

United States

Fulfilling a vision of digital transformation with GS1 standards

Challenge

The Franciscan Missionaries of Our Lady Health System (FMOLHS) is a non-profit healthcare system serving more than half of Louisiana's population. As a Catholic ministry, FMOLHS provides \$39 million yearly in non-reimbursed care and community support for the underprivileged. Challenged by the rising costs and growing complexity of delivering quality healthcare, FMOLHS needed to improve its operational efficiencies, control costs and remain focused on what mattered most—the safety and care of its patients.

Approach

To help drive the digital transformation of its critical processes, FMOLHS took the strategic step to implement GS1 standards. Working closely with its suppliers and GS1 Healthcare US' Initiative solution providers, the health system laid a firm standards-based foundation that integrated with its software-based systems, to manage and control product inventory and location information.

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of implants that come into the warehouse are uniquely identified with Global Trade Item Numbers



Improved inventory management, providing just-in-time delivery of products to warehouse locations



Increased patient safety with barcodes scanned in operating rooms to capture detailed data about products used in procedures



Better outcomes based on information about the cost per case analysed by physicians about products and procedures



The Franciscan Missionaries of Our Lady Health System is a healthcare innovator, with hospitals, clinics and physicians located throughout Louisiana —making it the state's largest health system. In 2012, the Vice President of Supply Chain led the strategic decision to implement GS1 standards to support the automation of the health system's supply chain

and clinical processes. Since then, implementing GS1 standards has proven to be a multi-year undertaking, involving all five hospitals, their subsidiaries and affiliate organisations and several community hospitals.

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System Director, Supply Chain Strategy, Data Standards & Interoperability
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A strategic decision for patient safety

As a health system focused on patient safety and outcomes—from blood banks to physicians' practices to imaging centres— and with a state-wide footprint from Baton Rouge to Bogalusa and from Lafayette to Lake Charles—FMOLHS has made GS1 standards an important pillar of the institution.

"By implementing global standards, our primary goal has been to improve patient care and safety," says Sandi Michel, System Director of Supply Chain Strategy at FMOLHS. "To do this, we are focused on significantly increasing the efficiency of our operations and the control we have over the products we use."

Starting with standards for automation

FMOLHS commenced to lay the foundation of GS1 standards by working with its suppliers. Early on, the hospital brought together about 80 representatives from its manufacturers and group purchasing organisation to review its standardisation vision and strategy.

"We requested that they start using the GS1 Global Trade Item Number® (GTIN®) encoded in a barcode to uniquely identify each of

their products," advises Ms. Michel. "With unique identification in place, we explained [to suppliers] how we could all benefit, especially our patients. By using the GTIN, we confidently pull the right product, for use in the right procedure, for the right patient, and at the right time. We told them: 'We want to be 100 percent driven by GS1 standards and this strategy requires that you are, too.'"



Since this initial meeting, FMOLHS continues to work with its suppliers to implement GTINs encoded in GS1 two-dimensional (2D) GS1 DataMatrix barcodes. The health system has also conducted pilots with seven manufacturers to share product data (based on GTINs) for purchasing transactions.

"We soon moved to a GS1-certified data pool and started sharing product data (i.e., GTINs and other valuable information) with our suppliers via the Global Data Synchronisation Network™ (GDSN®)," says Ms. Michel. "Our plan has been to standardise on the use of the GTIN for all items purchased and used inside our

system. While we are always looking for the best products to use for our patients, standardising on one, two, or even three products gives us the advantage of having accurate and complete data for comparison purposes and, ultimately, for making the best buying decisions."

As FMOLHS has become increasingly committed to standardisation, it has also become committed to working only with manufacturers that use the GS1 system of standards.



Office of data standards and interoperability

FMOLHS took an unprecedented step to establish a separate group to drive the implementation of GS1 standards—the Office of Data Standards and Interoperability. The group includes Sandi Michel and five managers who were charged with taking GS1 standards “as deep into the FMOLHS system as possible.”

“Rather than ‘adding on’ the standards implementation responsibility to a person’s existing job, we decided that a dedicated team was needed to drive the desired change,” says Ms. Michel. “We worked across the health system with operations professionals, supply chain specialists, clinicians and nurses to transform processes with standards.”

Executive support is also critical for the team’s success. “Our Vice President updates the CFO, CEO and all of the hospitals’ CEOs about our progress,” explains Ms. Michel. “We could not have achieved all that we have without this high-level support.”

After six years of accomplishments—progressing through each phase of implementing GTINs, GLNs, the GDSN and clinical integration—the five managers moved into positions in other supply chain organisations, such as Supply Chain Strategy, MMIS and Resource Utilisation and Value Analysis, where today they continue to influence the use of GS1 standards throughout the health system.

“Today, approximately 85% of implants that come into our warehouse are uniquely identified with GTINs,” says Ms. Michel. “We have evolved to the point where the use of GS1 standards is now a requirement for manufacturers that supply products to our health system. It’s that important to us.”

Another building block of the GS1 standards foundation is the GS1 Global Location Number (GLN) that uniquely identifies each location within the FMOLHS health system. Today, all FMOLHS locations have each been assigned their own GLN.

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“We created a hierarchy of locations—from the five large hospitals to the smaller hospitals and the physician clinics, all the procedure areas and other facilities, such as imaging or tissue banks,” says Ms. Michel. “We assigned GLNs to places where products are stored, like a cart in the ‘med-surge’ area, a closet in a given department, or even a shelf in a closet on a certain floor. This precise level of identification is needed to better manage inventory and ultimately, deliver outstanding patient care.”

Supporting the best unit of measure

The use of GTINs, GLNs and GDSN has enabled FMOLHS to better manage its inventory and provide just-in-time delivery of needed products. “By using GTINs, we know exactly what products we have and how many,” Ms. Michel says. “And the GLNs tell us specifically where they are.”

Using GS1 standards and its warehouse management system provided by Tecsys, a GS1 Healthcare US Initiative member, FMOLHS can now track the locations of products throughout the system with a few keystrokes.

In fact, FMOLHS is using GS1 standards to provide the “best unit of measure” to any location in its system identified by a GLN. Whether a case, box or single unit, the best unit of measure—and in the requested quantity—is ready for just-in-time delivery. For instance, if

an FMOLHS clinic needs just three items out of a case of 24, the warehouse is able to divide the order, scan the items’ barcodes to capture the product data, and then put the three items in a tote headed for the clinic, with the rest divided among other facilities.



L to R: James Phillips, Supply Chain Client Services Manager; Brittney Sprague, Supply Chain Client Services Manager; Sandi Michel, System Director of Supply Chain Strategy; Emmett Robbins, Supply Chain Client Services Manager; Michelle Keller, Supply Chain Client Services Manager; Lakisha Bowie, Strategic Sourcing Manager

“Each item or ‘unit’ is labeled with a GTIN encoded in the GS1 DataMatrix barcode so that we can scan, track and manage the movement of the single unit,” advises Ms. Michel. “We expect to realise cost savings by eliminating

over-ordering. If we have too many of an item in a location, we can move it to another location that needs it. We can run inventory reports on what products we’ve purchased and where they are, using the GTINs and GLNs.”

“Our UDITracker system can download and report on implantable product information—stored in the Epic EHR system—by patient record. That includes the implant’s size, serial number, batch/lot number and expiration date, to name a few. If a product is recalled, we can easily run a report to identify each patient who received that implant.”

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Taking standards to the OR and EHR

As products are used in the FMOLHS operating rooms (ORs), nurses scan their barcodes to capture data about the products used in patient procedures and for the Epic EHR system. “By scanning barcodes, we are using virtually a foolproof method to capture crucial medical information and populate each of our patient’s health record,” says Ms. Michel.

Scanning barcodes directly into patients’ healthcare records eliminates mistakes when capturing and recording the correct GTIN, expiration date, batch/lot number, and serial number since there is no human intervention, i.e., mistyped, transposed or omitted numbers.

Before scanning, a product's digits or alphanumerics could be transposed when typed into a patient's records. The error would go undetected unless the record was accessed for an explant, a recall or other reason. "This is very risky to the patient receiving implantable life sustaining and life supporting devices," advises Ms. Michel. "Now, scanning in the operating room eliminates or mitigates that risk."

Scanning barcodes also updates inventory records in the Tecsys warehouse management system and in FMOLHS' medical device management system called UDITracker®, provided by Champion Healthcare Technologies, a GS1 Healthcare US Initiative member.

"Our UDITracker system can download and report on implantable product information—stored in the Epic EHR system—by patient record," explains Ms. Michel. "That includes the implant's size, serial number, batch/lot number, and expiration date, to name a few. If a product is recalled, we can easily run a report to identify each patient who received that implant."

"Because nurses scan tissue product barcodes, we can monitor the tissue on hand by expiration date, removing those that are about to expire to prevent using them in error," continues Ms. Michel.

In the event of a recall, each location can be alerted to pull the products from inventory within minutes—a patient safety measure that may have taken days or even weeks before GS1 standards were implemented.

"If the item is sitting on the shelf, we access the automated inventory management system and go right to the shelf to pull the product," says Ms. Michel. "If the product is an implantable device, we can search in the system and locate the serial number, patient's account, and notify the surgeon. The surgeon would then notify the patient."



If Joint Commission International (JCI)¹—the hospital accreditation organisation—conducts an audit, FMOLHS has a complete and accurate picture of inventory labeled with GS1 standards, throughout the system. By using GTINs linked to case numbers—rather than individual patient names—FMOLHS can stay within the confines of Health Insurance Portability and Accountable Act² (HIPAA) rules.



Educating nurses about scanning barcodes

"Our nurses were very receptive to scanning barcodes versus manually entering the product data into our systems," says Ms. Michel. "It saves them a significant amount of time and is much more accurate since inputting a string of digits can be prone to errors."

Ms. Michel and her team have worked with nurses to educate them about "which barcode" to scan on packages when multiple barcodes are present.

"They [nurses] have become so familiar with us that they still call to ask questions and save packages with barcodes that produce errors," Ms. Michel explains. "We investigate why the barcode didn't properly scan and fix the problem with the supplier, so that it doesn't happen again. It takes time, but it's worth the effort since our nurses will save time in the future and the information captured will be accurate in our patients' records."

As FMOLHS has gained more and more experience with scanning barcodes, they have been able to provide valuable feedback to manufacturers. With small tubes where conventional scanning proved difficult, for example, manufacturers found that the GS1 DataMatrix barcode was needed.³ The 2D GS1 DataMatrix is a robust barcoding solution for products with limited space since it holds a significant amount of information within a small footprint.

FMOLHS also found barcodes printed on reflective material could be difficult to scan, so they developed workarounds, while sharing this finding with manufacturers.

The analysis included the cost per case, by procedure, by physician and by products used. Today, patient outcomes are also considered

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as well as other types of information like labour costs, time in the OR, facility overhead and reimbursements.

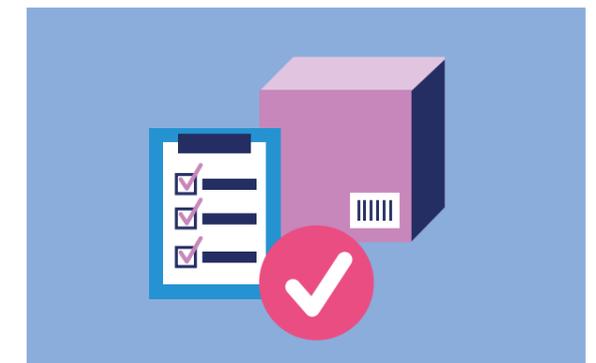
"Without standards and the traceability they enable, this level of evaluation would be difficult, if not impossible," says Ms. Michel. "By using GS1 standards, our surgeons can now see what it costs for a procedure, the anticipated patient outcome, the length of recovery time—all the pieces of information invaluable to informed healthcare."

"We initially thought that physicians would not want to share this kind of information, but we were wrong," continues Ms. Michel. "They are not only proud of their work and successes, they also want to share and learn from each other."

Detailed reporting is going to continue at FMOLHS, with the information going back to the CMO who collects data on the right products, the right physicians, the right facilities and the cost associated with every piece of patient care. The system is even considering analyses of reimbursements from insurance companies based on its detailed data.

"We're not really worried about the cost itself, but we want to be responsible to FMOLHS to say we are buying the right product by getting a 100% accurate picture," Ms. Michel says. "We're not interested in the cheapest. We're looking for the best."

Ms. Michel offers the recent introduction of a new product. Based on visibility about the cost and corresponding effectiveness of the product used in procedures, the CMO can now take this insightful information back to the physicians for further analysis or decision about whether to continue to use it.



¹ For more information about JCI, see www.jointcommissioninternational.org.
² For more information about HIPAA, see www.hhs.gov/hipaa/index.html.

³ Centers for Disease Control and Prevention. (2018). Scanning Two-Dimensional Barcodes Enhances Vaccine Clinical Practice. Retrieved from <https://www.gs1us.org/industries/healthcare/standards-in-use/cdc>.

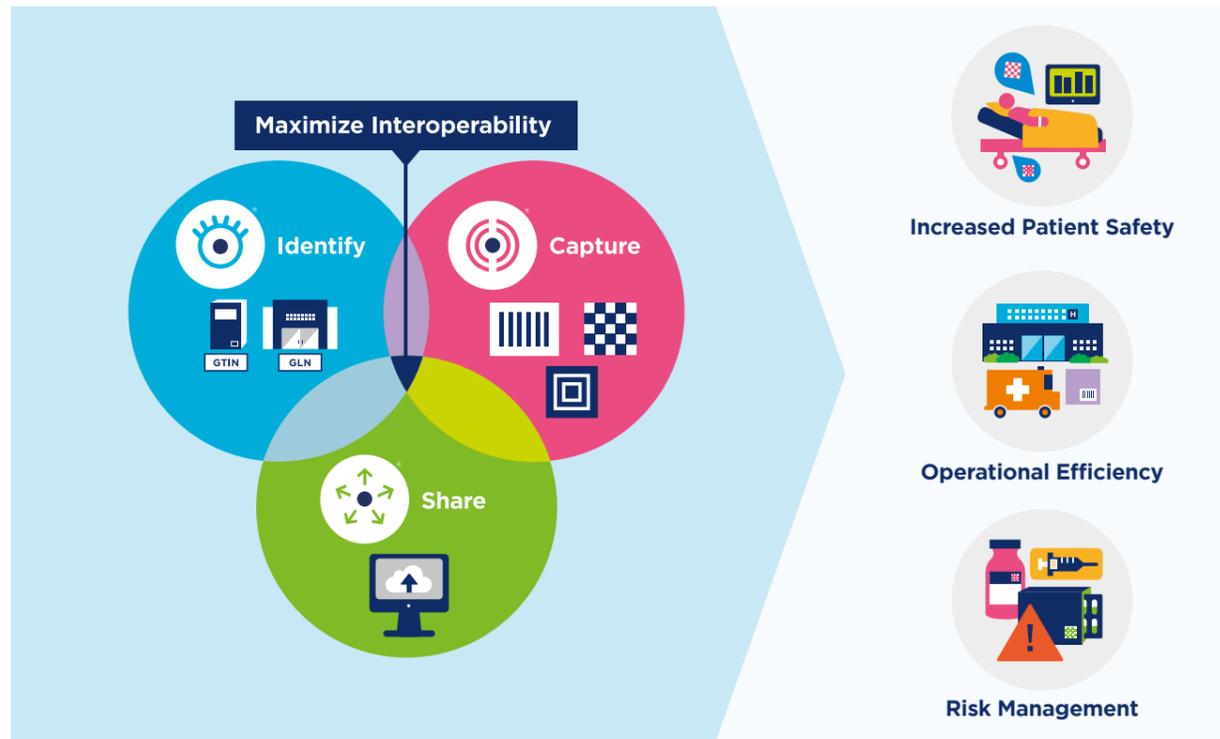


Figure 1: GS1 standards for identifying, capturing and sharing information—about products, business locations and more—make it possible to follow prescription drugs and medical devices from the point of manufacture through to the point of care; improving inventory management, increasing patient safety and delivering better outcomes.

Collaborating for multiple wins

Ms. Michel recommends to “just get started” and work with GS1 US to learn about implementation best practices.

The FMOLHS system-wide use of GS1 standards is truly one of the most comprehensive examples in a healthcare environment.

They have chosen to fully leverage global standards to realize widespread efficiencies, cost- and time-savings, as well as delivering patient safety practices to a greater degree than was once possible.

“Using GS1 standards and standardisation is a win-win in automating our business and clinical processes. It’s a win for the patient in increased safety, it’s a win for the nurses and clinicians in time-savings, accuracy and tracking. It’s a win for the physicians that information is captured in a patient’s record and they can match outcomes to products and procedures. It’s a win for hospital management because data helps shape policies and protocols.”



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About the author



Sandi Michel has worked with FMOLHS for ten years. Mrs. Michel brings 30 years’ experience in operations and technology with AT&T. She held senior level leadership positions as Vice President of Technology and Operations and Director for US Voice & Data Network Services for two of the largest Communications companies in the US. Ms. Michel earned a Master’s Certification in Project Management through Steven’s Institute of Technology and AT&T Bell Laboratories, and a Lean Six Sigma Black Belt. She has a Bachelor of Science Degree in Business Administration. Ms. Michel served on the GS1 US Executive Leadership Committee for 2015-2016 & 2019-2020 and is a member of the GS1 US Industry Sponsor Group, and Provider Advisory Groups. She was the founder and director of the FMOLHS Office of Data Standards and Interoperability featuring GS1 Data Standards. In January 2019, Ms. Michel joined the Healthcare Transformation Group (HTG) representing FMOLHS. She has served on numerous AHRMM Committees and other advisory groups.

Sandi Michel
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About the organisation



As a nonprofit, mission-focused Catholic healthcare ministry, the **Franciscan Missionaries of Our Lady Health System** gives special attention to citizens who are most in need. During the most recent fiscal year, FMOLHS provided more than \$39 million in unreimbursed care and community support to the underprivileged.

FMOLHS brings together outstanding clinicians, the most advanced technology and leading research to ensure that patients receive the highest quality and safest care possible. This commitment is grounded in a history that is more than 100-years-old, but reflected today by a strategic vision of transforming healthcare through superior performance and excellent patient care.

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