Guidelines for barcoding on medical supplies for Punjab Health Systems Corporation

Steps for barcoding on products for supplies to Punjab Health Systems Corporation.

GS1 Identification standards used for barcoding on medical supplies:

Standard	Application Identifier (AI)*	Definition
Global Trade Item Number (GTIN-13)		A unique 13-digit number that identifies a "trade item" such as a product that may be sold, delivered, or invoiced at any point in the supply chain. The attributes defined for each GTIN, such as size, weight, and packaging; help users ensure each GTIN is specific to just one very precise configuration.
Global Trade Item Number (GTIN-14)	02	AI 02 is used to indicate the GTIN-14 of the trade item contained within "1" is also used as a filler digit to convert GTIN-13 to GTIN-14 (used for the same level of packaging)
Serial Shipping Container Code (SSCC)	00	SSCC is an 18-digit globally unique identification number used for logistics units. The SSCC is used to manage the storage and shipping of the logistics units that are routed and traced independently. It also act as a key to accessing the Advanced shipment notice, Dispatch advice and related information such as lot/batch, expiry date from information systems.

*Application Identifier identifies the type of data following it

GTIN-14 Structure

For encoding in Data Matrix and GS1-128 format, GTIN-13 is converted to GTIN-14

Indicator	GS1 Company Prefix					> < Item Reference							Check Digit
N1	N2	N3	N4	N5	N6	N7	N8	N9	N10	N11	N12	N13	N14

Indicator	For converting GTIN-13 to GTIN-14, indicator digit is used. "1" is used as a filler digit to convert GTIN-13 to GTIN-14 (used for the same level of packaging)
GS1 Company Prefix Number	A number allocated by GS1 India or any other GS1 member organization to the applicant company using which they can generate GS1 keys for unique identification of its products, locations, services etc.
Item Reference	A component of the Global Trade Item Number (GTIN) assigned by the manufacturer/brand owner to create a unique GTIN for each product variant/ type.
Check Digit	A modulo-10 algorithm digit used to check for input errors

Serial Shipping Container Code (SSCC) Structure

Extension Digit	GS1 Company Prefix							> < Serial reference number								Check Digit
N1	N2	N3	N4	N5	N6	N7	N8	N10	N11	N12	N13	N14	N15	N16	N17	N18

Extension Digit	Extension digit can vary from 0 to 9
GS1 Company Prefix Number	A number allocated by GS1 India or any other GS1 member organization to the applicant company using which they can generate GS1 keys for unique identification of its products, locations, services etc.

Serial Number	A component of the SSCC assigned by the manufacturer/brand owner to create a unique SSCC for each logistics unit that needs to be identified
Check Digit	Check digit is calculated based on the preceding digits. This digit is used to check that the code being generated has been correctly composed.

Tertiary Packaging

Incorporation of barcode at tertiary level packaging incorporating the following data attributes:

Homogenous pack (label with two barcodes) - Is defined as a package containing multiple units of the same (only one) product packaging type. In case of homogeneous pack, two barcodes shall appear on the label as illustrated below:

The first barcode shall encode:

- Product Identification code (GTIN-14) of the secondary (or primary if there are is no secondary packaging) preceded by Application Identifier (02)
- Expiry Date in YYMMDD format preceded by Application Identifier (17)
- Count of secondary (or primary) within the logistic unit (tertiary pack) preceded by Application Identifier (37)
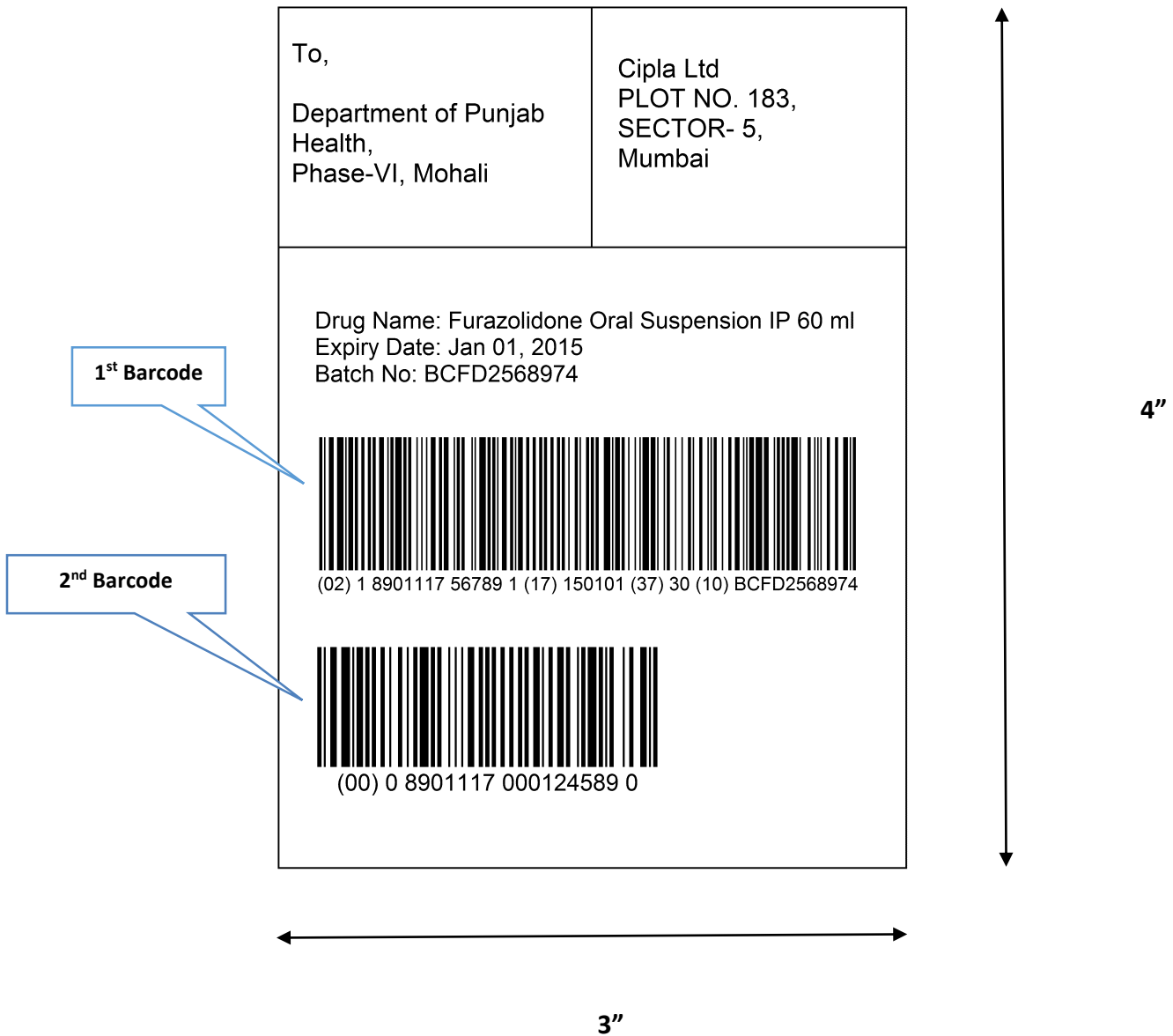- Batch/Lot Number preceded by Application Identifier (10)

The second barcode shall encode:

- SSCC to identify uniquely each tertiary level pack preceded by Application Identifier (00)

Barcode Symbology: GS1-128

In case of GS1-128 barcode, the data encoded should not be more than 48 characters in a single barcode and length of a single barcode should not exceed 165mm. If it exceeds more than 48 characters or 165mm (including quiet zones) then it should be split into two barcode labels.

Schematic representation of Barcode on Tertiary Homogenous Pack

To,

Department of Punjab Health,
Phase-VI, Mohali

Cipla Ltd
PLOT NO. 183,
SECTOR- 5,
Mumbai

Drug Name: Furazolidone Oral Suspension IP 60 ml
Expiry Date: Jan 01, 2015
Batch No: BCFD2568974

1st Barcode

(02) 1 8901117 56789 1 (17) 150101 (37) 30 (10) BCFD2568974

2nd Barcode

(00) 0 8901117 000124589 0

4"

3"

In the above Illustration the barcode encodes the following data:

(02)	Application Identifier to indicate that the data following it, is the unique product code. Brackets are not encoded in the barcode

18901117567891	Unique GTIN-14 for secondary packaging (or primary packaging if there is no secondary)
(17)	Application Identifier to indicate that the data following it, is the expiry date of the product. Brackets are not encoded in the barcode
150101	Expiry date in YYMMDD format (1st January 2015 in this case)
(37)	Application Identifier to indicate the data following it, is the count of secondary (or primary if there is no secondary) in the tertiary pack
30	Count of secondary (or primary if there is no secondary) packaging inside the tertiary. This field can have maximum 8 numeric characters (variable length)
(10)	Application Identifier to indicate the data following it, is the batch number of the product. Brackets are not encoded in the barcode
BCFD2568974	Batch number / Lot number of the product (This field is alpha numeric and of variable length field varying from 1 to 20 digits)

(00)	Application Identifier to indicate the data following it, is the unique serial number of the tertiary pack. Brackets are not encoded in the barcode
089011175678000018	18 digit numeric serial number of the tertiary pack

Secondary Packaging

Incorporation of barcode at the secondary level packaging incorporating the following data attributes:

a.   Unique product identification code (GTIN-14)
b.   Expiry date
c.   Batch No.
d.   Unique Serial No. of the Secondary pack {Serialisation}

The above data can be encoded using 2D or 1D barcodes by using GS1 Datamatrix or GS1-128 barcode Symbology respectively as illustrated below.

In case of GS1-128 barcode, the data encoded should not be more than 48 characters in a single barcode. If it exceeds more than 48 characters then it should be split into two barcode labels.

Schematic representation of Barcode on Secondary Pack

GS1 Datamatrix

Or

GS1-128

(01) 1 8901117 56789 1 (17) 150101 (10) BCFD2568974

Sample picture of secondary pack

In the above Illustration the barcode encodes the following data

(01)	Application Identifier to indicate the unique product code. Brackets are not encoded in the barcode
18901117567891	GTIN-14 for secondary packaging
(17)	Application Identifier to indicate the expiry date of the product. Brackets are not encoded in the barcode
150101	Expiry date in YYMMDD format (1st Jan 2015 in this case)
(10)	Application Identifier to indicate the Batch number or Lot number. Brackets are not encoded in the barcode
BCFD2568974	Batch number / Lot number of the product (This field is alpha numeric and of variable length field varying from 1 to 20 digits)

Please note -

- The above barcoding requirements shall be in addition to existing statutory labeling & marking requirements

- The parentheses (brackets) are not encoded in the bar code and they are represented in human readable form only for highlighting the application identifier number with in the brackets

- Fixed length data fields will always precede variable length fields

- It is mandatory to print data encoded in barcodes as human readable information

- GS1-128 symbology is different from Code-128 symbology

- For detailed GS1 specification please refer to http://gs1india.org/upload/menu/GS1_General_Specifications_v13.pdf

Specification

Barcode Dimension

Physical requirements such as dimension, color, location and quiet zones are very important for a barcode. Barcodes that do not comply cause inefficiency in supply chain as they do not scan reliably
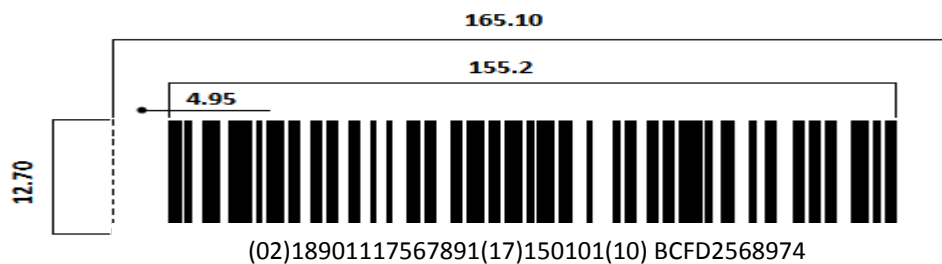
Fig (a):

GS1 128 Barcode	(All Measurements are in mm)	
X-Dimension (Recommended)	Height	Quiet Zones
0.250 (Minimum)	12.70	2.5
0.495 (Maximum)	2.70	4.95

X-Dimension: This is width of the narrowest bar or space in the barcode

Quiet Zone: Quiet Zone refers to the blank margin on either side (left and right) of barcode

Fig (b):

(02)18901117567891(17)150101(10) BCFD2568974

Note

All measurements mentioned in Fig (b) is maximum allowed (mm) considering maximum recommended X dimension

Please note GS1-128 is different from Code-128 symbology. In case of any questions with regards to generating GS1-128 barcode, Contact GS1 India at implementation@gs1india.org

Quiet Zone

Also called 'light margins', quiet zones refer to the space surrounding the GS1 BarCode. GS1 Specifications provide detailed guidelines on the minimum clear space to be left around the barcode as quiet zone. No printed matter or any other mark should encroach upon this space

(02)18901117567891 (17)150101 (10) BCFD2568974

X = width of the narrowest bar or space in the barcode

For further details on implementation of GS1 Standards, please contact the GS1 implementation service at the following contacts:

- **Phone: +91-11-42890818   (From 9.30 AM to 6.00 PM, Monday to Friday) Email: implementation@gs1india.org   Website: http://gs1india.org**

Recommended Label specification:

Label material Description: Specifically designed for corrugated boxes having rough surface, dust and high moisture content. Also, where the storage of boxes is improper so that label does not peel off. The evident properties are derived from top layer, which is semi-gloss white, co-extruded film consisting of an expanded polystyrene layer with a clear polystyrene surface film. The top coat is highly receptive to thermal printing as it is having matt finish. The total caliper of material is being 0.145mm with difference of plus minus 10%.

Adhesive: A highly aggressive permanent rubber based adhesive featuring high initial tack and excellent ultimate bond strength to a wide range of substrates. The Adhesion is equally effective for Manual as well as Auto Application of the Labels.

Minimum Application Temperature: +5ºC (The minimum temperature at which the label can be applied and will adhere)

Service Temperature Range: -20ºC to +70ºC (The temperature range to which the label can be exposed after the adhesion bond to the substrate has been formed)

Conversion: This product can be printed in the usual printing technologies; for variable information printing thermal transfer and inkjet printing can be used. It's recommended to use Resin Ribbons for Thermal Transfer Printing for better outcome. Customized security cuts are also advised according to label size, to enable a better view of temper evidence if label is tried to be peeled off from the substrate. It has also been observed that the bigger the label sizes provide better adherence due to larger bonding area and increase the material effectiveness. Material should be handled with great care; rough handling may leave permanent impressions in the relatively soft face stock.

Shelf Life: Two years when stored at 22º C

Printing barcodes – Explained step by step

Step1
- Check whether your company is a subscriber of GS1 India for using GCP
- Incase your company doesn't have a GCP, subscribe with GS1-India

Step2
- Allocation of GTIN to each SKU
- Creating Master Data for each packaging level for all SKUs

Step3
- Sharing of data as per predefined format with PHSC

Step 4
- Understand the specification for barcoding for PHSC
- Recommended to source lable and ribbon as per specification

Step 5
- Print barcodes for tertiary & secondary packaging level as per specification
- Send one sample of Tertiary packaging level for verification to GS1 India - Important

Step 6
- If verification report is pass, print barcode on all the levels
- If verification report is fail, modify as per recommendation and get it re-verified by GS1 India