Global Location Number (GLN)

GPO Roster Pilot:
Using GLNs in Group Purchasing Organization (GPO) Roster Management

GS1 Healthcare US would like to thank the following industry members for their participation in this important pilot and in the development of this report. The learnings from this pilot are a critical step for U.S. healthcare in GLN implementation.

Abbott Laboratories, Inc.
Becton Dickinson
BJC HealthCare
Cardinal Health
Covidien

Johnson & Johnson
Kimberly-Clark Corporation
Novation
Premier
Introduction

The GS1 Global Location Number (GLN) enables all parties to identify the same location using one globally unique identifier. The GLN has a number of potential business applications in healthcare. This pilot focused on the use of GLN in Group Purchasing Organization (GPO) Roster management. Investigation of other uses like contracts and pricing was considered for inclusion in the pilot as well. However, it was later determined that other potential uses will require independent study. It was also decided that this pilot would be limited to Ship to locations only.

Objectives

The objectives of the pilot were to:

- Reconcile the GLNs for a Healthcare Provider (i.e., a hospital) catalogued in the GLN Registry for Healthcare® across the Provider, the GPO Roster, and finally the Manufacturers and Distributors.
- Document the process to determine a baseline for the existing process.
- Suggest potential business process improvements enabled by the use of GLN.
- Determine the action steps necessary to utilize GLN as a key identifier in the Roster.
- List areas of concern which must be settled by further industry input.
- Develop a pilot report that documents the lessons learned.

Methodology

To establish the methodology used for the pilot, the pilot participants identified a basic process flow for GPO Roster maintenance. This process mirrors current industry practice.

Step 1. The Provider reviews and updates the GLN hierarchy for its organization from the GLN Registry for Healthcare®.

Step 2. The GPO reconciles and updates the GPO Roster using the updated GLN hierarchy from the Provider.

Step 3. Manufacturers reconcile their internal data with the GLN hierarchy from the Manufacturer.

Step 4. The Distributor reconciles their internal data with the GLN hierarchy from the Manufacturer.

For sample data of each step, please refer to the appropriate appendix:

Appendix A: Sample Data for Step 1 – Provider Revision of the GLN Hierarchy

Appendix B: Sample Data for Step 2 – GPO Reconciliation

Appendix C: Sample Data for Step 3 – Manufacturer Reconciliation

The GLN Registry for Healthcare was used as the source of truth for this project. The GPO used the GLN Registry for comparison against its Roster before making any changes. All subsequent data was exchanged among the parties via Excel spreadsheet.

Participants

The pilot engaged participants across all major healthcare supply chain roles. Participants in the pilot included:

Healthcare Provider: BJC HealthCare

GPOs: Novation

Premier

Manufacturers: Abbott Laboratories, Inc.

Becton Dickinson

Covidien

Johnson & Johnson

Kimberly-Clark Corporation

Distributor: Cardinal Health
Background:

Allocating GLNs & Creating the Initial GLN Hierarchy for a Provider

As a service to their members, GPOs work with GS1 US™ to allocate GLNs to their Providers, including all Owned Facilities and Affiliates. To allocate GLNs to its Providers, a GPO uses its Roster to create a report that lists all member locations, and ensures that all addresses in the report match the Post Office address standards. Based on that report, a GLN hierarchy for each Provider is established in the GLN Registry for Healthcare (“the Registry”) and GLNs are then allocated to all of the GPO member locations.

The GLN hierarchy is initially created and entered into the GLN Registry by the GPO according to their GPO Roster. As a result, the hierarchy used in the GLN Registry generally matches the structure found in the GPO Roster. The general structure for a GLN hierarchy is as follows:

**Level One (1)** is the Main Parent. This should be a location that actively receives products or is the corporate entity used in GPO records.

**Level Two (2)** is any entity that reports directly to the Main Parent.

**Level Three (3)** is other buildings and/or the subordinate departments of Level Two.

**Level Four (4)** is an additional Level that could be used for desktop delivery or Just in Time (“JIT”) locations. There are up to seven Levels that have been used in some Provider organizations based on size and hierarchical structure.

Because the GPOs initially created the GLN hierarchies for their Providers, the GLN Registry recognizes the GPOs as “owning” those GLN hierarchies (i.e., the GPOs are granted both “Editor” and “Approval” roles/authority for those hierarchies in the GLN Registry). However, the goal is to ultimately transition ownership of each GLN hierarchy to the corresponding Provider. This is often an iterative process where the Provider first requests an “Editor” role from their GPO so that they can update information or adjust the hierarchy to meet certain internal needs (e.g., reporting or rebate flow). Eventually, the Provider requests and obtains the “Approval” role from the GPO, thereby taking over full control of its own hierarchy.

Pursuant to that process, the GPO had already allocated GLNs and established the GLN hierarchy for the Provider in this pilot. The Provider obtained an “Editor” role from the GPO in order to work with their hierarchy during this pilot.
Step 1: The Provider reviews and updates the GLN hierarchy for its organization from the GLN Registry for Healthcare.

The Provider exported the GLN Hierarchy Report for its organization from the GLN Registry. The hierarchy for the Provider in this pilot contained four (4) levels.

**Level One (1)** was the Parent (i.e., the top level of the organization). For the Provider in this pilot, the top level was the overall corporate parent.

**Level Two (2)** was the general ledger company and/or main address that received products. For the Provider in this pilot, it was generally the individual hospitals.

**Level Three (3)** was other buildings and/or the subordinate departments of Level Two.

**Level Four (4)** was not generally used for the Provider in this pilot.

The Provider imported the GLN Hierarchy Report into an Access database (“the Provider GLN Report”). The Provider GLN Report was sorted by the “Address 1” field. Duplicates were identified and removed from the report. The Provider GLN Report was then sorted by phone number. This revealed additional duplicates that were also removed from the report. Finally, the Provider edited the Parent-Child relationships (outlined in the Levels above) in the report as needed.

Next, the Provider created a report from their internal systems for all Ship to locations for all facilities (“the Ship to Locations Report”). They used Post Office address standards for these locations. The Provider then used this Ship to Locations Report to further update the Provider GLN Report. First, the Provider added any facilities from the Ship to Locations Report that were missing in the Provider GLN Report. Next, the Provider amended all address fields in the Provider GLN Report to conform to the Post Office address standard. Finally, the Provider also reviewed and verified all of the fields in the Provider GLN Report for each location.

**NOTE:** There was some concern over the “Class of Trade” (COT) fields. The Provider felt that there was no clear definition of who would use these fields and how they might be interpreted. The Provider suggested several potential additions to the GLN Registry COT drop-down menu, which will be forwarded to the GLN Registry Technical Committee.

Once the updated Provider GLN Report received the necessary internal approvals, it was forwarded to the GPO for review. The GPO compared the updated Provider GLN Report to the GLN Registry. The GPO found some duplicates and some missing GLNs in the updated Provider GLN Report. The Provider removed the duplicates and added the missing GLNs to their report.

The Provider reported that the entire effort took approximately two days in total.

Effort related to “Owned Facilities” (i.e., those facilities directly owned and operated by the corporate parent) consumed only about a half day of work.

Effort related to “Affiliated Facilities” (i.e., those facilities not directly owned and operated by the corporate parent) consumed the rest of the time, much of which was spent verifying data with Affiliates.
Step 2: The GPO reconciles and updates the GPO Roster with the updated GLN hierarchy from the Provider.

The GPO exported the GLN Hierarchy Report for the Provider from the GLN Registry, and then imported it into an Access database ("the GLN Hierarchy Report").

The GPO built queries to compare the GLN Hierarchy Report with its current GPO Roster. The GPO looked for the following three categories:

- Direct matches between the GLN Hierarchy Report and the GPO Roster
- Locations shown in the GLN Hierarchy Report, but not in the GPO Roster
- Members shown in the GPO Roster, but not in the GLN Hierarchy Report

The first query identified duplicates by comparing the “Address 1” field of Category B locations to Category A locations. Most of those duplicate locations from Category B were then “inactivated” in the GLN Registry.

The second query identified more duplicates by comparing the same lists (i.e., Category B and Category A) by names and phone numbers. Those duplicates were also “inactivated” in the GLN Registry. This query also revealed some address corrections, which were made to the GLN Registry and/or the GPO Roster as needed.

Next, all locations in Category B that were not matched as duplicates and were confirmed as valid locations according to the Provider were added to the GPO Roster.

Finally, records in Category C were researched to see why there was no corresponding GLN in the GLN Hierarchy Report. Research revealed that these locations were Affiliate locations controlled and/or owned by another GPO. The GLNs had been used so that there would not be duplicate GLNs in the GLN Registry.

At this point, the GLN Registry and the GPO Roster have now been reviewed and revised by the Provider & the GPO, and reconciled with one another.

Step 3: Manufacturers reconcile their internal data with the GLN hierarchy from the GPO.

This process began after the Provider refined its GLN hierarchy from the GLN Registry and reconciled it with the GPO. The end result of that effort was sent by spreadsheet to the participating Manufacturers. The Manufacturers compared the list with their internal records for that Provider based on the Manufacturer’s Ship to number. (For multi-divisional Manufacturers, this process was repeated at each separate division.) First, the Manufacturer established the Provider membership. There are several ways to do this:

<table>
<thead>
<tr>
<th>Method</th>
<th>Description</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Method A:</strong> Use the GPO view of the Provider</td>
<td>Method A matches Manufacturer’s internal account number to the GPO identifier to determine the appropriate GLN.</td>
<td>Method A is the most direct. While this method may seem counterintuitive, it actually helps isolate the intended Ship to locations very precisely, and facilitates a rather rapid matching process. In general, Manufacturer internal account numbers can be cross-matched with GPO identifiers within hours.</td>
</tr>
<tr>
<td><strong>Method B:</strong> Use the Manufacturer’s view of the Provider</td>
<td>Method B uses the Manufacturer’s internal views of the Provider as stored within source systems. This view generally does not match the view of the Provider presented by either the Provider or the GPO. This process varies by Manufacturer.</td>
<td>Because the Manufacturer’s view generally does not match the Provider or the GPO, Method B requires a labor-intensive effort to match all known Ship to locations within the Manufacturers’ source systems to the Ship to locations in the subject list. Depending on the size and complexity of the Provider, this effort can stretch into days or weeks.</td>
</tr>
<tr>
<td><strong>Method C:</strong> Use the addresses and match all parties from the given list</td>
<td>Method C uses the complete list. All Provider locations are mapped to the Manufacturer’s internal accounts.</td>
<td>Method C is the most arduous and labor-intensive method. A single address can take up to 30 minutes to validate. This method delivers the most comprehensive results, but it might not be the most effective method for all supply chain partners.</td>
</tr>
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</table>
Each Manufacturer reached similar conclusions:

- Only a small minority of the Ship to locations matched directly to the Manufacturer’s internal accounts. Many of the GLNs represented facilities or locations outside of any single Manufacturer’s shipping patterns. A number of locations, like individual hospital departments or doctor’s offices that required GLN for the Provider’s internal purposes, may not be relevant for most Manufacturers.

- Some addresses had multiple GLNs associated with them. In some instances, this was due to multiple shipping and/or delivery points within a given physical address. As a general rule, most Manufacturers have a consolidated account to represent a single physical address. In some cases, there are internal needs at either the Provider or the GPO (or both) for the multiple GLNs within one physical address (see the next point below).

- Multiple Manufacturer account numbers were assigned to single GLNs. This may represent separate accounts within subordinate units in a Manufacturer’s divisional structure. There may be different contracts and/or terms that are triggered by the different account numbers. Different divisions at a Manufacturer may also have different hierarchical structures for the same Provider. As a result, the Parent-Child relationships at the individual Manufacturer may not mirror the hierarchy listed in the GLN Registry.

- There were some different interpretations at the Manufacturer for the same “physical address.” Sometimes, it was a matter of recognition (e.g., a missing suite number or departmental description). Sometimes, it was due to the recognition of a unique Bill to and Ship to combination that required a different recognized address. In some cases, it represented a real error in the Manufacturer’s database that needed correction.

The Manufacturers have not reconciled the discrepancies with both the GPO and the Provider. This process generally requires precise collaboration in order to ensure that all of the players (Provider, GPO, and divisional customer account departments at the Manufacturer) reconcile their lists appropriately. The time needed will vary depending on the exact mix of the organizations involved. It may take several hours of coordination in order to reach consensus.

Once the Provider’s hierarchy is determined to be reconciled among partners, some defined business process would be needed to help maintain the hierarchy going forward. That exact process was determined to be outside the scope of this initial project.

**Step 4: The Distributor reconciles its internal data with the GLN hierarchy from the Manufacturer.**

This process began after the Provider refined its GLN hierarchy from the Registry and reconciled it with the GPO. The end result of that effort was sent by spreadsheet to the Distributor. The Distributor followed the steps below to match the refined GLN list with the Distributor’s existing GPO membership list (based on the Distributor’s customer Sold to number):

1. Match on GPO membership ID.
2. Sort both files by state, city and street address to do a manual review looking for matches based on name and address.
3. Note gaps on both files (e.g., where a customer existed on the internal file, but not the GPO provided file; where a customer existed on the GPO provided file, but not on the internal file; etc.).
4. For those Sold to customers that were matched, pull in all of the Ship to customers that roll up into them, including Ship to customer name and address information.
5. Sort Ship to customers by state, city and street address to find additional matches.
6. Note gaps on both files. (This step will find matches that were not found in Step 3.)

The Distributor offered several findings:

- A number of the records that appeared on the GPO Roster, but not on the Distributor’s internal list, were records that had a corporate relationship of “Affiliated” rather than “Owned.”

- Additional review of data by Provider resources as well as GPO resources is needed to further evaluate where there were gaps.

- At the Ship to level, a number of customer records in the Distributor’s systems were the same customer (i.e. same name and same address) created to accommodate various internal processes for the Distributor and various external processes for the Provider or GPO.

- Some of the duplicate Ship to’s in the Distributor’s systems would be removed if a data clean up were performed (i.e. they exist due to consolidation and acquisition of customer data over the years).
General Recommendations:

During regular conference calls discussing the pilot, the participants reached consensus on several “Best Practices” recommendations for the use of GLNs in GPO Rosters:

- The initial hierarchy design within the GLN Registry for Healthcare should follow the GPO Roster. Providers may need to modify that initial hierarchy to accommodate their individual reporting needs and rebate flow.

- The system works best when Providers manage their own GLNs.

- Providers should only manage GLNs for ** Owned Facilities** in the GLN Registry.

- Eligibility determinations should be made via the GPO Roster, not the GLN Registry.

- GPOs should manage GLNs for ** Affiliates** until they are able to transfer that responsibility to the Affiliates.

- In order to facilitate the linkage of GLNs to the Manufacturer’s internal account numbers, GPOs should provide a map associating the GLNs in their Rosters with the GPOs current unique identifiers for a transitional period of time (based on individual partner agreements).

- COT was not verified in this exercise. The pilot group did not find any role for its inclusion in the GPO Roster process. “Class of Trade” (COT) needs a common, agreed upon recommendation. COT is a required field in the GLN Registry. In some cases, it is used to differentiate between multiple GLNs at the same physical location. The Providers and GPOs currently determine the classifications used in the COT field. However, the eligibility criteria for COT varies greatly among different Manufacturers. Most Manufacturers reserve the right to determine COT using their own criteria.

- In order to speed adoption, enumeration to support GPO Rosters should only extend to the **Ship to** level. There are many complications in extension to the **Deliver to** level that should be deferred to a later phase.

Questions for Further Study:

- How can the industry develop “Best Practices” to help make the GLN implementation process more efficient?

- Are there specific tools the industry can endorse to help speed industry adoption? Implementation templates? Enumeration models? Educational resources?

- What are the key business drivers for GLN? Reference number in contracts? Identification of physical locations of facilities, including corporate locations that are used for purchasing/accounts payable? Account number for purchases? Shipping? Sales reporting? Fee payments? Data synchronization? Product tracking? The answer to this question could help in determining the type of information required for the proper use of the GLNs.

- When there are discrepancies between constituents, what is the process to reconcile the differences?

- Can this project be sub-divided into specific phases with differing goals and implementation models? If so, what should they be?

- How should Affiliates be represented in the GLN Registry for Healthcare if managed by GPOs? If managed by Providers? GPOs may consider separating Affiliates out of Provider hierarchies.

- Providers may wish to investigate if a single hierarchy meets their needs. Would it be difficult to represent multiple views of a Provider hierarchy (e.g., supply chain, financial, legal entity, etc.) in a single repository?

- Initial efforts have been focused at the **Ship to** level. Is there a need to manage reporting activity below the **Ship to** level? For example, there may be some Manufacturers and Distributors who need to account for product activity at the **Deliver to** level.
Appendix A: Sample Data for Step 1 – Provider Revision of the GLN Hierarchy

This screen shot displays an example of the initial enumeration for a Healthcare Provider:

- **Level 1** is the corporate parent of the Provider.
- **Level 2** represents the main hospitals and other major entities within the Provider.
- **Level 3** represents the key departments within those major entities.
- The “Address 1” field is one of the key fields used for location identification.
## Appendix B: Sample Data for Step 2 - GPO Reconciliation

This screen shot is an example of the GPO filtering the enumeration provided by the Healthcare Provider. The highlighted facility shows a match with the original data provided by BJC.

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## Appendix C: Sample Data for Step 3 - Manufacturer Reconciliation

This screen shot is an example of the GLN enumeration matched to a Manufacturer’s internal account number structure. The example displayed is not intended to reflect actual account numbers for any single Manufacturer.
Resource Links

- Minnesota Pilot Phase 1 - GLN Registry for Healthcare Recommendation for Providers, Manufacturers and Distributors Based on Lessons learned from the Minnesota Pilot:
  

- Minnesota Pilot Phase 2 - Process Map for Healthcare Using Global Location Numbers (GLNs) and the GLN Registry for Healthcare:
  

- Mayo Clinic / Cardinal Health GLN Implementation White Paper:
  

- GLN Healthcare Provider Tool Kit: http://www.gs1us.org/hcptoolkit

- GS1 Healthcare US Website: http://www.gs1us.org/healthcare

- 2010 GLN Sunrise: http://www.gs1us.org/hcsunrise

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GS1 Healthcare US is an industry group that focuses on driving the adoption and implementation of GS1 standards in the healthcare industry in the United States to improve patient safety and supply chain efficiency. GS1 Healthcare US brings together members from all segments of the healthcare industry to address the supply chain issues that most impact healthcare in the United States. Facilitated by GS1 US, GS1 Healthcare US is one of more than twenty local GS1 Healthcare user groups around the world that supports the adoption and implementation of global standards developed by GS1.  [www.gs1us.org/healthcare](http://www.gs1us.org/healthcare)

About GS1 US™

GS1 US is the Member Organization of GS1 that serves companies in the United States. As such, it is the national implementation organization of the GS1 System dedicated to the adoption and implementation of standards-based, global supply chain solutions in the United States. GS1 US currently serves over 200,000 U.S. member companies -- 16,000 of which are in healthcare.  [www.gs1us.org](http://www.gs1us.org)

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