system.

With 30 years of healthcare industry experience and the know-how of more than 100 credentialed 3M coding experts, 3M Health Information Systems is the go-to choice for 5,000+ hospitals worldwide that want to improve quality and financial performance.

For more information on how the **3M™ Healthcare Data Dictionary** can assist your organization with enabling an effective health information exchange, contact your 3M sales representative, call us toll-free at **800-367-2447**, or visit us online at <http://www.3mhis.com/HDDHIEeBOOK>.



Health Information Systems

575 West Murray Boulevard
Salt Lake City, UT 84123
U.S.A.
800 367 2447
www.3mhis.com

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