# IHE SUCCESS STORY

## Forcare Links Frisian Hospitals to Exchange Cardiology Information

**forcare**
CONNECTING HEALTHCARE

### SUCCESS SNAPSHOT

Medical Centre Leeuwarden
Leeuwarden, The Netherlands

**CHALLENGE:**

- Connecting legacy cardiology PACS systems
- Resolving Patient Identification across multiple sites
- Exchange of diagnostic quality images
- Reducing referral time from (on average) 3 to less than a day

**SOLUTION:**
Forcare's XDS-based product suite consisting of forView, forStore, forConnect, forView and forAudit.

**STANDARDS-BASED PROFILES IMPLEMENTED:**
XDS, XDS-I, PIX, PDQ, XUA

**RESULTS:**

- Exchange of Cardiology information between 5 hospitals
- Improved quality of patient care by reducing referral time
- Connecting legacy Cardiology and Radiology PACS

### BACKGROUND:
**The Medical Centre Leeuwarden is the leading hospital for advanced clinical practice in Friesland**

### Medical Centre Leeuwarden

With 990 beds and 2,900 employees, the Medical Centre Leeuwarden is the leading hospital for advanced clinical practice in Friesland and is the largest non-university teaching hospital in the Netherlands. MCL has expertise in neurology, oncology and specialized surgeries. Established as a center of excellence in 2004 the Heart Centre for intervention cardiology and thorax surgery at MCL performs more than 1,300 percutaneous coronary interventions and over 500 open-heart surgeries each year.

After extensive research the MCL made the choice in principle at the end of 2007 for the Cross-enterprise Document Sharing for Imaging developed by Integrating the Healthcare Enterprise (IHE XDS-I). The project was divided into three phases. The initial stage, successfully completed within six months, was a Proof of Concept calling for an exchange of data between the cardiology systems at MCL and the Nij Smelling hospital in Drachten using the XDS-I profile. The second phase, during which technical and functional improvements were made, established a link between the hospitals and clinical practices. The third and final phase, during which other hospitals in the region were linked to the cardiology network for clinical information exchange, was successfully completed during the course of 2009. Adapting legacy systems and image archives to the integration profiles required for IHE XDS-I was achieved using products developed by Forcare B.V. in Zeist (The Netherlands)

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## CHALLENGE:
**Patient identification presented a significant challenge to implementation**

Cardiologists in the region typically refer their patients with an indication for percutaneous coronary intervention or open-heart surgery to the Medical Centre Leeuwarden (MCL). The patient records and images were exchanged by traditional methods, such as on compact discs sent by courier, or as attachments to emails, or by fax. In order to improve the quality and speed of these referrals, the MCL wants to offer the referring cardiologist the possibility to send clinical information digitally to the MCL, without the need for drastic changes in their work methods or the purchase of new equipment.

Hospitals had not yet adopted the Dutch Citizen Service Numbers (BSN), so that a temporary solution was chosen whereby participating hospitals could continue to use their own patient identification numbers. With the BSN being introduced in July 2009, the hospitals are in the process of making the transition from their local patient identifiers to the Dutch Citizen Service Number.

## SOLUTION:
**Forcare links hospitals based on the IHE Cross-enterprise Document Sharing Profile**

The Medical Centre Leeuwarden hosts the central XDS registry and repository components that are used by the other hospitals within the affinity domain. Each hospital uses both forView (XDS document consumer) and forConnect (XDS document source) to interface to (legacy) cardiology and radiology PACS for publication and exchange of diagnostic quality images, ECGs and reports.

The IHE Patient Information Cross-reference profile is used to connect to the local Hospital Information Systems to extract the national Patient Identifier based on a local Medical Record Number.

| Profile | System/Vendor | IHE Actor | IHE Transaction |
|---|---|---|---|
| XDS(-I), XUA, PDQ | forIndex /Forcare | XDS document registry<br>PDQ supplier<br>X-Service Provider | Register Document Set<br>Query Documents<br>Provide X-user assertion |
| XDS(-I), XUA | forStore/Forcare | XDS document repository<br>X-Service User/Provider | Register Document Set<br>Retrieve Documents<br>Provide X-user assertion |
| XDS(-I), XUA, PDQ | forView/Forcare | XDS document consumer<br>PDQ consumer<br>PIX-Service User<br>PIX Consumer | Query Documents<br>Retrieve Documents<br>Provide X-user assertion |
| XDS(-I) , XUA | EasyAccess/Philips<br>Xcelera/Philips<br>Impax 5.x/Agfa<br>CareStream PACS<br>Centricity Archive/GE Healthcare<br>All systems XDS enabled through forConnect/Forcare | XDS document Source/Consumer<br>X-Service User | Provide and Register Document Set<br>Query Documents<br>Retrieve Documents<br>Provide X-user assertion<br>PIX Query |
| PIX | Rhapsody/Orion Health<br>Comez/Chipsoft | PIX Server | PIX Query |

## INTEROPERABILITY IN ACTION:
**Standards and Profiles**

Physicians treating patients suffering from cardiac disease in the Friesland region of the Netherlands can rapidly access a full record of the patient's history and consult in real time with specialists at regional medical centers to determine the best treatment. The cardiology network provides the physician with a more complete view of the patient as it includes clinical information, treatment histories and diagnostic-quality images.

The Friesland Regional Cardiology Network speeds up the referral process, improves both diagnosis and the clinical decision process, and on average reduces by one or two days the length-of-stay for patients in hospitals. From their office workstations, cardiologists are able to consult the advanced clinical images provided by any hospital linked to the network. The distributed storage of records eliminates the duplication of records across multiple sites. Once uploaded to the cardiology network, records remain available for consultation at any time so that previous episodes of a patient's care can be consulted in detail no matter where the care was provided in the region.



## RESULTS & BENEFITS:
**The Friesland Regional Cardiology Network provides the physician with a more complete view of the patient**

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*"Recognizing the success of the IHE XDS-I implementation, expansion to other IHE domains, for example for radiology, is being considered by other hospitals."*

**Marcel van der Linde,** Nij Smellinghe Hospital Cardiologist, Drachten

*"We can now access all relevant cardiac information available in the regional through a single interface. This has greatly improved the efficiency of a patient referral thus improving the quality of patient care."*

**Matty Lautenbach,** MCL Cardiology head Cardiac Catheterization

## 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.*