<Country> Food and Drug Authority

Pharmaceutical Products Traceability

Master Data Guideline (First Draft)

 July, 2019

<Country>

# Foreword

# Executive Summary

Counterfeiting of pharmaceutical products, safety, quality and efficacy of health commodities has become a global issue and has forced a global community for implementing traceability of product that spans globally from manufacturer until end user. The traceability of the movement of product in supply chain is traced by the information flow and access of this data though out the chain. To exchange traceability information regarding medical products and to succeed in a supply chain efficiency quality, accuracy, and accessibility of master data exchange is vital for all stakeholders.

The complexity of managing data integrity and alignment between trading partners results in significant inefficiency in the supply chain. Accurate and aligned product master data is a fundamental enabler of an efficient and safe supply chain.

Master Data is a data element that serves as an identifier and has attributes and classifications, which informs and drives decision making across the entire supply chain. An identifier refers to a master data record that is unique to location and product information. In addition attributes signifies the characteristics, description, dimension, size, color, ingredients of the product entity and name, address and sites for the location entity. Deploying master data synchronization enhance the traceability of product and it is based on standards used globally by GS1. This standards ensure effective exchanges of data between supply chain participants and facilitate interoperability through standardization of data attributes to enable accurate information and visibility about products in the supply chain.

The scheme of this document is to provide guidance to pharmaceutical product supply chain actors on requirement that will be mandatory to electronically exchange information about master data about the trade items as well as the location data of each party. The attribute list includes all initial mandatory attributes expected to be provided as relevant on products manufactured, imported, and supplied in <Country> market.

# Acronyms and Abbreviations

|  |  |
| --- | --- |
| **EDI**  | electronic data interchange |
| **FDA**  | Food and Drug Authority |
| **IT** | information technology |
| **GDSN**  | Global Data Synchronization Network |
| **GHSC**  | Global Health Supply Chain |
| **GLN**  | Global Location Number |
| **GTIN**  | Global Trade Item Number |
| **MIS**  | management information system |
| **MOH**  | Ministry of Health |
| **UNFPA**  | United Nations Population Fund |
| **USAID**  | U.S. Agency for International Development |

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# Introduction

<Country Context>

This document provides guidance in the process and methodology to be used by the authority, importers, manufacturers and suppliers in achieving the goal of master data exchange.

Master Data is a data element that serves as an identifier and has attributes and classifications, which informs and drives decision making across the entire supply chain. An identifier refers to a master data record that is unique tolocation and product information. In addition attributes signifies the characteristics, description, dimension, size, color, ingredients of the product entity and name, address and sites for the location entity.

The manufacturer will share the master data parameters about its product and location with the authority and with its supply chain actors for their use.

Therefore, this guideline is prepared to set guiding requirements about pharmaceutical traceability master data and enhance the data exchange among the supply chain actors.

## **Scope**

This guideline applies to all master data attributes for both product and entity or location information in use within the pharmaceutical supply chain.

## **Objective**

The objective of this guideline is to set master data requirements which will guide the sharing and exchange of master data among the supply chain actors, and to implement practical and efficient standards and procedures which are consistent with pharmaceutical regulations.

## **Definition**

1. **“Attribute” means a**n element string that provides additional information about an entity identified with GS1 identification key, such as a batch number associated with a Global Trade item Number (GTIN).
2. **“Element string” means** the combination of a GS1 Application Identifier and GS1 Application Identifier data field.
3. "**GS1 Application Identifier” means** the field of two or more digits at the beginning of an element string that uniquely defines its format and meaning.
4. "**GS1 identification key” means** a unique identifier for a class of objects (e.g., a trade item) or an instance of an object (e.g., a logistic unit).
5. "**Master Data”means** processes and techniques regarding the identification of static data and processes to keep the data up to date. Emphasizes implementation of one source for master data and referencing the data using standardized identifiers.

# Master Data requirement

1.
2.

## **Product Master Data**

Product master data is a reliable record of basic information about product attributes such as name, dosage, strength and identification which are used in supply chain to identify the trade item. One trade item can have multiple product parameters like size, color and shape which requires different assignment of unique identifiers.

The Master data should therefore be in line with regulatory submission criteria stated in this guideline and all party need to ensure that their data submissions meet the following requirements.

Each and every product item should be identified by using the global standard trade item number, GTIN. This is a 14 digit number which can be used by a company to uniquely identify all of its trade items. These digits consists of the Packaging level indicator, Company Prefix, Item Reference and a calculated Check Digit.

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Figure 1: Example for 14 digit GTIN (00012345678905)

* **Indicator** – This denotes the level of packaging for a particular carton. This one-digit prefix can range from 1 to 9.
* **GS1 Company Prefix** – Vendors must obtain a [GS1 Company Prefix](https://www.gs1-us.info/company-prefix/) directly from GS1 to uniquely identify their company.  Depending on the number of items a company needs to identify, a GS1 Company Prefix may be 7 to 10 digits in length.
* **Item Reference**– References the same product number used for the item when a carton is made up of the same item.  For cartons that contain an assortment of items a new product number is assigned.
* **Check Digit** – The last digit of GTIN-14 is a calculated check digit. Using a MOD10 check digit algorithm, the calculated check digit prevents substitution errors.

The item also should have specified with descriptions which does not ambiguous. Items should be specified with unit of measure of trade item about their Depth, Height, Width, Net Weight, Gross Weight and Volume.

The following table depicts the required parameters for the exchange of product master data.

Table1: Product Attribute Requirement

|  |  |  |  |
| --- | --- | --- | --- |
| **Category**  | **Attributes** | **Description** | **Example** |
| GENERAL ITEM INFORMATION | Item Id(GTIN) | The Global Trade Item Number is the standard 14-digit representation of the number used to identify all trade items in GDSN | 05410013107231 |
| Hierarchy level(trade item unit descriptor code) | Describes the hierarchical level of the trade item. (each, case, pallet) | *BASE\_UNIT\_OR\_EACH* |
| Target Market(target market country code) | The target market indicates the country where the trade item is intended to be sold.  | *840 (United States)* |
| Brand Name(brand name) | The recognizable name used by a brand owner to uniquely identify a line of trade item. This is recognizable by the consumer. | Health choice |
| Functional Name(functional name) | Describes use of the product by the consumer. Should help clarify the product classification associated with the GTIN.  | Self-care medicine |
| Country Of Origin(country of origin) | The country code (codes) in which the goods have been produced or manufactured, according to criteria established for the purposes of application of the value may or may not be presented on the trade item label. | *528 (Netherlands)* |
| Start Availability Date(start availability date & time) | The date from which the trade item becomes available from the supplier, including seasonal or temporary trade items. (Enter the date from which the item can/was able to be ordered. In the case of seasonal items, the date should be updated as soon as the item becomes available again.) | 2018-08-13T02:02:30 |
| Effective Date(effective date & time) | Date on which the master data becomes valid. | 2018-09-13T02:02:30 |
| Barcode Type(data carrier type code) | The type of data carrier or bar code physically present or visible on the trade item. | *GS1\_DATA\_MATRIX* |
| PRODUCT DESCRIPTION INFORMATION | Product Description (trade item description) | An understandable and useable description of a trade item using brand and other descriptors.  | Acyclovir, Suspension, 40 mg/ml 125ml |
| UNIT INDICATORS | Base Unit Indicator (is trade item A base unit?) | Yes indicates this packaging level is the trade item that is at the lowest level in the item hierarchy. | true |
| Consumer Unit Indicator (is trade Item a consumer unit?) | Yes indicates this packaging level is the trade item intended for ultimate consumption. For retail, this trade item will be scanned at point of sale. At retail, this data is commonly used to select which GTINs should be used for shelf planning and for front end POS databases. | true |
| Dispatch Unit Indicator (is trade item a dispatch unit?) | Yes indicates that this packaging level is the trade item identified as the shipping unit. | false |
| Invoice Unit Indicator (is trade item an invoice unit?)  | Yes indicates this packaging level is the trade item included in the supplier’s billing or invoice. | false |
| Ordering Unit Indicator (is trade item an orderable unit?) | Yes indicates that this trade item is the packaging level where the supplier will accept orders from retailer customers. This may be different from what the information provider identifies as a dispatch unit. | true |
| Variable Weight Trade Item (is trade item a variable unit?) | 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.  | false |
| DIMENSIONS | Depth(depth/measurement unit code)[number/UOM] | Measurement of the distance between the front and the back.  |  |
| Gross Weight(gross weight/measurement unit code)[number/UOM] | 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, gross weight includes the weight of the pallet itself.  |  |
| Height(height/measurement unit code)[number/UOM] | The vertical dimension from the lowest extremity to the highest extremity. |  |
| Net Weight (net weight/ measurement unit code)[number/UOM] |  Used to identify the net weight of the trade item. Net weight excludes any packaging materials and applies to all levels but consumer unit level. |  |
| Volume(volume/measurement unit code)[number/UOM] | The dimensions of an imaginary cube which can be drawn around the trade item as defined in the formula of H X W X D. This only applies to In-box dimensions. Level of Hierarchy applied to- All. |  |
| Width(width/measurement unit code)[number/UOM] | The measurement of the extent of something from side to side. Width is the measurement from left to right. |  |
| Location/CONTACT /ROLE INFORMATION | Brand Owner GLN (brand owner/GLN) | The Global Location Number used to identify the organization that owns the brand. | 8712345012502 |
| Brand Owner Name (brand owner/party name) | The name of the brand owner of the trade item expressed in text. | Health choice B.V. |
| Information Provider GLN (information provider of trade item/GLN) | Populate this field with the GLN of the entity responsible for the validity of the item information entered into your Data Pool. The original manufacturer, importer, distributor, retailer, or designated agent. | 8712345012502 |
| Information Provider Name (information provider of trade item/party name) |   |   |
| Manufacturer GLN (manufacture r of trade item/GLN) | The Global Location Number used to identify the organization that manufactures this trade item.  | 8712345012502 |
| Manufacturer Name (manufacturer of trade item/party name) | The name of the manufacturer of this trade item. | Health choice B.V. |
| Manufacturer Address (manufacturer of trade item/party address) | The address associated with the manufacturer. |   |
| PHARMACEUTICAL INFORMATION | Dosage Form (dosage form type code reference) | A dosage form is the physical form of a medication that identifies the form of the pharmaceutical item. | Tablet |
| Controlled Substance Indicator (does item contain a controlled substance) | Indicates whether the item contains substances that are regulated under law as narcotics, stimulants, depressants, hallucinogens, anabolic steroids, and chemicals used in the illicit production of controlled substances.  | true |
| Controlled Substance Code(controlled substance code) | A code identifying the specific substance the item contains that is regulated under law as narcotics, stimulants, depressants, hallucinogens, anabolic steroids, and chemicals used in the illicit production of controlled substances.  |   |
| Controlled Substance Name(controlled substance name) | The name of a specific substance the item contains that is regulated under law as narcotics, stimulants, depressants, hallucinogens, anabolic steroids, and chemicals used in the illicit production of controlled substances. |   |
| Controlled Substance Amount(controlled substance amount) | The numeric amount of a specific substance the item contains that is regulated under law as narcotics, stimulants, depressants, hallucinogens, anabolic steroids, and chemicals used in the illicit production of controlled substances. |   |
| Controlled Substance Amount UoM (controlled substance amount/@measurement unit code) |   | MGM |
| Controlled Substance Schedule Code (controlled substance schedule code reference) | A code that rates a controlled substance based upon the degree of the substance's medicinal value, harmfulness, and potential for abuse or addiction. |   |
| Route of Administration Description (enumeration value description) | The description for the method(s) of administering the product. In pharmacology and toxicology, a route of administration is the path by which a drug, fluid, or other substance is brought into contact with the body. |   |
| HIERARCHY | Child Item (Lower Level Item) GTIN (child) (next lower level trade item information) | Unique product identification number (GTIN) for a child item with a higher-level trade item (parent) in a product hierarchy. This item may repeat in the case of a combination pack (multiple GTINs in lower level). | 8799999999995 |
| Total Quantity of Next Lower Level Trade Item (total quantity of next lower level trade item) | This represents the Total quantity of next lower level trade items that this trade item contains.  |   |
| PALLET & LOGISTIC UNITS | Shipping Container Type Code(shipping container type code) | Type and size of the container in which the trade items composing the standard transport load (identified by a unique GTIN) are shipped in by the consignor for international transport. This attribute should be populated using the ISO 6346 recommendation to indicate size and type codes of the shipping container. This code refers to the type of container and not the items inside. The first digit is the length of the container, the second is the height of the container, and the last two are the container type. This attribute cannot be repeated as a standard transport load corresponds to a unique shipping container.  |  |
| STORAGE, HANDLING & SHELF LIFE | Handling Instruction Code (handling instruction code reference) | Defines the information and processes needed to safely handle the trade item. |   |
| Shelf Life from Production (minimum trade item life span from time of production) | The period of days, guaranteed by the Manufacturer, before the expiration date of the product, based on the production. |   |
| Storage Temperature Type (temperature qualifier code = storage handling) | A code which qualifies the temperature range being provided (e.g., STORAGE\_HANDLING; TRANSPORTATION; etc.). This attribute is provided with the attribute minimum temperature and maximum temperature as is applicable using the range rules.  | STORAGE\_HANDLING |
| Storage Temperature Min (minimum temperature) | The minimum temperature that a Trade Item can be held without affecting product safety or quality (as defined by the manufacturer). |   |
| Storage Temperature Min UoM (minimum temperature/@measurement unit code) |   | CEL |
| Storage Temperature Max (maximum temperature) | The maximum temperature that a Trade Item can be held without affecting product safety or quality (as defined by the manufacturer). |   |
| Storage Temperature Max UoM (maximum temperature/@measurement unit code) |   | CEL |
| Product CLASSIFICATIONS | GPC Category (Brick) Code (gpc Category Code) | Code specifying a product category according to the GS1 Global Product Classification (GPC) standard. The GPC brick code is mandatory in the GDSN.  | 10005845 |
| Additional Trade Item Classification Scheme (additional Trade Item Classification System Code) | An agency/scheme for product classification in addition to GPC. In this case, use UNSPSC. | 5 (UNSPSC) |
| DANGEROUS / HAZARDOUS GOODS INFORMATION | Is Dangerous Substance? (is dangerous substance?) | Indicates if item is considered to be a dangerous substance. | true |
| Is Regulated For Transportation? (Safety data sheet information/is regulated for transportation?) | An indicator whether the Trade Item is regulated for shipment by any agency. | true |
| Is Acutely Hazardous Waste (hazardous waste information/is acutely hazardous waste?) | An indicator whether or not the trade Item contains waste that would cause death, disabling personal injury, or serious illness. This wastes are more hazardous than ordinary hazardous wastes. | false |
| MARKET AUTHORIZATION | Market Authorization Agency (additional trade item identification type code) | Qualifier code to denote the type of additional trade item identification. In this case, select the code for the Market Authorization agency. |   |
| Market Authorization Item Identification (additional trade item identification) | A trade item identifier (in addition to the GTIN) that is usually associated with a specific business need. For this application, enter the Market Authorization permit number. |   |
| Market Authorization Type Code (regulatory information/regulation type code) | A code that indicates that a trade item is in compliance with specific applicable government regulations. In this instance, select MARKET\_AUTHORISATION.  | MARKET\_AUTHORISATION |
| Market Authorization Number (regulatory permit identification) | Identification of the permit or license given by the regulatory agency. In this instance, enter the same Market Authorization number as entered in additional trade item identification/value above. |   |
| Market Authorization Start Date (permit start date time) | The start date on which the Market Authorization permit is effective.  |   |
| Market Authorization End Date (permit end date & time) | The date on which the Market Authorization permit expires.  |   |
| Market Authorization Status Description (regulation restrictions and descriptors) | Description information for the permit. In this instance, populate with market authorization permit status (e.g., active; expired; etc.) |   |

## **Location Master Data requirement**

Location Master Data contains a record for each of pharmaceutical supply chain actor and its company’s locations, including address and global company identifiers such as GLN, country code, and contact information and business type. Inconsistent naming and location identification for supply chain actors (e.g., hospitals, manufacturers, distributors, etc.) results in an error-prone, inefficient approach to location identification that weakened patient safety and supply chain management.

The use of standard-based location identifiers enables a supply chain actors to maintain and manage precise information for all of its various corporate identities and physical locations. Moreover, the use of a globally standardized and accepted identifiers provide a common language to facilitate the exchange of location information among supply chain actors.

Locations are used to describe physical locations used during supply chain processing. It typically represents a manufacturer or plant, importer, distributor, warehouse or storage, health facilities. A location can be hierarchical, for example, storage locations belong to distributor which is a parent location.

A GLN (Global Location Number) is used to uniquely identify a company or organization. A GLN can also be used to number delivery places, invoicing addresses, workplaces, branches as well as functions or roles, such as goods recipient or authorized purchaser.

A GLN consists of 13 digits. You create a GLN using a GS1 Company Prefix, a sequence number and a check digit.

* A GS1 Company Prefix consists of 6-9 digits.
* The sequence number consists of a different number of digits depending on the length of the company prefix.
* The check digit prevents substitution errors

Here is how to create a GLN using a GS1 Company Prefix of 9 digits:



If the company prefix has less than nine digits, you create the location number in the same way but the sequence number will be more than three digits.

**Table 2: Location Attribute Requirement**

|  |  |  |  |
| --- | --- | --- | --- |
| **Category**  | **Attributes** | **Description** | **Example** |
| Location/CONTACT /ROLE INFORMATION | Brand Owner GLN (brand Owner/GLN) | The Global Location Number used to identify the organization that owns the brand. | 8712345012502 |
| Brand Owner Name (brand owner/party name) | The name of the brand owner of the trade item expressed in text. | Health choice B.V. |
| Information Provider GLN (information Provider Of Trade Item/GLN) | Populate this field with the GLN of the entity responsible for the validity of the item information entered into your Data Pool. The original manufacturer, importer, distributor, retailer, or designated agent. | 8712345012502 |
| Information Provider Name (information provider of trade item/party name) |   |   |
| Manufacturer GLN (manufacturer of trade item/GLN) | The Global Location Number used to identify the organization that manufactures this trade item.  | 8712345012502 |
| Manufacturer Name (manufacturer of trade item/party name) | The name of the manufacturer of this trade item. | Health choice B.V. |
| Manufacturer Address (manufacturer of trade item/party address) | The address associated with the manufacturer. |   |

# Attribute significance

The attributes are classified depending on its significance for master data exchange as Mandatory and Suggested.

The “Mandatory” attributes are necessary for the master data exchange and “Suggested” attributes are highly recommended to submit them to the authority but however, if some of the suggested attributes are not immediately available, upload the attributes that are can be presented.

The FDA attribute list, which is found in Appendix I, includes all initial priority attributes expected to be provided as relevant on products manufactured, imported, and supplied in <Country> market. For each attribute, the list provides the attribute name, data type, and a brief definition of the attribute.

# Master data exchange

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## **What is Master Data exchange**

Master data exchange is used to gather master data, analyze it, clean it, manage it and allow it to become a useful data asset among the supply chain actors through data synchronization, electronic transfer of product information between trading partners and the continuous exchange of that data over time.

It provides management, coordination, and technology for the process to prepare and validate master data for new to maintain high-quality data.

## **Methods ofthe master data exchange**

FDA has a mandate to synchronize master data for company, partner, and product information by allowing several options for how you exchange master data. Master data exchange can be made through web GUI (manually entered or file import upload), XML exchange and API which will be further discussed in data exchange technical guidelines.

* 1. **Master Data Quality**

Data quality answers questions regarding completeness, validity, uniqueness, consistency, timeliness and accuracy of master data for easy access, documentation and clear quality criteria. Without sufficient data quality, data is practically useless and sometimes even dangerous.

Poor data quality will leads to false facts and bad decisions in data-driven environments and creates duplicate and redundant data copies are generated that can be expensive to clean up. A lack of uniform concepts for data quality leads to inconsistencies and threatens content standard. Uniform data is necessary to allow systems to talk to each other otherwise there will be fractured data that will leads to miscommunication. This drastically increases the importance of consistent master data. Companies can only unlock the full potential of their data if the master data is well managed and provided in high quality.

The goal of master datamanagement is to bring together and exchange master data from different entities and disparate applications or data silos. Master data management assures data consistency across these systems by easily integrating systems and let business partners cooperate effectively.

Having appropriate data quality processes in place directly correlates with an organization’s ability to make the right decisions and assure its economic success.

GS1, a standards organization that brings industry communities together to solve supply chain problems through the adoption and implementation of standards. It is dedicated to driving the global language of business by creating a common foundation for uniquely identifying, accurately capturing, and automatically sharing vital information about products, so that anyone in the supply chain who wants that information can understand it, no matter who or where they are. And all the stakeholders respond to increasing supply chain actor’s demands for complete, accurate, and timely product information. All actors throughout the supply chain should strive to attain the maximum data quality during master data synchronization and exchange.

## **Workflow inthe master data exchange**

Manufacturer, importer or wholesaler who needs to inject in pharmaceutical product in <Country> market have to follow legitimacy processes. Certificate of competence and pharmaceutical products registration is required from the Authority. During the registration the company needs to define the Itemmaster data as per the requirement stated in this guide and submit the master data.The Agency will respond for the reception of the product master data and to wait for the review. The data will be reviewed, validated and accepted or rejected by the authority based on the information, specification and identifications submitted by the company.

After technical assessment and expertise, if there is a need, the authority could request clarification from the party on the values and parameters of the master data supplied by the company and notify the applicant of shortages, missing requirements and necessary recommendation. The applicant should then resolve and submit full response in one time within requested time.

If submission data is valid, the item will be recorded as a valid product in the master data repository and the Authority notify the acceptance of the master data. If the data about the product is not valid the submission will be rejected. The company will be notified about the status.

The manufacturing, importation and distribution of pharmaceutical products should be done in accordance with national legislation and should be enforced by the Authorities. This guideline is intended for gathering the master data about the products and is complementary to and is not substitute for the existing drug registration processes and procedures.

# Role and responsibilities of supply chain actors

|  |  |
| --- | --- |
| **Institution** | **Role and Responsibility** |
| **FDA** | 1. Develop a centralized Master Data repository to manage the master data required for traceability requirements.
2. Review the submitted master data and provide feedbacks accordingly
3. Periodically review and maintain master data elements of the centralized master data repository enrich transactions with master data so that master data does not need to be included in every transaction
4. ensure that data is continuously kept up to date in the centralized master data repository
5. Provide a reliable data import and synchronizing mechanisms
6. Align on generic data requirements across the supply chain
7. Capacity building about the master data for traceability
8. Ensure master data quality
9. Enforce the exchange of the master data to central repository
 |
| **Manufacturer** | 1. Identify all products data required under this guideline
2. Gather and share the master data with

FDA Central master data 1. Establish a system that enables to keep their own master data up to date and submit product attributes to authority
2. Upload or exchange the master data to FDA master data repository
3. Develop a policy for capturing master data for new products.
4. Obtain GTIN from GS1 and assign for each product and level of packaging. Obtain GLN from GS1 and assign for each locations
5. Publish item information at each level of the packaging hierarchy.
6. Establish a system to handle and provide Confirmation to requests from the authority.

Submit any changes to the master data elements to the authority. |
| **Importer, Wholesaler, Retails and health facilities** | 1. Comply with the requirements of this guideline
2. Gather and share the location and packaging related master data with

 FDA Central master data 1. Establish a system that enables to keep their own master data up to date and submit location and packaging attributes to authority
2. Develop a policy for capturing master data for locations and packaging if any.
3. Obtain GLN from GS1 and assign for each locations
4. Publish item information at each level of the packaging hierarchy if any.
5. Establish a system to handle and provide confirmation to requests from the authority.
6. Submit any changes to the master data elements to the authority.
 |
| **MoH** | 1. Support healthcare service providers in the implementation of requirements set under this guideline
2. Liaise the communication with different sectoral offices to support the implementation of master data
3. Provide resources to regulatory sector to implement the implementation of master data
 |
| **GS1** | 1. Provide technical support on master data implementation
2. Establish system to provide unique identifiers for both product and location data to supply chain actors
 |

Table 3: Role and responsibilities of supply chain actors/ stakeholders

# Reference

* **Ten steps to GS1 Barcode Implementation:** <https://www.gs1.org/sites/default/files/ten_steps_to_barcode_implementation.pdf>
* **GS1 Healthcare GTIN Allocation Rules:**

<https://www.gs1.org/docs/gsmp/healthcare/GS1_Healthcare_GTIN_Allocation_Rules.pdf>

* **GS1 DataMatrix Guideline:**

<https://www.gs1.org/docs/barcodes/GS1_DataMatrix_Guideline.pdf>

* **GS1 General Specifications:**

The GS1 Standard that describes how GS1 barcodes and identification keys should be used

<http://www.gs1.org/genspecs>

* **GS1 Identification Keys:**

One page summaries for each of the GS1 Identification Keys

http://www.gs1.org/id-keys

* **GS1 Barcodes:**

One page summaries of all GS1 barcodes, including an overview of printing methods and scanning environments

http://www.gs1.org/barcodes

* **GS1 Industries**:

Information on the way GS1 standards are applied in various sectors

http://www.gs1.org/industries