

IHE SUCCESS STORY

EMPI Links 136 Texas Hospitals to Transform Data Exchange and Research



SUCCESS SNAPSHOT

Dallas-Fort Worth Hospital Council
Education and Research Foundation
Irving, TX

CHALLENGE:

- Link encounter-level data to create a patient-centric view of information
- Connect over 7 million records from different facilities using different information systems
- Modify the standard EMPI model for a data warehouse interface

SOLUTION:

QuadraMed Smart Identity Exchange

STANDARDS-BASED PROFILES

IMPLEMENTED:

PIX/PDQ, CT, ATNA

RESULTS:

- 7.3 million encounter records from 136 hospitals now linked to create patient-centric view for research and reporting
- Improved patient safety and quality care initiatives
- Developed episodic metrics and analytic capability to evaluate chronic illness models



BACKGROUND:

DFWHC drives quality, safety and population health improvements to higher levels

Dallas-Fort Worth Hospital Council Education and Research Foundation (DFWHC)

Since 2003, the Dallas-Fort Worth Hospital Council Education and Research Foundation (DFWHC), a non-profit trade association for hospitals, has aggregated and mined de-identified discharge data from 136 facilities to improve quality of care and patient safety research and reporting throughout the 17-county North Texas region. Although the work has proven invaluable, DFWHC's ability to link and mine records was restrained to some extent because the Irving, Texas-based organization was limited to analyzing information at the encounter versus the patient level. The visit-centric nature of the data warehouse made it impossible for DFWHC to look at all visits for a single patient within or across entities, limiting the ability to analyze data and identify trends at the patient level.

To drive quality, safety and population health improvements to higher levels, DFWHC connected a regional enterprise master person index (REMPI) to its data warehouse. It linked 7.4 million records from 136 hospitals, enabling DFWHC to achieve a patient-centric view of inpatient and outpatient clinical information for research and reporting. This capability has led to the beginning stages of a regional health information exchange (HIE).

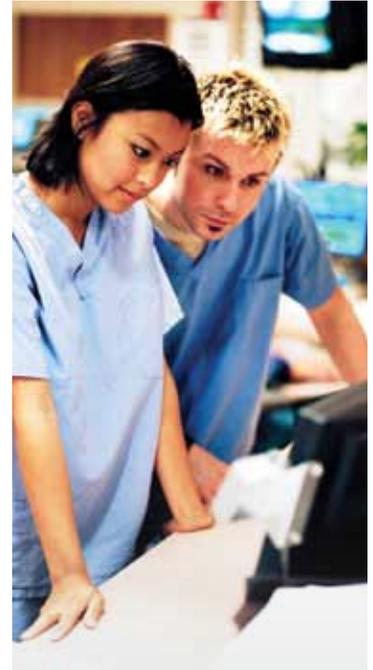
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CHALLENGE:

Supporting a unique distributed architecture with scalable technology

The EMPI requirements for a data warehouse are vastly different than those of a single hospital or group of hospitals. An EMPI for a data warehouse requires the scalability necessary to support a distributed architecture and a large volume of data. During the DFWHC implementation, various strategies were used to overcome challenges, such as modifying the standard implementation model to utilize batch loading of data rather than real-time interfacing, linking individual patient visits into a single record, and protecting patient privacy. For instance, special rules were created to automatically link visits for the same person to a single Enterprise ID number. These rules included special handling for “no social security number” matches, “relationships between mother-baby” matches, and “minor variations between date of birth” matches.

Participating hospitals whose inpatient treatment is defined by CMS (Centers for Medicare/Medicaid Services) might suffer reimbursement denials if patients are readmitted for heart failure, pneumonia and acute myocardial infarction within 30 days of discharge, potentially exposing facilities to large financial losses. The REMPI data facilitates data analysis allowing hospitals to be more actively involved with their patients as they consider operational changes aimed at decreasing readmissions.



SOLUTION:

Implementing Smart I/X EMPI software custom-built to account for DFWHC’s unique data warehouse



The DFWHC Foundation worked in partnership with QuadraMed to implement the company’s Smart I/X EMPI software. The system incorporates SmartPAL®, QuadraMed’s proprietary probabilistic patient matching algorithm, recognized as the industry’s most accurate methodology for record matching. After an initial MPI cleanup was performed on records in the data warehouse, the Smart I/X Auto-Linking feature was programmed with special rules to link all of the visits for the same patient to the same Enterprise ID (EID) to facilitate effective use of the records contained in the data warehouse.

These special rules were key to the successful implementation because they were custom-built to account for the uniqueness of an administrative claims data warehouse. The end result created a single identifier linking all individual patient encounter records from every participating hospital. This enabled DFWHC

Foundation to aggregate and customize an unlimited amount of de-identified claims data at the patient level, rather than just the encounter level.

The de-identified information provided to participating hospitals and research organizations prevents the data from being tied to specific patients. This safeguards patient privacy and adheres to the stringent confidentiality standards of HIPAA and Texas state requirements, while providing a comprehensive patient-centric view of data that can be used to evaluate and improve care and outcomes across the region.

INTEROPERABILITY IN ACTION: Standards and Profiles

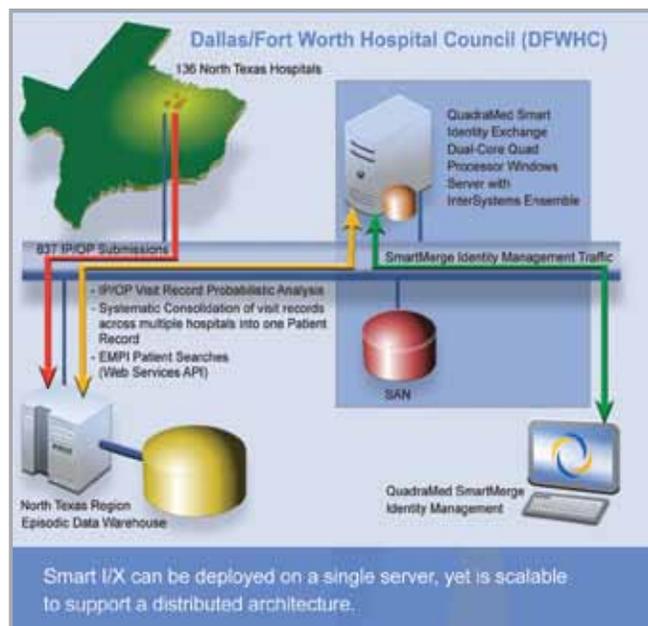
IHE Profiles organize and leverage the integration capabilities that can be achieved by coordinated implementation of communication standards. QuadraMed Smart I/X conforms to IHE integration standards and adheres to the following IHE Profiles as demonstrated.

Patient Identifier Cross Referencing (PIX) cross-references patient identifiers between hospitals, care sites, health information exchanges, etc.

Patient Demographics Query (PDQ) lets applications query a central patient information server and retrieve a patient's demographic and/or visit information.

Consistent Time (CT) ensures system clocks and time stamps of computers in a network are well synchronized (median error less than 1 second).

Audit Trail and Node Authentication (ATNA) describes authenticating systems using certificates and transmitting PHI-



RESULTS & BENEFITS:

A comprehensive view of data that can be used to evaluate and improve care and outcomes

Early results of the regional EMPI include the ability to:

- Link inpatient to outpatient hospitalization encounters
- Link multiple outpatient encounters
- Calculate 30-, 60-, and 90-day readmission rates
- Develop episodic metrics and analytic capability to evaluate chronic illness models for congestive heart failure, pneumonia, and other identified chronic illnesses
- Link research data for cardiovascular, stroke, and chronic diseases to the inpatient and outpatient databases
- Support research activity to improve healthcare delivery
- Improve patient safety and quality care initiatives
- Track infections and other complication rates
- Track distance from the hospital to the patient's home address
- Track survival via Medicare Death Master file
- Trend admitting and operating physician by name

Other uses for REMPI data will be developed as the DFWHC data warehouse grows and participating hospitals identify new uses for the data. Because the REMPI conforms to IHE profiles, it can be expanded to manage a future HIE. Its flexibility has also led the DFWHC to consider nationally funded research opportunities.

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TESTIMONIAL:

Foundation President Kristin Jenkins, JD, FACHE

“REMPI is a regional MPI that tracks across all participating hospitals and incorporates a data warehouse containing more than ten years of data.

The mining capabilities combined with the services REMPI offers will result in better healthcare and answer a growing need for high quality, standardized data.”



HOW CAN INTEGRATING THE HEALTHCARE ENTERPRISE (IHE) HELP YOU?

Find out more at www.ihe.net

Use of IHE-based systems is a wise choice because IHE provides a proven foundation to support a connected healthcare environment by solving the interoperability challenges faced by today's healthcare providers. Most clinical settings use a wide variety of systems and modalities from different manufacturers and as a result, exchange of patient data is a significant challenge.

IHE provides a solution via a common framework, referred to as IHE "Profiles" that enable the coordinated use of established standards such as HL7, DICOM, OASIS, and many others. IHE profiles address critical interoperability issues related to information access for care providers and patients, clinical workflow, security, administration and information infrastructure. IHE also defines a process by which these profiles are subjected to rigorous validation and conformance testing.

Together this framework and process result in health IT systems that are able to communicate with one another better, are easier to implement, and allow care providers to more effectively use information.

Why IHE?

Use of IHE helps clinical end-users resolve interoperability challenges. The ability to efficiently and securely access and exchange patient health data has long been a difficult challenge to resolve. Now with the addition of new incentives such as demonstrating "Meaningful Use" in the United States and similar mandates elsewhere in the world, IHE provides a proven solution to resolve health IT interoperability challenges. Use of IHE enables a collaborative environment between healthcare providers and industry leaders to improve the effective and secure exchange of patient health information.

Benefits of using IHE-based Systems for Hospitals and other Enterprise Clinical Settings:

- **Fewer interfaces:** It's not unusual for a 100-bed hospital to have dozens of interfaces - with IHE-based systems the need to create and maintain costly interfaces is greatly reduced.
- **Meeting reporting requirements:** Products developed using IHE can help end users more easily meet reporting requirements such as Meaningful Use in the United States and similar requirements worldwide.

Benefits of Using IHE Frameworks for Health IT Product Developers:

- **Reduce and improve product development cycles:** By implementing IHE, vendors can streamline their product development cycles by leveraging this integration capability across multiple customers, thus allowing staff to focus more attention on creating new product features and functions.

Founded in 1997 by HIMSS and RSNA, IHE is a global non-profit organization with stakeholder engagement of hundreds of volunteers representing the healthcare community worldwide.

Learn more about how IHE can help you, visit www.ihe.net or email secretary@ihe.net.

