The Global Language of Business

Healthcare

Creating the Case for Trusted Data

Attribute Lists and Implementation Insights from Three Healthcare Business Process Cases

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GS1 US®, a member of GS1 global, is a not-for-profit information standards organization that facilitates industry collaboration to help improve supply chain visibility and efficiency through the use of GS1 Standards, the most widely-used supply chain standards system in the world. Nearly 300,000 businesses in 25 industries rely on GS1 US for trading-partner collaboration that optimizes their supply chains, drives cost performance and revenue growth while also enabling regulatory compliance. They achieve these benefits through solutions based on GS1 global unique numbering and identification systems, barcodes, Electronic Product Code (EPC®)-based RFID, data synchronization, and electronic information exchange. GS1 US also manages the United Nations Standard Products and Services Code® (UNSPSC®).

About GS1 Healthcare

GS1 Healthcare is a global, voluntary healthcare user group developing global standards for the healthcare supply chain and advancing global harmonization. GS1 Healthcare consists of participants from all stakeholders of the healthcare supply chain: manufacturers, wholesalers, and distributors, as well as hospitals and pharmacy retailers. GS1 Healthcare also maintains close contacts with regulatory agencies and trade organizations worldwide. GS1 Healthcare drives the development of GS1 Standards and solutions to meet the needs of the global healthcare industry, and promotes the effective utilization and implementation of global standards in the healthcare industry through local support initiatives like GS1 Healthcare US® in the United States.

About GS1 Healthcare US

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 help 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 over 30 local GS1 Healthcare user groups around the world that supports the adoption and implementation of global standards developed by GS1.

1 Executive Summary

Healthcare stakeholders are recognizing trusted product data as a vital asset, and discovering that the benefits of consistent, quality data are real, including greater efficiencies, lower costs and improved patient outcomes. Many have expressed a clear need for accurate, complete and timely product data in order to meet the growing demands within the healthcare supply chain and clinical use of medical devices and pharmaceuticals.[1] Nonetheless, implementation of data sharing tools, like the GS1 Global Data Synchronization Network™ (GDSN®), lags across U.S. healthcare.

The GDSN is a standards-based solution that enables trading partners to share product master data in a fully automated way. With GDSN, stakeholders can establish an authoritative data source to align product information across their IT systems and with their trading partners. As many industries have already learned, the GDSN is a valuable tool for promoting and maintaining data quality. In fact, it is a core component of the GS1 US Data Quality Framework.

GS1 Healthcare US® engaged with industry stakeholders to understand the dynamics inhibiting healthcare from fully leveraging GDSN to support their need for quality product information. From the outset, there were strong impressions that the data provided by healthcare manufacturers via GDSN could not consistently meet the needs or expectations of providers and other downstream trading partners. One theme was completeness. Data recipients indicated that the product information available to them via GDSN was not complete (i.e., either specific data elements were not available or, in some cases, manufacturers were not providing certain data to their trading partners), and many complained that there was no list of core healthcare attributes to help them know what attributes they needed. Another theme was questionable data quality, with healthcare users reporting inaccuracies between what was provided via GDSN and what was found in or on the physical product. In addition to these questions about data completeness and data quality, there also seemed to be some underlying technical hurdles that needed to be examined.

In response, GS1 Healthcare US launched several efforts to gain insight about the core issues holding back widespread adoption and use of GDSN within the U.S. healthcare industry. The first objective was to provide a list of GDSN attributes needed to support three healthcare use cases: medical device order to cash (OTC) processes; pharmaceutical Electronic Product Code Information Services (EPCIS) events for the Drug Supply Chain Security Act (DSCSA); and provider point of care (POC) scanning. The second objective was to conduct GDSN implementation exercises with industry members using those attributes.

Development of the attributes list was relatively straightforward for all three use cases. However, the real challenges emerged during the GDSN implementation exercises. Whereas data sources in the exercises (e.g., manufacturers) found publication and sharing of attributes to be a "light lift" in terms of effort, data recipients (especially healthcare providers) experienced significant difficulties consuming and operationalizing the data.

Major conclusions:

- Lists of core attributes needed to support healthcare uses cases are and have been available to support industry with GDSN implementation. It appears that the real issue is that industry has not collectively embraced or leveraged these resources.
- The GDSN does provide the standardized attributes needed to support healthcare, and can be an effective methodology for data sharing that can help promote data quality in healthcare.
- The key obstacle to widespread implementation of GDSN in healthcare is that many stakeholders are unaware of the technical interfaces and advanced preparation needed for GDSN implementation,

[1] GS1. 2016. *The Value of Trusted Product Data: Perspectives shared by hospitals and government agencies*. Retrieved on January 15, 2019 from: https://www.gs1.org/sites/default/files/docs/data%20quality/gs1_value_of_trusted_data_for_hospitals.pdf

and lack the necessary expertise in master data management (MDM), data governance, and the various technology systems that will use the data in their organization.

The goal of this document is to help the U.S. healthcare industry understand some of the core challenges that have been impeding adoption of the GDSN and vital data attributes, and help them start to address those challenges so they can experience the benefits of GDSN like other industries. To that end, this document provides a list of GDSN attributes to support each use case, guidance about key issues that arose during the GDSN implementation exercises, and recommended next steps to help industry leverage the GDSN to support their need for quality product information.

Note: As with all GS1 Standards and solutions, this guidance is voluntary, not mandatory. It should be noted that use of the words "must" and "require" throughout this document relate exclusively to technical recommendations for the proper application of the standards to support the integrity of your implementation.

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2 Document Information

2.1 Goal

The goal of this document is to help the U.S. healthcare industry begin to understand some of the challenges that have been inhibiting their ability to leverage GDSN, and chart a course for overcoming those challenges to support industry in their journey toward more accurate, complete and timely product data.

2.2 Audience

This document is applicable to all members of the U.S. healthcare industry, including manufacturers, distributors/wholesalers, and providers.

2.3 Purpose

The purpose of this document is to:

- identify the GDSN attributes recommended to support three healthcare use cases,
- offer insight and guidance about key topics for GDSN implementation, and
- recommend next steps to help drive implementation of the GDSN in U.S. healthcare to support their need for quality product information.

2.4 Attribute designations explained

A key objective of these efforts was to identify a "short list" of GDSN attributes needed to support a key business process. First, there are certain attributes that must be populated (according to GDSN rules) in order to load and/or share data via GDSN (e.g., Global Trade Item Number (GTIN®), brand name, target market, etc.). Next, data sources (i.e., primarily manufacturers) wanted to know the minimum attributes needed to support the process for their downstream trading partners. While developing the list of minimum attributes, workgroup participants also identified additional attributes that were very useful in supporting the business process or analytics for future decision-making by the data recipient

(i.e., distributors, wholesalers or providers). For clarity, the workgroups used the following terms to represent these groupings, and each attribute is categorized with the applicable designation:

- **GDSN Mandatory:** Attribute must be populated in order to load and/or share data via GDSN
- **Required:** Attribute is required to support the business process
- **Required/Conditional:** Attribute is required to support the business process but only if it is applicable to the product
- **Recommended:** Attribute is helpful to trading partners in support of the business process

2.5 Roles terminology

In referencing various parties, this document uses terminology related to supply chain roles as well as terminology related to a party's role in the GDSN. To promote clarity, the GDSN roles terminology are defined below:

- **Data Source:** GDSN term for a company loading and publishing data through the GDSN, and managing response messages (from their data recipients) through the GDSN. This is usually the manufacturer, but distributors/wholesalers may also be data sources to their downstream partners.
- **Data Recipient:** GDSN term for a company receiving data and responding to the data through the GDSN. This can be a distributor, wholesaler, provider, pharmacy/dispenser, Group Purchasing Organization (GPO), etc.

3 Attribute Lists for Healthcare Use Cases

This section provides a list of attributes needed to support three key use cases in U.S. healthcare:

- medical device order to cash (OTC) / procure to pay (P2P) processes
- pharmaceutical traceability for the Drug Supply Chain Security Act (DSCSA) (i.e., use of GDSN to share attributes that would be needed to support an EPCIS event for DSCSA)
- provider point of care (POC) scanning

These lists were developed by industry stakeholders participating in the GDSN Vital Attributes Workgroup and the Point of Care Scanning Workgroup. The GDSN Vital Attributes Workgroup developed the list for the first two use cases (i.e., medical device and pharmaceuticals), and the POC Scanning Workgroup worked on the third use case (i.e., POC scanning).

3.1 Attributes to support Medical Device OTC/P2P

The GDSN Vital Attributes Workgroup analyzed the OTC/P2P business process for medical devices and defined the list of attributes needed to support that process. The OTC/P2P process encompasses ordering, fulfilling, delivering, receiving, storing and invoicing. The Workgroup participants agreed that the OTC/P2P process components and data are foundational for other processes that medical device manufacturers, distributors and end users perform throughout the product lifecycle. Therefore, the Workgroup believes that the OTC/P2P data set can serve as a solid foundation of core attributes upon which to build a GDSN implementation.

The Workgroup identified 18 required attributes and 21 recommended attributes, for a total of 39 attributes to support the OTC/P2P business process for medical devices. The full list is provided in *Appendix A* of this document.

3.2 Attributes to support Pharmaceutical EPCIS Events for DSCSA

The GDSN Vital Attributes Workgroup examined the attributes needed to support an EPCIS event for DSCSA and pharmaceutical traceability. The GDSN Vital Attribute Workgroup launched the effort using the GS1 Pharmaceutical Serialization and Traceability Use Case, which identified product master data elements (with their corresponding GDSN attribute) in the broader context of global regulations for serialization and traceability (See *Pharmaceutical Serialisation and Traceability Use Case*)The Workgroup then refined that list for the context of EPCIS events for DSCSA.

The Workgroup identified 31 required attributes and 6 recommended attributes, for a total of 37 attributes to support an EPCIS event for DSCSA. The full list is provided in *Appendix A* of this document.

3.3 Attributes to support Provider Point of Care (POC) Scanning

The POC Scanning Workgroup examined the attributes needed to support a POC scanning system. The group reviewed GS1 standardized product attributes and identified those considered "required" to support POC scanning. In addition, they also identified additional attributes which they "recommend" as useful for supporting POC scanning and other applications.

The Workgroup identified 21 required attributes and 21 recommended attributes, for a total of 42 attributes to support POC scanning. The full list is provided in *Appendix A* of this document.

4 Lessons Learned During the GDSN Implementation Exercises

4.1 Findings

GS1 Healthcare US worked with industry stakeholders to gain insight about the core issues holding back widespread adoption and use of GDSN within the U.S. healthcare industry. To that end, the GDSN Vital Attributes Workgroup conducted two GDSN implementation exercises: one using the attributes identified for medical device OTC processes, and another using the attributes identified for pharmaceutical EPCIS events for DSCSA.

Although data sources in the exercises (e.g., manufacturers) found publication and sharing of the attributes to be a "light lift" in terms of effort, data recipients (especially healthcare providers) experienced significant difficulties consuming and operationalizing the data:

- It became apparent that some healthcare stakeholders were unaware of the technical interfaces and advanced preparation needed to support a GDSN implementation.
- In addition, stakeholders often lacked expertise in master data management (MDM), data governance, and the various technology systems that will use the data in their organization.
- Outdated versions of key systems and many manual processes still exist across the healthcare supply chain, and they inhibited the stakeholder's ability to seamlessly consume data in an automated way.

4.2 Insights

- Organizations with multiple product divisions or target markets should look to ensure that their relationship with a GDSN-certified data pool covers all product divisions that have a need or want to share data with trading partners. Also, assess and compare on-boarding requirements across these product divisions to leverage best practices and establish, as much as possible, one process for on-boarding of trading partners. For instance, one data source company in the exercise already had a data pool, but discovered that their relationship was for a single product division of their

organization. New capabilities and connections were required for the additional product division before data sharing could begin.

- Pre-implementation working sessions between an organization and their data pool is essential to understand what is involved in a GDSN implementation, and the tools, resources, and support that the data pool provides.
- Data recipients must focus on implementation readiness, particularly people, process, technology, and data management.
- GDSN implementation requires the support of system and master data experts from the organization.
- Prior to GDSN implementation, organizations need to perform a thorough review and assessment of their data (including data storage, data management, and data interfaces) and systems (including vendors, versions, and capabilities/functionalities).
- Knowledge of master data management and data quality best practices are key for obtaining the most benefits from a GDSN implementation.
    - Some organizations manage disconnected, independent databases for each system, and implement GDSN for one system's database. However, this limits the benefits to be achieved from GDSN.
    - Instead, current best practice for master data management is to establish one authoritative database that houses all of the product data the organization uses (e.g., the Enterprise Resource Planning (ERP) item master), and have the organization's other systems pull product data from that authoritative database. Implementing GDSN for the organization's authoritative database pushes the GDSN data throughout all the organization's systems, optimizing the benefit of the GDSN implementation.
- GDSN implementation requires mapping of GDSN attributes to the organization's data fields. Data pools can assist in this effort.
- An interface between GDSN and the data recipient's item master is necessary to enable data from GDSN to be automatically uploaded without manual intervention. Data interfaces are also necessary to get data from the item master to the systems that will use it.
- Data recipient item masters need to be validated against and aligned with the GDSN metadata standards for each attribute to assure that the item master can receive the data (i.e., an item master that enforces non-standard metadata requirements could cause the system to reject the GDSN data).
    - Data recipient systems that will use GDSN data also need to be aligned with the GDSN metadata standards for each attribute.
- Trading partners should use a data recipient "test Global Location Number (GLN)" and a small subset of data to test GDSN publishing/subscribing and to test attributes for certain business functions. Once successful, the data source can then publish to an active GLN.
- Organizations wishing to test the use of GDSN data in business transactions should have a technology and Electronic Data Interchange (EDI) test environment or, at a minimum, a test Standard Operating Procedure (SOP) with which to conduct initial tests of data and process.
- Users need to define and follow GDSN Standard Operating Procedures to maintain their GDSN implementation. One participating data recipient was faced with receiving data for nearly 30,000 products at once because that data source publishes monthly and the data recipient had not been pulling down data for several months due to changes in roles/responsibilities within their organization.
- Active and on-going dialogue between implementation trading partners is critical to achieve an efficient and successful implementation of GDSN, and the use of GDSN attributes in key business processes.

5 Major Conclusions

5.1 GDSN can support healthcare

The business use cases examined in these exercises illustrated that the GDSN provides the standardized attributes needed to support healthcare, and a methodology for data sharing that healthcare can use to promote data quality. Manufacturers can effectively use GDSN to share product data for both medical devices and pharmaceuticals to any trading partner in the healthcare supply chain. Downstream partners needing product data about medical devices and pharmaceuticals can leverage GDSN to obtain the data they need for core product set-up as well as transactional needs.

Moreover, GDSN is widely implemented across numerous industries, and is a proven tool for sharing product data about non-healthcare related products as well, like food, janitorial, textiles, etc. This enables large provider networks and Integrated Delivery Networks (IDNs) to leverage their GDSN implementation to obtain product data about all the products they use in their facilities, and seamlessly integrate it into their material management information systems (MMIS).

5.2 Healthcare attribute lists do exist

At the outset of this effort, many stakeholders complained that there was no list of core healthcare attributes to help them know what attributes they needed. Therefore, providing a list of attributes for each use case was a key goal, and those lists are provided in this document. However, it is important to note that lists of healthcare attributes to support various use cases have been available for years. In fact, there have been several efforts that produced lists of core attributes for healthcare (e.g., Committee for Healthcare e-Standards (CHeS), a division of Healthcare Supply Chain Association (HSCA); GS1 Healthcare US; GDSN solution providers; etc.). Moreover, analysis of those earlier lists and the lists developed by the workgroups in this effort revealed a high degree of consistency:

- The original GS1 Healthcare US and CHeS lists were essentially identical. (See CHeS Visibility Project: *https://www.supplychainassociation.org/about-ches/ches-visibility-project/*)
- Only one data element from the Medical Device OCT/P2P list was not in the original GS1 Healthcare US/CHeS list. That attribute was "netContent" which was added at the request of downstream trading partners such as distributors and providers shortly after the initial list was developed.
- All 39 of the Medical Device OCT/P2P data elements were also on the Pharmaceutical EPCIS for DSCSA list and/or the Provider POC Scanning list.
- Of the 37 attributes on the Pharmaceutical EPCIS for DSCSA list, only 9 were exclusive to that list and they were data elements that directly apply to a pharmaceutical product and/or support of regulatory information (e.g., dataCarrierTypeCode; ingredientStrength; dosageFormTypeCode; etc.).
- Of the 42 attributes on the Provider POC Scanning list, only 2 were exclusive to that list. Both of these data elements that apply to medical device "unit of use" information. "Unit of use" refers to the medical device which is actually used in patient care but is below the lowest packaging level that is marked with a UDI (e.g., a glucose test strip in a vial of 25 strips; a single 2x2 gauze square from a pack of 2 squares; etc.).

The key takeaway is that lists of core attributes needed to support healthcare uses cases are and have been available to support industry with GDSN implementation. Therefore, it appears that more significant issue is that industry has not collectively embraced or leveraged these resources. It is the hope that providing the attribute lists again in this document will elevate their visibility and encourage industry to move forward with GDSN implementation.

5.3 It's not the "what" - it's the "how"

In each case explored, agreement within the workgroup on which attributes were required or recommended was relatively straightforward. Challenges arose however in the technical process of receiving and consuming the data. This was particularly evident within the provider space where three critical project components (People, Processes and Technology) lacked a well-established "ready state" for receiving and consuming data from data sources.

In order to be successful in a GDSN sharing environment, trading partners need to make appropriate investments in process development, technology and systems, as well as training and personnel to support GDSN. To assist in these areas, the workgroup agreed that a critical deliverable going forward is the development of a guidance document about GDSN implementation that clearly portrays the importance of such things as:

- master data management,
- attribute mapping and interfaces,
- systems preparedness and mapping,
- establishment of a team,
- data quality and strong data governance processes, and
- trading partner collaboration.

5.4 Stakeholder best practices

While it certainly is not a comprehensive list of recommended best practices, the table below provides some of the best practices that the GDSN Vital Attributes Workgroup uncovered during these use case explorations. The workgroup is confident that other best practices exist and is hopeful that, as more healthcare organizations begin to use GDSN as a means for sharing information about healthcare products, more recommendations will be identified and shared.

Figure 5.3-1 Stakeholder Best Practices

Industry Stakeholder	Recommended best practices to support use of GDSN for sharing product data
Manufacturer/Data Source	▪ Understand the "voice of the customer" with respect to data needs ▪ Establish Master Data Management (MDM) and data governance practices, including enterprise-wide information lifecycle policies and procedures ▪ Leverage the value of sharing complete and accurate data ▪ Establish SOPs for initiating data sharing with downstream business partners ▪ Establish a clear point-of-contact for GDSN or product synchronization efforts
Provider/Data Recipient	▪ Understand what version of ERP or Electronic Health Record (EHR) software you are using and how it is equipped to handle identifiers and attributes associated with products and locations ▪ Map your internal data flow from data source to Item Master to various points-of-use, and understand the technology used to "move" the data ▪ Educate and engage IT resources on the effort ▪ Work with your ERP/EHR solution provider to leverage the functionality available in that system/version, and make whatever operational changes may be necessary to use the available functionality ▪ Establish Master Data Management (MDM) and data governance practices including enterprise-wide information lifecycle policies and procedures ▪ Assign a data steward and develop SOPs for accessing and integrating data into various internal systems ▪ Consider use of GDSN "Send for Review" functionality to communicate data discrepancies with data owners ▪ Establish a technology test environment or a test SOP
Data Pool	▪ Publish/make available to the healthcare industry a list of data sources publishing to GDSN ▪ Define best practice guidance to share lessons learned by other verticals
Solution Provider (ERP, EHR, MMIS, etc.)	▪ Engage with your customers on how your technology can support standards for specific business processes ▪ Insure that your healthcare customers are using basic system capabilities (e.g., conversion factors for procurement) ▪ Develop standard interfaces to provide a solid starting point for critical attribute sharing across stakeholders

6 Next Steps

The goal of this document is to help the U.S. healthcare industry begin to understand some of the challenges that have been inhibiting their ability to experience the benefits of GDSN, and chart a course for overcoming those challenges to promote more accurate, complete and timely product data. To that end, the GDSN Vital Attributes workgroup proposes the following next steps to advance the adoption and use of GDSN within the healthcare industry.

6.1 Renew focus on education and implementation support

Misunderstandings around the basics of GDSN and a lack of readiness to consume and operationalize data are prevalent across the industry. To support and promote GDSN implementation, there is a need for renewed emphasis on getting started with GDSN and what implementation readiness means, including the essential steps that both data sources and data recipients need to take to prepare for implementation. To that end, the GDSN Vital Attributes Workgroup supports the development of a guidance document for healthcare that provides information on getting started with a GDSN project. This document should clearly portray the importance of such things as data quality and strong data

governance processes, establishment of a team, trading partner collaboration, attribute mapping, and technology mapping.

Additionally, Solution Providers play a key role in the advancement of GDSN as a trusted source of data for the healthcare industry.

- Data Pools should engage to develop an understanding of the basic needs of healthcare trading partners and define strategies to help fill the learning gaps that exist around core data elements.
- ERP Solution Providers should better communicate about the functions and features of their ERP systems that support GTINs, unit of measures, conversion factors and other core data elements, and engage to assist healthcare providers in using them.
- Middleware Solution Providers need to better understand their client's technology footprint to help assure that their solutions do not become a bottleneck for data elements.

6.2 Develop GDSN value proposition for healthcare

There is a clear need to move the healthcare industry to understand GDSN in the context of master data management and data quality. Today, the healthcare industry appears to have a transactional or process-by-process view of GDSN. For example, one pharmaceutical workgroup member noted that questions about the value of GDSN will persist *unless its use is justified beyond DSCSA*. Another example is how some data recipients implement GDSN for a specific system only, as opposed to their item master to support data quality across all of their systems.

Understanding GDSN in the context of master data management (MDM) and data quality is essential for understanding the value proposition of GDSN. Therefore, there is a need to help manufacturers, distributors, wholesalers, providers, and dispensers in understand MDM and data quality, and the best practices of industries that excel in these areas and leverage GDSN for it. These best practices drive implementation strategies that derive the most benefits from a GDSN. Developing the GDSN value proposition for healthcare in this larger, non-transactional context will enhance the perceived value of GDSN for healthcare, and may help move the industry toward an MDM model that better supports data quality.

6.3 Drive implementation and use of GDSN in healthcare

Where the appropriate resources and investments are made to support GDSN as a data sharing tool, GDSN was effective in communicating vital attributes between trading partners. It is important to raise awareness of these industry findings, and emphasize that the benefits are cumulative as stakeholders begin to use GDSN. In addition, it is important to raise awareness that product attributes can have a starting point, a core set of data elements from which stakeholders can establish the data sharing relationship. From this starting point, trading partners can establish the "how" of sharing data via GDSN. Once the systems, technology and processes are in place, adding additional data elements to support additional business processes becomes very easy.

Industry-wide agreement and acceptance of the attributes identified in these use case exercises as that "core" set of data elements is a key first step to driving adoption, implementation and use. The GDSN Vital Attributes workgroup recommends that the 39 attributes identified in the medical device OTC use case be posted in GS1 Attribute Explorer as the U.S healthcare industry sanctioned list. For pharmaceutical products, it is recommended that this same list of attributes be used and others relevant to pharmaceutical products be added.

Appendix A

Attributes to Support Medical Device Order To Cash/Procure To Pay, U.S. Pharmaceutical EPCIS Events for DSCSA, and Provider Point of Care Scanning

(Note: "*" before Attribute Common Name indicates element is "GDSN – Mandatory")

Attribute Common Name	GDSN Attribute Name	Description from Attribute Explorer	Order to Cash / Procure to Pay (Med Device)	Traceability via EPCIS in U.S. (Pharma)	Patient Bedside Scanning to EHR (Med Device / Pharma)
*Unit GTIN	globalTradeItemNumber	Trade Item Identification for a TradeItem	*Required*	*Required*	*Required*
*Unit Descriptor	tradeItemUnitDescriptorCode	Describes the hierarchical level of the trade item. TradeItemUnitIndicator is mandatory. Examples: "CASE" , PALLET	*Required*	*Required*	*Required*
Name of Information Provider	informationProviderOfTradeItem / NameOfInformationProvider	The party providing the information about the trade item (NAME)	*Required*	*Recommended*	*Required*
*GLN of Information Provider	informationProvider	The party providing the information about the trade item (GLN)	*Required*	*Required*	*Required*
*Target Market Code	targetMarketCountryCode	The code that identifies the target market. The target market is at country level or higher geographical definition and is where a trade-item is intended to be sold.	*Recommended*	*Required*	*Recommended*
*Brand Name	brandName	The recognizable name used by a brand owner to uniquely identify a line of trade item or services. This is recognizable by the consumer.	*Recommended*	*Required, Proprietary Name should be provided here*	*Recommended*
*Global Product Classification Code	gpcCategoryCode	Code specifying a product category according to the GS1 Global Product Classification (GPC) standard	*Recommended*	*Required*	*Recommended*

*Is Trade Item an Orderable Unit?	isTradeItemAnOrderableUnit	An indicator identifying that the information provider considers this trade item to be at a hierarchy level where they will accept orders from customers. This may be different from what the information provider identifies as a despatch unit. NOTE: This may be relationship dependent based on channel of trade or other point to point agreement	*Required*	*Required*	*Required*
*Is Trade Item a Base Unit?	isTradeItemABaseUnit	An indicator identifying the trade item as the base unit level of the trade item hierarchy.	*Required*	*Required*	*Required*
Identification Type Such as: Catalog or Model, HIBC, NDC, DIN(Canada), Buyer Assigned, etc (Part 1)	additionalTradeItemIdentificationTypeCode	Code specifying an additional trade item identification type. Allowed code values are specified in GS1 Code List AdditionalTradeItemIdentificationTypeCode	*Required - Conditional*	*Required - Conditional, NDC Code Type if applicable*	*Required - Conditional*
Number Such as: Catalogue or Model Number, HIBC, NDC11, DIN or Buyer assigned number (Part 2)	AdditionalTradeItemIdentification	Alternative means to the Global Trade Item Number to identify a trade item.	*Required*	*Required - Conditional, NDC Code if applicable*	*Required*
Manufacturer Name (Part 1)	manufacturerOfTradeItem	Party name and identification information for the manufacturer of the trade item	*Required*	*Required*	*Required*
Manufacturer GLN (Part 2)	manufacturerGLN	Party name and identification information for the manufacturer of the trade item	*Required*	*Required*	*Required*
Product Description	additionalTradeItemDescription	Additional variants necessary to communicate to the industry to help define the product. Multiple variants can be established for each GTIN. This is a repeatable field, e.g. Style, Colour, and Fragrance. Allows for the representation of the same value in different languages but not for multiple values	*Required*	*Recommended*	*Required*

*Functional Name	functionalName	Describes use of the product or service by the consumer. Should help clarify the product classification associated with the GTIN. Allows for the representation of the same value in different languages but not for multiple values. NOTE: If the GPC code for "Medical Device" or "Pharma" is provided then Functional Name is not GDSN Mandatory.	*Required - Conditional*	*Required - Conditional*	*Required - Conditional*
Trade Item/Package Depth	depth value	The depth of the unit load, as measured according to the GS1 Package Measurement Rules, including the shipping platform unless it is excluded according to the Pallet Type Code chosen	*Recommended*		*Recommended*
DepthUOM	measurementUnitCode	Any standardized, reproducible unit that can be used to measure any physical property.	*Recommended*		*Recommended*
Trade Item/Package Height	height value	The height of the unit load, as measured according to the GS1 Package Measurement Rules, including the shipping platform unless it is excluded according to the Pallet Type Code chosen	*Recommended*		*Recommended*
HeightUOM	measurementUnitCode	Any standardized, reproducible unit that can be used to measure any physical property.	*Recommended*		*Recommended*
Trade Item/Package Width	width value	The width of the unit load, as measured according to the GS1 Package Measurement Rules, including the shipping platform unless it is excluded according to the Pallet Type Code chosen	*Recommended*		*Recommended*
WidthUOM	measurementUnitCode	Any standardized, reproducible unit that can be used to measure any physical property.	*Recommended*		*Recommended*
Trade Item/Package Gross Weight	grossWeight value	Used to identify the gross weight of the trade item.The gross weight includes all packaging materials of the trade item. At pallet level the trade item, grossWeight includes the weight of the pallet itself. For example, "200 GRM", value - total pounds, total grams, etc. Has to be associated with a valid UOM	*Recommended*		*Recommended*
GrossWeightUOM	measurementUnitCode	Any standardized, reproducible unit that can be used to measure any physical property.	*Recommended*		*Recommended*

*Is Trade Item a Consumer Unit?	isTradeItemAConsumerUnit	Identifies whether the trade item to be taken possession of ,or to be consumed or used by an end user or both, as determined by the manufacturer. The end user could be, but is not limited to, a consumer as in items sold at retail, or a patient/clinician/technician in a healthcare setting, or an operator for foodservice such as restaurants, airlines, cafeterias, etc.	*Recommended*	*Required*	*Recommended*
*Is Trade Item an Invoice Unit?	isTradeItemAnInvoiceUnit	An indicator identifying that the information provider will include this trade item on their billing or invoice. This may be relationship dependent based on channel of trade or other point to point agreement.	*Recommended*	*Required*	*Recommended*
*Is Trade Item a Despatch Unit	isTradeItemADespatchUnit	An indicator identifying that the information provider considers the trade item as a despatch (shipping) unit. This may be relationship dependent based on channel of trade or other point to point agreement	*Recommended*	*Required*	*Recommended*
*Is Trade Item a Variable Unit?	isTradeItemAVariableUnit	Indicates that an article is not a fixed quantity, but that the quantity is variable. Can be weight, length, volume, trade item is used or traded in continuous rather than discrete quantities.	*Recommended*	*Required*	*Recommended*
Is Trade Item Returnable?	isPackagingMarkedReturnable	Trade item has returnable packaging. This is a yes/no (Boolean) where yes equals package can be returned. Attribute applies to returnable packaging with or without deposit.	*Recommended*		*Recommended*
Quantity of Children	quantityOfChildren	Value indicates the number of unique next lower level trade items contained in a complex trade item. A complex trade item can contain at least 2 different GTINs. NOTE: If answer to "Is Trade Item a Base Unit?" = YES, then there may be no value for this attribute.	*Required - Conditional*	*Required - Conditional*	*Required - Conditional*
Total Quantity of Units Contained	totalQuantityOfNextLowerLevelTradeItem	This represents the Total quantity of next lower level trade items that this trade item contains NOTE: Only applies if trade item contains unique GTIN(s) such as a kit containing multiple items.	*Required - Conditional*	*Required - Conditional*	*Required - Conditional*
Next Lower Level GTIN	gTIN (child)	A trade item in the item hierarchy level immediately below NOTE: May only applies if answer to "Is Trade Item Base Unite?" = NO	*Required - Conditional*	*Required - Conditional*	*Required - Conditional*

Quantity of Next Lower Level GTIN	quantityOfNextLowerLevelTradeItem	This represents the Total quantity of next lower level trade items that this trade item contains. NOTE: Applies if a value is provided for "Next Lower Level GTIN"	*Required - Conditional*	*Required - Conditional*	*Required - Conditional*
Unit Quantity	quantityOfInnerPack	Use this for Unit Quantity if Lower Level Packaging exists with no GTIN (Indicates the number of non-GTIN assigned inner-packs of next lower level trade items within the current GTIN level.)			*Required*
Item in Inner Pack Quantity	quantityOfNextLevelTradeItemWithinInnerPack	Indicates the number of next lower level trade items contained within the physical non-GTIN assigned each or inner-packs (inner-pack).			*Required*
Net Content	netContent value	The amount of the trade item contained by a package, usually as claimed on the label. For example, Water 750ml - net content = "750 MLT" ; 20 count pack of diapers, net content = "20 ea.". In case of multi-pack, indicates the net content of the total trade item. For fixed value trade items use the value claimed on the package, to avoid variable fill rate issue that arises with some trade item which are sold by volume or weight, and whose actual content may vary slightly from batch to batch. In case of variable quantity trade items, indicates the average quantity. Allows for the representation of the same value in different units of measure but not multiple values.	*Required*	*Required*	*Required*
Net Content UOM	measurementUnitCode	Unit of Measure of the net content of the trade item. (netContent/@measurementUnitCode)	*Required*	*Required*	*Required*
Classification (Part 1)	additionalClassificationAgencyName	Code specifying the applied additional trade item classification scheme (or system). Allowed values are specified in GS1 code list "Additional Trade Item Classification Code List Code". (additionalTradeItemClassificationSystemCode). NOTE: GS1 Code List. For Med Device Use "5" for UNSPSC.	*Recommended*		*Recommended*

Classification (Part 2)	additionalClassificationCategoryCode	Category code of the trade item based on the alternate classification schema chosen in addition to GS1 classification schema. (additionalTradeItemClassificationValue/additionalTradeItemClassificationCodeValue). NOTE: For Med Device use the appropriate 8-digit UNSPSC Code. These values can be found by visiting www.UNSPSC.org.	*Recommended*		*Recommended*
*Effective Date	effectiveDateTIme	The date on which the information contents of the master data version are valid. This effective date can be used for initial trade item offering, or to mark a change in the in-formation related to an existing trade item. This date would mark when these changes take effect. (effectiveDateTime)	*Recommended*	*Required*	*Recommended*
Packaging Type Code	packagingTypeCode	The dominant means used to transport, store, handle or display the trade item as defined by the data source. This packaging is not used to describe any manufacturing process. Data recipients can use this data for: Space Planning, Data Accuracy (Tolerances), Supply Chain processes, Recycling process (In combination with packaging materials), Product buying/procurement decisions, Tax calculations/fees/duties calculation	*Recommended*		*Recommended*
End Availability Date Time	endAvailabilityDateTime	The date from which the trade item is no longer available from the information provider, including seasonal or temporary trade item and services.		*Required - Conditional*	*Required - Conditional*
Dosage Form Type	dosageFormTypeCodeReference	A dosage form is the physical form of a medication that identifies the form of the pharmaceutical item.		*Required*	
Ingredient Strength	ingredientStrength (# and UoM)	Used to define the strength of each ingredient in a trade item or unit volume of non food and beverage the trade items.		*Required*	
Data Carrier Type Code	dataCarrierTypeCode	A code indicating the type of data carrier physically present on the trade item. NOTE: In US for pharmaceuticals this is defined by regulation to be 2D DataMatrix. This attribute is therefore assumed for US target market but required for O-US.		*Required*	

Serial Number	SerialNumberLocationCode	The location on the item or packaging of a serial number. A serial number is a code, numeric or alphanumeric, assigned to an individual instance of an entity for its lifetime for example a Microscope model AC-2 with serial number 234568 and microscope model AC-2 with serial number 234569. NOTE: In US for pharmaceuticals this is defined by regulation to be 2D DataMatrix. This attribute is, therefore, assumed for the US target market but required for O-US.		*Required*	
Batch/Lot	hasBatchNumber	Indication whether the base trade item is batch or lot number requested by law, not batch or lot number requested by law but batch or lot number allocated, or not batch or lot number allocated. A batch or lot number is a manufacturer assigned code used to identify a trade item's trade item on batch or lot. Differs from Serial Number which is a manufacturer assigned code during the trade item on cycle to identify a unique trade item NOTE: In US for pharmaceuticals this is defined by regulation to be 2D DataMatrix. This attribute is, therefore, assumed in the US target market but required for O-US.		*Required*	
Expiry code	tradeItemDateOnPackagingTypeCode	Indicates the type of date marked on the packaging for example Best Before Date NOTE: In US for pharmaceuticals this is defined by regulation to be 2D DataMatrix. This attribute is, therefore, assumed for the US target market but required for O-US.		*Required*	
Publication date	publicationDate	The date specified in the field. Mandatory in each occurrence of the composite, and non-repeating. May carry a dateformat attribute: if the attribute is missing, then indicates the format of the date; if both dateformat attribute and element are missing, the default format is YYYYMMDD.		*Recommended*	
Established Name	regulatedProductName	The prescribed, regulated or generic product name or denomination that describes the true nature of the food and is sufficiently precise to distinguish it from other foods according to country specific regulation.		*Recommended Generic name should be provided here*	

Start Availability Date Time	startAvailabilityDateTime	The date (CCYY-MM-DDTHH:MM:SS) from which the trade item becomes available from the supplier, including seasonal or temporary trade item and services.		*Recommended*	
	TradeItemStatus	Indicates if the trade item has been added for the first time (ADD), changed (CHN) or corrected (COR) by the information provider. FOOTNOTE: This is a Command, not an attribute. It is typically populated by the Data Source's Data Pool. In cases where it is not, the data source must populate this command field.	*Recommended*	*Recommended*	*Recommended*

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