

Getting Started with Standards-Based Operating Procedures for Optimal Enterprise-Wide Supply Chain Management Performance

The goal of this white paper is to provide education on standards for location and product identification in the healthcare industry along with considerations for embarking on a standards integration project in your facility.

The U.S. healthcare industry now recognizes and acknowledges that the adoption of the product identification standards is one of the primary and most effective ways to solve many of the supply chain-wide challenges it experiences. Those challenges are caused by inaccurate data that directly contribute to higher costs and affect service level quality and efficiency, and can even compromise patient safety if critical resources are unavailable at the point of care, or if patient-specific identification errors occur.

Using data standards applied to patients, processes and products will enable healthcare facilities to accurately locate and identify what's needed as it is ordered, received, implemented and distributed within their facilities and throughout their organizations. The standards also enable the option to synchronize providers' item master databases with GS1, a worldwide organization that developed the global standards of unique product identification.

Data standards and synchronization processes have been successfully adopted and are in widespread use in many other industries worldwide. Proven benefits of supply chain standards include:

- Efficient traceability
- Improved order and invoice process
- Optimized receiving
- Accurate product identification and inventory levels
- Reduced data cleansing efforts
- Increased contract compliance with GPO/distributors and the ability to monitor rebate levels
- Ability to better monitor product recalls and track expiration dates and product authentication
- Better data for customers throughout the facility to help with product selection decisions

According to a recent A.T. Kearney data synchronization paper, Procter and Gamble expects synchronization to save them a minimum of \$25 million a year by eliminating 30,000 to 50,000 hours per year in unnecessary transcription work, reducing stock-out incidence by 10%, and reducing the time required for new item introduction by 80% in the U.S. alone. An item synchronization pilot between Procter & Gamble and their customer H.E. Butt showed a 75% reduction in invoice

deductions due to invoice pricing and product delivery discrepancies, 30% improvement in the number of accurate purchase orders received, 80% improvement in "speed to retail" for new items, price changes, and promotions, and 99.8% retail scanning accuracy achieved (versus 85% before the pilot).

Further driving standards adoption in the industry are changes to regulations. The FDA Amendments Act of 2007 that was signed into law on September 27, 2007, stipulates regulations establishing a unique device identification (UDI) system for medical devices requiring the label of devices to bear a specific identifier. This identifier should adequately identify the device through distribution and use, and may include information on the lot or serial number. The UDI would be: applied at the "patient-use level" ("unit of use"); created and maintained by the manufacturer; constructed following GS1 or HIBCC standard for device identification; and be human readable and encoded in a form of automatic identification technology. However the FDA did not mandate that a specific technology be identified.

Even so, the healthcare industry is embracing GS1 standards to be used for the unique identifier, with the official endorsement of GS1 standards by many leading healthcare associations, including the Association for Healthcare Resource & Materials Management (AHRMM) and the Coalition for Healthcare eStandards (CHES), which is now part of the Health Industry Group Purchasing Association (HIGPA), and a number of group purchasing organizations (GPOs). Consequently, it's a good time to evaluate your facilities' capabilities with your Materials Management Information System (MMIS) or Enterprise Resource Planning (ERP) system and the status of your current computing and software capabilities that will allow you to move forward in the adoption and ongoing implementation of these standards. While the GS1 standard system is not new to most industries throughout the world, it's new to healthcare in the U.S. The FDA has not stipulated a firm timetable for healthcare facilities to be able to track these codes – but it will be in the next few years, according to a FDA spokesman.

The terms you need to know¹

The GS1 organization (formerly the Uniform Code Council or UCC) is the leading global standards organization in the healthcare industry, supporting the healthcare community through its GS1 Healthcare global initiative.

GS1 Healthcare is a voluntary, global user community that brings together all healthcare stakeholders, including: pharmaceutical and medical devices manufacturers, wholesalers and distributors, group purchasing organizations, hospitals, pharmacies, logistics providers, governmental and regulatory bodies, and associations.

GS1 has defined the key terms in its standardization pathway as:

- **GLN (Global Location Number)** – the globally unique GS1 Identification Number for locations and supply chain partners. The 13-digit GLN can be used to identify a functional entity (like a hospital pharmacy or accounting department), a physical entity (like a warehouse or hospital wing or even a nursing station), or a legal entity (like a health system corporation). The attributes defined for each GLN (e.g., name, address, class of trade, etc.) help users to ensure that each GLN is specific to one, very precise location within the world.
 - **GTIN – (Global Trade Item Number)** – the globally unique GS1 Identification Number used to identify "trade items" (i.e., products and services that may be sold, delivered or invoiced at any point in the supply chain). The 14-digit GTINs are assigned by the brand owner of the product, and are used to identify products as they move through the global supply chain to the hospital or ultimate end user. The attributes defined for each GTIN (e.g., size, weight, packaging, etc.) help users to ensure that each GTIN is specific to one, very precise trading unit configuration (e.g., a blister of two aspirin tablets; a bottle of 100 aspirin tablets; etc.).
 - **GDSN – (Global Data Synchronization Network)** – The GDSN is a network of interoperable data pools connected by the GS1 Global Registry. The GDSN uses the GS1 identification and data standards as the common language for supply chain information. Specifically, the GDSN uses the GLN for information about supply chain partners and/or locations, and the GTIN for information about products.
 - **UNSPSC – (United Nations Standard Products and Services Code)** – A hierarchical set of product categories used by supply chain partners worldwide to classify their products and services. Use of the UNSPSC enhances company-wide visibility of spending analysis and promotes cost effective procurement.¹
- Ultimately, implementation of GS1 standards promises to eliminate custom account

numbers and custom product numbers, to standardize product data, and share information across the industry. Consensus is building within the industry towards two key dates:

- 2010 for the adoption and use of the GLN in all business transactions
- 2012 for the adoption and use of the GTIN in all business transactions

GS1's Recommended Roadmap

Healthcare providers assign GLNs to their various locations and entities. A provider's GLNs are typically their ship-to-locations. Depending on the size of the hospital and whether they are doing just-in-time deliveries, the number of GLNs could be sizeable but will deliver an accurate picture of where supplies are delivered. The healthcare suppliers assign GLNs to their locations and entities, as well as GTINs to all of their products.

If your facility is looking for ways to recapture more in chargebacks and rebates in all your inventory purchases (not just pharmaceutical and medical devices), then you may want to begin with GLN. It may give you the information you need in other processes as well to review your pick and pack activities, and to review the make up of custom trays and packs based on actual usage of components.

If your facility is about to implement a Barcode Point of Care (BPOC) System in the next year and is concerned with patient safety and supply chain efficiency, then you may want to begin with GTIN. Chances are your facility is already using some type of barcode scanner to capture inventory information from its existing printed barcode and or RFID (Radio-frequency identification) and wireless applications. Most of the newer scanners are compatible with picking up GS1 information.

If your facility has already implemented GTIN and GLN (or is in the process of implementing them) and is looking for a way to create a central data source that feeds all of your IT systems with the same reliable supply chain data, then you may want to begin with GDSN.

If your facility is looking to analyze purchasing activities in order to identify supply chain cost-savings opportunities and leverage contract pricing and tier discounts, then you may want to begin with UNSPSC. In that case, the UNSPSC would be your first selection.¹

Getting value out of GS1 standards today

Although full implementation of GS1 standards within the healthcare industry will be phased in over the next few years, you can still look to gain value today by beginning to adopt the GS1 standards.

According to a paper by Sterling Commerce², an Ohio based company providing business integration solutions in many in-

dustries, the ability to successfully address data synchronization must include three phases:

- 1) Synchronizing your information with yourself (internal synchronization),
- 2) Synchronizing information with your trading partners to get on the same page with one another (external synchronization),
- 3) Establishing a process by which the two of you will stay in synch with yourselves and with each other as your data changes over time (ongoing synchronization).

For example, if you start with GLN, you can begin to garner benefits today in several areas:

- 1) Internal understanding and process improvements for maintaining and communicating changes to location data
- 2) Coordination with your GPO to confirm your locations and roster
- 3) Improved communication with your suppliers on your strategy for implementing GLN and discussion on how to improve processes and information sharing
- 4) With early adopter suppliers, begin replacing custom account numbers with the GLN

And, even though there are a limited numbers of suppliers participating in the GDSN, you can benefit before full implementation by utilizing your current processes to load more standardized data provided by manufacturers to providers and GPOs.

Finally, internal examinations now of processes for maintaining and using location and product information will help you engage with your trading partners and develop your transition strategy.

Getting started with MMIS

You can expect that a MMIS or ERP Provider may phase in features and capabilities in your standards adoption process and that upgrades or modifications may be required.

Key high-level desired capabilities include storage of GLN, GTIN and GDSN data elements and utilization of GS1 data in your internal business processes and your external transactions with trading partners (GPO, distributors, manufacturers).

You may also look to your MMIS or ERP provider for solutions or recommendations regarding data synchronization. They may be able to offer a ready solution or may recommend one of the existing GS1 solution providers.

As you evaluate both your system capabilities and your desired business processes, consider:

- How would the GLN be used within your system and processes? How would you use GLN to identify Locations and account number?
- Will your system allow you to transact using the GLN or GTIN? Can you phase in the use of these values with specific vendors?

- When transacting (internally and externally), when do you need to include the GLN or GTIN and how should it be included in each transaction?
- Do you plan on storing and scanning GS1 barcodes? Can your systems handle this?
- What are the sources of your data, particularly product information? What can those sources provide? What is the frequency and size of updates? How is the data being delivered to you? What steps need to be performed before loading and can your system store GDSN recommended data elements?

Most MMIS' have the ability to create extra data fields that could be populated with GLN-GDSN data. If your system already contains compatible product identification numbers from your orders, you may be able to automate this process or hire the help of a data synchronization service, your GPO or a data management service like Global Healthcare Exchange (GHX). Recently, GHX announced plans to become part of GS1's Global Data Synchronization Network (GDSN) as a GDSN-certified data pool for the healthcare industry. GHX is already connecting hospitals and suppliers via EDI and could enable healthcare organizations to more readily utilize GS1 standards and realize their benefits quickly and cost effectively by cross matching the existing product identifiers in a hospital's item master, with the GDSN information. In addition, GHX will also play a role in incorporating GLN and GTIN into EDI transactions.

Many MMIS' have the ability to keep the hospital's customized item master as well as relate it to the GS1 data standards. And some software vendors are already capable of this because they've done it for the food, grocery, manufacturing and retail industries outside of healthcare.

According to GHX, manufacturers can utilize their existing connectivity to GHX to provide product data, including GS1's unique product identifier – the GTIN – to the GDSN in a manner compliant with global standards. Healthcare suppliers and providers not integrated to GHX will have the option to participate in the GHX data pool as a standalone service.

Getting started with an ERP system

An ERP system offers a bundled set of modules that cover a variety of different business areas – such as accounting (general ledger, accounts payable, accounts receivable), supply chain and human resources. The efficient ordering and handling of supplies and supply cost at a hospital facility is handled by the inventory, procurement or MMIS module capabilities within an ERP system. Because an ERP system typically covers a broader range of business processes, the implementation of GS1 standards has a broader impact and benefit than a stand-alone MMIS.

Traditionally, smaller organizations did not choose an ERP system. Today, with more options for rapid implementation, community hospitals are choosing the benefits of an integrated system. Using an MMIS alone may be unable to grow your supply chain strategy with it in terms of functionality, integration, or information visibility.

The ability to automatically capture the unique identification of a product with a barcode or RFID tag at every stage will make supply chain management more accurate and efficient. Standardized data injected into current processes can benefit processes as the industry moves toward full enhancement of data sync and GS1 standards. In order for an ERP system to function well, data integrity is paramount. Strategic analysis reporting can only be accomplished with clean data. Data can be captured at every GLN from the dock to point-of-care with the patient using various systems.

Hospitals and other providers recognize the inherent clinical, financial and operational value of data synchronization because they've heard and read about it for many years. With the new FDA mandate to adopt a unique product identifier system, manufacturers have to align their data systems, transmit the right data from the start and not charge for it, while the software companies have to tailor their systems to accommodate standardized data painlessly and enable all of the disparate systems within the provider organization to talk to one another.

With the ability to share data enterprise wide, your facility will be able to analyze supply delivery and usage at specific GLNs. An ERP system would also offer the ability to connect those supplies to specific patients in the billing module and ensure the patient was also charged.

An ERP system can also make it easier for the facility to link and track data to patient safety trends. Being able to track medical devices and pharmaceuticals to a patient's electronic medical record can prove the right product was used and also will save on future product recalls and identifying patients at risk, because of those recalls.

Organizations making waves, reaping rewards

GEISINGER HEALTH SYSTEM, DANVILLE, PA

Geisinger Health System in Danville, PA, *Healthcare Purchasing News'* 2008 Materials Management Department of the Year, is using the Lawson enterprise resource planning (ERP) system to, among other applications, help pave the way for standards adoption and implementation.

Geisinger's Supply Chain Services division remains serious about adopting and implementing data standards for efficiency purposes as well as to support safety initiatives and provide the data necessary for clinical research and innovation efforts.

Through its membership in the Healthcare Supply Chain Standards Coalition, Geisinger has been actively using the GLN in transactions and has registered all of its facilities in the GLN Registry for Healthcare. Geisinger also has been working with two major distributors and one major manufacturer, completing EDI test transactions using the GLN. In fact, Deb Petretich Templeton, associate vice president, Supply Chain Services, said they plan to convert to exclusive use of the GLN in all transactions in 2009. Geisinger also has active projects that use the GTIN standard and is actively exploring the use of the GS1 GDSN.

Working through group purchasing organization Premier Inc. to determine their numbering strategy and set their GLNs is half the battle, Templeton indicated. Encouraging vendors to do the same through EDI is the current goal. "The use of these standards can truly transform the way we do business," she said, "radically shifting the way healthcare business is transacted."

Geisinger is also looking to link their pharmacy and med/surg item masters with their charge description master (CDM) codes. This will include all the basic information and coding about the hospital supplies and what they can charge a patient. With clean data they will be able to enhance their revenue cycle management process.

UNIVERSITY HEALTH CARE SYSTEM, AUGUSTA, GA

UHCS is an example of a hospital that has already begun the process of data standardization – starting in 2004 the purchasing department took

GS1 TIMELINE OF STANDARDS ADOPTION

18-Jul-05

Leading global companies from the pharmaceutical and medical device industry form a GS1 global Healthcare User Group (HUG). Its objective is to lead the utilization and development of global standards for the healthcare industry, with the primary focus on automatic product identification to improve patient safety.

22-Aug-06

After one year of successful operation, the Global Healthcare User Group officially announces that it will use GS1 standards exclusively as the basis for its automatic product identification developments.

26-Jan-07

HUG Leadership Team writes a letter to FDA requesting permission to allow labelers to use GS1 Data Matrix bar code standards.

21-Mar-07

The UK Department of Health issues guidelines saying they support GS1 standards.

22-Mar-07

The International Hospital Federation (IHF) joins GS1 effort to improve patient safety through global supply chain standards.

13-Jun-07

GS1 and HL7 join forces to develop global standards to improve Patient Care.

2-Nov-07

Healthcare Supply Chain Standards Coalition (HSCSC) endorses GLN and GTIN, recommends GDSN.

14-Feb-08

GS1 Healthcare is formally approved.

21-May-08

To complete its mission of making the healthcare supply chain safer and more efficient through the adoption of global data standards, the Healthcare Supply Chain Standards Coalition (Standards Coalition) combines its efforts with GS1 Healthcare US.

10-Jun-08

GS1 DataMatrix - an introduction and technical overview of the most advanced GS1 Application Identifiers compliant symbology is published.

21-Jul-08

Premier healthcare alliance endorses supply chain standards to enhance patient safety, reduce costs. First healthcare group purchasing organization to require GS1 standards in contracts to identify, track medical devices.

1-Aug-08

Amerinet affirms its commitment to proactively partner with its customers – both providers and suppliers - to adopt and continue to implement GS1 healthcare standards with a focus on driving costs out of the supply chain.

11-Sep-08

GHX becomes GDSN-certified data pool to accelerate use of GS1 Standards in Healthcare.

10-Oct-08

GS1 sets roadmap to state-of-the-art Global Traceability Standard for Healthcare and commits to facilitate the development by the user community of a Global Traceability Standard for Healthcare (GTSH) as well as a suite of technical standards as an efficient and effective architecture for all Healthcare supply chain stakeholders. A complete suite of standards for global traceability is targeted for mid 2010.

6-Nov-08

The Global GDSN Healthcare Pilot Team presents its report on the global GDSN Healthcare pilot successfully completed earlier this year. The pilot clearly demonstrates that the GDSN provides the infrastructure to exchange data between data pools across international borders and facilitates synchronization across the entire length of the supply chain.

20-Nov-08

US-based Resource Optimization & Innovation (ROi), the Sisters of Mercy Health System's (Mercy) supply chain operating division, takes a landmark step in the healthcare industry by adding specific terms to contract language requiring the use of GS1 Standards in transactions and in production processing.

the initiative to start their data clean up. The 551-bed not-for-profit hospital, which serves a 25-county region, wasn't about to wait for the healthcare industry to develop or at least reach a consensus on establishing a single source of synchronized data for all trading partners. Instead, UHCS created its own pilot product data utility (PDU), a short-term step to solve immediate supply chain needs, for sure, but with long-term implications. That's because the purchasing team at UHCS patterned its program on the best practices of the grocery and retail industries and its PDU after the pilot program implemented by the Department of Defense.

"Having standardized and synchronized product data in hospital item files to save costs, increase supply chain effectiveness and even improve patient safety may seem like a no-brainer, but in healthcare, such data quality is the exception and not the rule," said Mike Brown, director of purchasing. So UHCS "developed and deployed solutions that are based on successful models used in other industries to address hospital needs to reduce operating costs while growing hospital revenue, and is beating the industry financial averages as a result."

From daily usage of the UNSPSC, the purchasing department then worked to synchronize data in its item master with those in the vendors' systems starting in January 2006. UHCS began tracking the costs of patient care supply items to net operating revenue, making necessary changes without sacrificing patient care quality or clinical department satisfaction. By the end of April 2007, the year-to-date ratio had dropped to 12.7 percent from 13.9 percent in 2004. Brown's team worked to gain physician support on the clinical product evaluation team for managing preference items and using group purchasing organization contracts better, developing positive professional relationships with nursing, surgical services, cath lab and radiology.

The purchasing department also synchronized its item file with the GPO contract files, including the off-line database, and enforcing its electronic price change notification policy, including "more aggressive management of invoice exceptions and moving away from using invoice exceptions as price change notifications," noted Brown.

MAYO CLINIC, ROCHESTER, MN

The Mayo Clinic is about half way through a 10-year plan to utilize data to achieve supply chain excellence, according to Joseph Dudas, director, accounting and supply chain informatics. "We support the GS1 (DataBar) Sunrise initiatives."

Describing the Mayo Clinic's progress towards adopting GLN and GTIN standards, Dudas noted "we have implemented GLN

with our largest supplier which represents 30% of our PO lines. Our registry is complete and accurate. We have engaged our GPO in data sharing. We have implemented UNSPSC and are aligning our Categories and GL Accounts. We are currently working with Lawson on needed enhancements for GLN and GTIN. We are working with our executive management team to engage others in the process of adoption."

Open communication lines, both internally and externally, have helped to ensure smooth implementation along the way. "We communicated to our key suppliers very early in the process and made changes to our processes outside of Lawson first," said Dudas. "We participated in industry initiatives and really publicized our intentions. We recruited our partners to participate with us and then we picked suppliers that had a proven track record working with us collaboratively. Our intention is to continue down that same path and prioritize based on volumes and readiness. This is the same method we used for e-commerce," he noted.

Dudas also emphasized the critical nature of leadership support. "Executive sponsorship is critical as prioritization, resourcing and support across the SCM [Supply Chain Management] and SCM Customer organizations is needed. Implementing standards as core as GLN and GTIN cannot be accomplished by the IT team alone. I would highly discourage others from trying to do this alone."

The rewards of standards adoption will be realized industry-wide, envisioned Dudas. "We believe the benefits for the industry range in the billions of dollars as documented in the EHCR [Electronic Health Care Record]. Organizations that go through this process will learn the skills needed to survive in the Healthcare Industry of the future (unprecedented collaboration, systems thinking, utilization of high quality information, innovation, improvement and change management)."

Lawson Global Healthcare's Supply Chain Management Suite

Through the use of standard data and processes, Lawson Supply Chain Management applications can help you take control of your procurement processes. Lawson supply chain management can help eliminate costs resulting from manual, paper-based, often disconnected processes, as well as from duplication of effort and off-contract buying. Lawson combines the power of proven business and service procurement experience with complementary healthcare-specific functions such as management of GPO contracts, surgical instrument management and mobile par counting. Lawson Global Healthcare's Supply Chain Management Suite includes Strategic Sourcing, Contract Manage-

ment, Procurement, Requisitions Self-Service, Procurement Punchout, EDI, Mobile Supply Chain Management, and Surgical Instrument Management.

For the last few years, Lawson has worked to promote standards and best practices through groups, such as Coalition for Healthcare eStandards, Strategic Marketplace Initiative and Healthcare Supply Chain Standards Coalition, and programs such as the Department of Defense GDSN pilot. Lawson is now active in GS1 Healthcare committees that are helping to shape the standards and promote implementation. Lawson customers are also very active in the process. They are helping to promote the use of standards by participating in pilots that help identify both business and technology best practices to adoption.

Already, Lawson's solutions provide capabilities to help get you started with the use of GS1 standards. For example, GLNs can be assigned to each location in Lawson and included on a purchase order. When setting up items in the Lawson item master, GTINs can be added and stored for each item and unit of measure. As standards and business processes evolve, Lawson will continue to invest in updating our applications to support Healthcare industry needs.

Share in the benefits of data standardization

While data standardization and synchronization in the healthcare industry have been discussed and debated for decades, current efforts have made significant progress compared to past efforts and initiatives. Ever since the global GS1 Healthcare User Group (HUG) was formed in May 2005 with the objective of leading the utilization and development of global standards for the healthcare industry, GS1 has managed to quickly build almost universal awareness and support. In addition, more healthcare suppliers and providers have been actively adopting and implementing GS1's program more quickly than predecessor efforts. With healthcare providers and suppliers working in harmony on data standardization and synchronization strategies, now is the ideal time to start putting the pieces in place that will help you maximize the full potential of your MMIS or ERP system.

References:

1. GS1 Healthcare Provider Tool Kit. www.gs1us.org/hcp-toolkit
2. Data Synchronization in Healthcare: A Solvable Problem by William L. Rosenfeld & John L. Stelzer.

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