



Drug Supply Chain Security Act And Master Data Management Study

Call # 17

3/6/2017

Today's Agenda



Anti-Trust Statement

- Review of additions proposed for the whitepaper
- Check in on review process

Antitrust Statement

- The Center for Supply Chain Studies (the Center) is a nonprofit organization that serves as a forum for free and open discussion of diverse opinions without in any way attempting to encourage or sanction any particular business practice.
- During the course of any Center activity, discussions involving pricing, sales terms, territories, production or other aspects of competition, must be avoided. In the event any person feels that statements or actions in meetings are headed into such an area, attendees should raise the issue immediately so that further discussion of such matters can be suspended pending receipt of advice satisfactory that questionable topics do not give rise to antitrust problems.
- The Center recognizes the severity of the potential penalties that might be imposed in the event that certain conduct is found to violate the antitrust laws. Should the Center or its cooperative participants be involved in any violation of federal/state antitrust laws, such violation may involve both civil and criminal penalties that may include imprisonment, as well as fines and/or attorney fees.
- This policy statement unequivocally supports the policy of competition served by the antitrust laws. Given this, the Center intends to take all necessary and proper measures to ensure that violations of the antitrust laws do not occur.

Today's Agenda

- Anti-Trust Statement
- ▶ Review of additions proposed for the whitepaper
- Check in on review process

Notes from 2/27/2017 Call

- Add List of Master Data Attributes that are duplicated
- Provide examples generate from the ReferenceModel
 - Current (data via DSCSA and MDM)
 - Proposed (Master Data via MDM and redacted from the DSCSA TI)

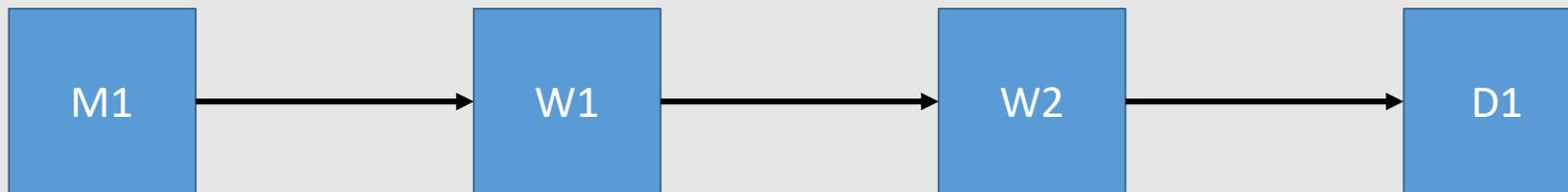
Notes from 3/6/2017 Call

1. Add slide 7 info after “Need for Study” section to make the case for “why”
2. Add material from slides 8-11 to Appendix to show “data rich” version vs MDM version and demonstrate bringing data back (DSCSA & MDM) to recreate the “TI”
3. Provide a MDM example dataset (see slide 11) using Excel to demo how MDM and DSCSA data can be brought together to provide “TI”
4. Question to team: As slide 7 shows, the “TI” from M1 included info on 400 items. When D1 attempts to retrieve that “TI”, they will receive a “TI” that agrees with the original “TI”, but only includes data about the 3 items that D1 acquired. This is slightly different than “retrieving the [exact] “TI” going back to the manufacturer”.

Alternatives to sending Trade Item and Party Master Data within each Transaction Information

Case:

1. Manufacturer 1 transfers 1 pallet containing 400 bottles of Product "X" to Wholesaler 1.
2. Wholesaler 1 unpacks the pallet and places individual bottles into racks for customer order picking.
3. Wholesaler 1 picks 10 bottles of Product "X" (along with other products) and packs the items into totes for shipping to Wholesaler 2.
4. Wholesaler 2 unpacks the Tote and places individual bottles into racks for customer order picking.
5. Wholesaler 2 picks 3 bottles of Product "X" (along with other products) and packs the items into totes for shipping to Dispenser 1.
6. Dispenser 1 unpacks the Tote and places individual bottles onto pharmacy shelves for patient dispensing.



Observations:

1. DSCSA Transaction Information contains the following groupings of data:
 - Trade Item Data (Strength, Dosage Form, etc.)
 - Production Data (Serial Number, Lot Number and Expiration Date)
 - Transferring From Party Data (Name, address, etc.)
 - Transferring To Party Data (Name, address, etc.)
 - Transaction Data (Date of Transfer, Date of Shipment, etc.)
2. D1 could receive a "TI" for each of the items transferred by W2.
 - If any of those items were the same product (NDC), Dispenser 1 would now have duplicate Trade Item master data.
 - At the very least, Dispenser 1 (or any purchasing entity) would receive duplicate Party master data every time a shipment was made (daily?).
3. D1 could receive a transaction Manufacturer 1 transfers 1 pallet containing 400 bottles of Product "X" to Wholesaler 1.

Place after "Need for Study"

Types of data in DSCSA Transaction Information

The diagram illustrates the structure of DSCSA Transaction Information data, categorized into five main types:

- Reference Model Data:** Includes simulation work center, data owner, and GTIN information.
- Transaction Data:** Contains core transaction details such as SN, location (GLN), GLN extension, day/time, business step, action, and disposition.
- Production Data:** Tracks production metrics like sold from GLN, sold to GLN, lot number, and lot expiration.
- Trade Item Master Data:** Details product characteristics including propriety, strength, dosage form, and container type.
- Transferred From and Transferred To Party Data:** Provides comprehensive entity/location master data for both the source and destination parties, including street addresses, cities, states, and zip codes.

| Reference Model Data | | Transaction Data | | | | | | | | | | Production Data | | | | Trade Item Master Data | | | | | Transferred From and Transferred To Party Data | | | | | | | | | | |
|------------------------|-----------------|------------------|----|----------------|---------------|-------------------|---------------|--------|--------------|---------------|---------------|-----------------|----------------|------------|-------------|------------------------|---------|----------|----------------|---------|--|--------|-------|-------|----------------|---------|----------------|--------|-------|-------|--|
| Simulation Work Center | Data Owner | GTIN | SN | Location (GLN) | GLN Extension | Day/Time | Business Step | Action | Disposition | Sold From GLN | Sold To GLN | Lot Number | Lot Expiration | Inference? | Proprietary | Strength | DosageF | Containe | Entity/Lo Name | Street1 | Street2 | City | State | Zip | Entity/Lo Name | Street1 | Street2 | City | State | Zip | |
| 031244400001x | 00312345000123x | 00312345000123x | 1 | 031244400001x | | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 20-Jan-26 | | | | | | | | | | | | | | | | | | |
| 031244400001x | 00312345000123x | 00312345000123x | 2 | 031244400001x | | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 | | | | | | | | | | | | | | | | | | |
| 031231200001x | 00312345000123x | 00312345000123x | 1 | 031231200001x | | 1/5/2023 12:00 AM | Shipping | ADD | InTransit | 031231200001x | 031233300022x | 125 | 1/20/2026 | | Med001P | 200 | Tab | 100 | 0312312C W001 | 200 | Comr Suite 154 | Newark | NJ | 08842 | 0312444C M001 | 450 | Production Way | Edison | NJ | 08817 | |
| 031244400001x | 00312345000123x | 00312345000123x | 3 | 031244400001x | | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 | | | | | | | | | | | | | | | | | | |
| 031244400001x | 00312345000123x | 00312345000123x | 4 | 031244400001x | | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 | | | | | | | | | | | | | | | | | | |
| 031231200001x | 00312345000123x | 00312345000123x | 2 | 031231200001x | | 1/5/2023 12:00 AM | Shipping | ADD | InTransit | 031231200001x | 031233300022x | 125 | 1/20/2026 | | Med001P | 200 | Tab | 100 | 0312312C W001 | 200 | Comr Suite 154 | Newark | NJ | 08842 | 0312444C M001 | 450 | Production Way | Edison | NJ | 08817 | |
| 031231200001x | 00312345000123x | 00312345000123x | 3 | 031231200001x | | 1/5/2023 12:00 AM | Shipping | ADD | InTransit | 031231200001x | 031233300022x | 125 | 1/20/2026 | | Med001P | 200 | Tab | 100 | 0312312C W001 | 200 | Comr Suite 154 | Newark | NJ | 08842 | 0312444C M001 | 450 | Production Way | Edison | NJ | 08817 | |
| 031244400001x | 00312345000123x | 00312345000123x | 5 | 031244400001x | | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 | | | | | | | | | | | | | | | | | | |
| 031231200001x | 00312345000123x | 00312345000123x | 4 | 031231200001x | | 1/5/2023 12:00 AM | Shipping | ADD | InTransit | 031231200001x | 031233300022x | 125 | 1/20/2026 | | Med001P | 200 | Tab | 100 | 0312312C W001 | 200 | Comr Suite 154 | Newark | NJ | 08842 | 0312444C M001 | 450 | Production Way | Edison | NJ | 08817 | |
| 031244400001x | 00312345000123x | 00312345000123x | 6 | 031244400001x | | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 | | | | | | | | | | | | | | | | | | |
| 031231200001x | 00312345000123x | 00312345000123x | 5 | 031231200001x | | 1/5/2023 12:00 AM | Shipping | ADD | InTransit | 031231200001x | 031233300022x | 125 | 1/20/2026 | | Med001P | 200 | Tab | 100 | 0312312C W001 | 200 | Comr Suite 154 | Newark | NJ | 08842 | 0312444C M001 | 450 | Production Way | Edison | NJ | 08817 | |
| 031244400001x | 00312345000123x | 00312345000123x | 7 | 031244400001x | | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 | | | | | | | | | | | | | | | | | | |
| 031231200001x | 00312345000123x | 00312345000123x | 6 | 031231200001x | | 1/5/2023 12:00 AM | Shipping | ADD | InTransit | 031231200001x | 031233300022x | 125 | 1/20/2026 | | Med001P | 200 | Tab | 100 | 0312312C W001 | 200 | Comr Suite 154 | Newark | NJ | 08842 | 0312444C M001 | 450 | Production Way | Edison | NJ | 08817 | |
| 031244400001x | 00312345000123x | 00312345000123x | 8 | 031244400001x | | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 | | | | | | | | | | | | | | | | | | |
| 031231200001x | 00312345000123x | 00312345000123x | 8 | 031231200001x | | 1/5/2023 12:00 AM | Shipping | ADD | InTransit | 031231200001x | 031233300022x | 125 | 1/20/2026 | | Med001P | 200 | Tab | 100 | 0312312C W001 | 200 | Comr Suite 154 | Newark | NJ | 08842 | 0312444C M001 | 450 | Production Way | Edison | NJ | 08817 | |
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| 031244400001x | 00312345000123x | 00312345000123x | 10 | 031244400001x | | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 | | | | | | | | | | | | | | | | | | |
| 031231200001x | 00312345000123x | 00312345000123x | 10 | 031231200001x | | 1/5/2023 12:00 AM | Shipping | ADD | InTransit | 031231200001x | 031233300022x | 125 | 1/20/2026 | | Med001P | 200 | Tab | 100 | 0312312C W001 | 200 | Comr Suite 154 | Newark | NJ | 08842 | 0312444C M001 | 450 | Production Way | Edison | NJ | 08817 | |
| 031244400001x | 00312345000123x | 00312345000123x | 11 | 031244400001x | | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 | | | | | | | | | | | | | | | | | | |
| 031231200001x | 00312345000123x | 00312345000123x | 12 | 031231200001x | | 1/5/2023 12:00 AM | Shipping | ADD | InTransit | 031231200001x | 031233300022x | 125 | 1/20/2026 | | Med001P | 200 | Tab | 100 | 0312312C W001 | 200 | Comr Suite 154 | Newark | NJ | 08842 | 0312444C M001 | 450 | Production Way | Edison | NJ | 08817 | |
| 031244400001x | 00312345000123x | 00312345000123x | 13 | 031244400001x | | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 | | | | | | | | | | | | | | | | | | |
| 031231200001x | 00312345000123x | 00312345000123x | 9 | 031231200001x | | 1/5/2023 12:00 AM | Shipping | ADD | InTransit | 031231200001x | 031233300022x | 125 | 1/20/2026 | | Med001P | 200 | Tab | 100 | 0312312C W001 | 200 | Comr Suite 154 | Newark | NJ | 08842 | 0312444C M001 | 450 | Production Way | Edison | NJ | 08817 | |
| 031244400001x | 00312345000123x | 00312345000123x | 14 | 031244400001x | | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 | | | | | | | | | | | | | | | | | | |
| 031231200001x | 00312345000123x | 00312345000123x | 11 | 031231200001x | | 1/5/2023 12:00 AM | Shipping | ADD | InTransit | 031231200001x | 031233300022x | 125 | 1/20/2026 | | Med001P | 200 | Tab | 100 | 0312312C W001 | 200 | Comr Suite 154 | Newark | NJ | 08842 | 0312444C M001 | 450 | Production Way | Edison | NJ | 08817 | |
| 031244400001x | 00312345000123x | 00312345000123x | 15 | 031244400001x | | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 | | | | | | | | | | | | | | | | | | |
| 031231200001x | 00312345000123x | 00312345000123x | 12 | 031231200001x | | 1/5/2023 12:00 AM | Shipping | ADD | InTransit | 031231200001x | 031233300022x | 125 | 1/20/2026 | | Med001P | 200 | Tab | 100 | 0312312C W001 | 200 | Comr Suite 154 | Newark | NJ | 08842 | 0312444C M001 | 450 | Production Way | Edison | NJ | 08817 | |
| 031244400001x | 00312345000123x | 00312345000123x | 16 | 031244400001x | | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 | | | | | | | | | | | | | | | | | | |
| 031231200001x | 00312345000123x | 00312345000123x | 16 | 031231200001x | | 1/5/2023 12:00 AM | Shipping | ADD | InTransit | 031231200001x | 031233300022x | 125 | 1/20/2026 | | Med001P | 200 | Tab | 100 | 0312312C W001 | 200 | Comr Suite 154 | Newark | NJ | 08842 | 0312444C M001 | 450 | Production Way | Edison | NJ | 08817 | |
| 031244400001x | 00312345000123x | 00312345000123x | 17 | 031244400001x | | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 | | | | | | | | | | | | | | | | | | |
| 031231200001x | 00312345000123x | 00312345000123x | 14 | 031231200001x | | 1/5/2023 12:00 AM | Shipping | ADD | InTransit | 031231200001x | 031233300022x | 125 | 1/20/2026 | | Med001P | 200 | Tab | 100 | 0312312C W001 | 200 | Comr Suite 154 | Newark | NJ | 08842 | 0312444C M001 | 450 | Production Way | Edison | NJ | 08817 | |
| 031244400001x | 00312345000123x | 00312345000123x | 17 | 031244400001x | | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 | | | | | | | | | | | | | | | | | | |
| 031231200001x | 00312345000123x | 00312345000123x | 15 | 031231200001x | | 1/5/2023 12:00 AM | Shipping | ADD | InTransit | 031231200001x | 031233300022x | 125 | 1/20/2026 | | Med001P | 200 | Tab | 100 | 0312312C W001 | 200 | Comr Suite 154 | Newark | NJ | 08842 | 0312444C M001 | 450 | Production Way | Edison | NJ | 08817 | |
| 031244400001x | 00312345000123x | 00312345000123x | 18 | 031244400001x | | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 | | | | | | | | | | | | | | | | | | |
| 031231200001x | 00312345000123x | 00312345000123x | 16 | 031231200001x | | 1/5/2023 12:00 AM | Shipping | ADD | InTransit | 031231200001x | 031233300022x | 125 | 1/20/2026 | | Med001P | 200 | Tab | 100 | 0312312C W001 | 200 | Comr Suite 154 | Newark | NJ | 08842 | 0312444C M001 | 450 | Production Way | Edison | NJ | 08817 | |
| 031244400001x | 00312345000123x | 00312345000123x | 19 | 031244400001x | | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 | | | | | | | | | | | | | | | | | | |
| 031231200001x | 00312345000123x | 00312345000123x | 17 | 031231200001x | | 1/5/2023 12:00 AM | Shipping | ADD | InTransit | 031231200001x | 031233300022x | 125 | 1/20/2026 | | Med001P | 200 | Tab | 100 | 0312312C W001 | 200 | Comr Suite 154 | Newark | NJ | 08842 | 03124 | | | | | | |

Types of data in DSCSA Transaction Information

Certain data can be represented by identifiers and held separately from the transaction

The table is an Excel spreadsheet with columns A through AG. It is divided into several data sections:

- ReferenceModel Data:** Columns A through B, containing information like 'Center for Supply Chain Studies' and 'DSCSA and MDM Study'.
- Transaction Data:** Columns C through M, containing transaction details such as GTIN, SN, Location (GLN), Day/Time, Business Step, Action, Disposition, Sold From GLN, and Sold To GLN.
- Production Data:** Columns N through O, containing Lot Number and Lot Expiration.
- Trade Item Master Data:** Columns P through S, containing Product Master Data (Proprieta, Strength, Dosage, Containe) and Entity/Location Master Data (Entity/Lo Name, Street1, Street2, City, State, Zip).
- Transferred From and Transferred To Party Data:** Columns T through AG, containing additional Entity/Location Master Data for the parties involved in the transaction.

Annotations with arrows point to specific data points:

- ReferenceModel Data:** Points to the 'Center for Supply Chain Studies' logo and 'DSCSA and MDM Study' text.
- Transaction Data:** Points to the 'GTIN' and 'SN' columns.
- Production Data:** Points to the 'Lot Number' and 'Lot Expiration' columns.
- Trade Item Master Data:** Points to the 'Proprieta', 'Strength', 'Dosage', 'Containe' columns and the 'Entity/Lo Name' column.
- Transferred From and Transferred To Party Data:** Points to the 'Entity/Lo Name' and 'Street1' columns.

Additional annotations above the table:

- Represented by NDC + Lot # (GTIN + Lot # in this example):** Points to the 'GTIN' and 'Lot Number' columns.
- Represented by SNI (NDC + Sn) (GTIN + Sn # in this example):** Points to the 'GTIN' and 'SN' columns.
- Represented by Customer ID or Supplier ID (GLN in this example):** Points to the 'Location (GLN)' column.

Proposed use of Master Data

Certain data can be represented by identifiers and held separately from the transaction

| Reference Model Data | | Transaction Data | | | | | | | | | | Production Data | | | | Trade Item Master Data | | | | | Transferred From and Transferred To Party Data | | | | | | | | | | |
|--|------------------------|------------------|-----------------|----------------|---------------|-------------------|---------------|--------|--------------|---------------|---------------|-----------------|----------------|------------|-----------|------------------------|---------|----------|----------------|---------|--|--------|-------|-------|----------------|---------|----------------|--------|-------|-------|--|
| © Center for Supply Chain Studies CENTER Supply Chain Studies Reference Model-based Exploration and Education DSCSA and MDM Study | | GTIN | SN | Location (GLN) | GLN Extension | Day/Time | Business Step | Action | Disposition | Sold From GLN | Sold To GLN | Lot Number | Lot Expiration | Inference? | Proprieta | Strength | DosageF | Containe | Entity/Lo Name | Street1 | Street2 | City | State | Zip | Entity/Lo Name | Street1 | Street2 | City | State | Zip | |
| 8 | Simulation Work Center | Data Owner | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | M001 Commissioning | 031244400001x | 00312345000123x | 1 | 031244400001x | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 20-Jan-26 | | | | | | | | | | | | | | | | | | |
| 10 | M001 Commissioning | 031244400001x | 00312345000123x | 2 | 031244400001x | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 | | | | | | | | | | | | | | | | | | |
| 11 | M001 Shipping | 031231200001x | 00312345000123x | 1 | 031231200001x | 1/5/2023 12:00 AM | Shipping | ADD | InTransit | 031231200001x | 031233300022x | 125 | 1/20/2026 | | Med001P | 200 | Tab | 100 | 0312312C W001 | 200 | Comr Suite 154 | Newark | NJ | 08842 | 0312444C M001 | 450 | Production Way | Edison | NJ | 08817 | |
| 12 | M001 Commissioning | 031244400001x | 00312345000123x | 3 | 031244400001x | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 | | | | | | | | | | | | | | | | | | |
| 13 | M001 Commissioning | 031244400001x | 00312345000123x | 4 | 031244400001x | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 | | | | | | | | | | | | | | | | | | |
| 14 | M001 Shipping | 031231200001x | 00312345000123x | 2 | 031231200001x | 1/5/2023 12:00 AM | Shipping | ADD | InTransit | 031231200001x | 031233300022x | 125 | 1/20/2026 | | Med001P | 200 | Tab | 100 | 0312312C W001 | 200 | Comr Suite 154 | Newark | NJ | 08842 | 0312444C M001 | 450 | Production Way | Edison | NJ | 08817 | |
| 15 | M001 Shipping | 031231200001x | 00312345000123x | 3 | 031231200001x | 1/5/2023 12:00 AM | Shipping | ADD | InTransit | 031231200001x | 031233300022x | 125 | 1/20/2026 | | Med001P | 200 | Tab | 100 | 0312312C W001 | 200 | Comr Suite 154 | Newark | NJ | 08842 | 0312444C M001 | 450 | Production Way | Edison | NJ | 08817 | |
| 16 | M001 Commissioning | 031244400001x | 00312345000123x | 5 | 031244400001x | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 | | | | | | | | | | | | | | | | | | |
| 17 | M001 Shipping | 031231200001x | 00312345000123x | 4 | 031231200001x | 1/5/2023 12:00 AM | Shipping | ADD | InTransit | 031231200001x | 031233300022x | 125 | 1/20/2026 | | Med001P | 200 | Tab | 100 | 0312312C W001 | 200 | Comr Suite 154 | Newark | NJ | 08842 | 0312444C M001 | 450 | Production Way | Edison | NJ | 08817 | |
| 18 | M001 Commissioning | 031244400001x | 00312345000123x | 6 | 031244400001x | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 | | | | | | | | | | | | | | | | | | |
| 19 | M001 Shipping | 031231200001x | 00312345000123x | 5 | 031231200001x | 1/5/2023 12:00 AM | Shipping | ADD | InTransit | 031231200001x | 031233300022x | 125 | 1/20/2026 | | Med001P | 200 | Tab | 100 | 0312312C W001 | 200 | Comr Suite 154 | Newark | NJ | 08842 | 0312444C M001 | 450 | Production Way | Edison | NJ | 08817 | |
| 20 | M001 Commissioning | 031244400001x | 00312345000123x | 7 | 031244400001x | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 | | | | | | | | | | | | | | | | | | |
| 21 | M001 Shipping | 031231200001x | 00312345000123x | 6 | 031231200001x | 1/5/2023 12:00 AM | Shipping | ADD | InTransit | 031231200001x | 031233300022x | 125 | 1/20/2026 | | Med001P | 200 | Tab | 100 | 0312312C W001 | 200 | Comr Suite 154 | Newark | NJ | 08842 | 0312444C M001 | 450 | Production Way | Edison | NJ | 08817 | |
| 22 | M001 Commissioning | 031244400001x | 00312345000123x | 8 | 031244400001x | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 | | | | | | | | | | | | | | | | | | |
| 23 | M001 Commissioning | 031244400001x | 00312345000123x | 9 | 031244400001x | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 | | | | | | | | | | | | | | | | | | |
| 24 | M001 Shipping | 031231200001x | 00312345000123x | 7 | 031231200001x | 1/5/2023 12:00 AM | Shipping | ADD | InTransit | 031231200001x | 031233300022x | 125 | 1/20/2026 | | Med001P | 200 | Tab | 100 | 0312312C W001 | 200 | Comr Suite 154 | Newark | NJ | 08842 | 0312444C M001 | 450 | Production Way | Edison | NJ | 08817 | |
| 25 | M001 Commissioning | 031244400001x | 00312345000123x | 10 | 031244400001x | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 | | | | | | | | | | | | | | | | | | |
| 26 | M001 Shipping | 031231200001x | 00312345000123x | 8 | 031231200001x | 1/5/2023 12:00 AM | Shipping | ADD | InTransit | 031231200001x | 031233300022x | 125 | 1/20/2026 | | Med001P | 200 | Tab | 100 | 0312312C W001 | 200 | Comr Suite 154 | Newark | NJ | 08842 | 0312444C M001 | 450 | Production Way | Edison | NJ | 08817 | |
| 27 | M001 Commissioning | 031244400001x | 00312345000123x | 11 | 031244400001x | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 | | | | | | | | | | | | | | | | | | |
| 28 | M001 Commissioning | 031244400001x | 00312345000123x | 12 | 031244400001x | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 | | | | | | | | | | | | | | | | | | |
| 29 | M001 Shipping | 031231200001x | 00312345000123x | 9 | 031231200001x | 1/5/2023 12:00 AM | Shipping | ADD | InTransit | 031231200001x | 031233300022x | 125 | 1/20/2026 | | Med001P | 200 | Tab | 100 | 0312312C W001 | 200 | Comr Suite 154 | Newark | NJ | 08842 | 0312444C M001 | 450 | Production Way | Edison | NJ | 08817 | |
| 30 | M001 Commissioning | 031244400001x | 00312345000123x | 13 | 031244400001x | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 | | | | | | | | | | | | | | | | | | |
| 31 | M001 Shipping | 031231200001x | 00312345000123x | 10 | 031231200001x | 1/5/2023 12:00 AM | Shipping | ADD | InTransit | 031231200001x | 031233300022x | 125 | 1/20/2026 | | Med001P | 200 | Tab | 100 | 0312312C W001 | 200 | Comr Suite 154 | Newark | NJ | 08842 | 0312444C M001 | 450 | Production Way | Edison | NJ | 08817 | |
| 32 | M001 Commissioning | 031244400001x | 00312345000123x | 14 | 031244400001x | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 | | | | | | | | | | | | | | | | | | |
| 33 | M001 Shipping | 031231200001x | 00312345000123x | 11 | 031231200001x | 1/5/2023 12:00 AM | Shipping | ADD | InTransit | 031231200001x | 031233300022x | 125 | 1/20/2026 | | Med001P | 200 | Tab | 100 | 0312312C W001 | 200 | Comr Suite 154 | Newark | NJ | 08842 | 0312444C M001 | 450 | Production Way | Edison | NJ | 08817 | |
| 34 | M001 Commissioning | 031244400001x | 00312345000123x | 15 | 031244400001x | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 | | | | | | | | | | | | | | | | | | |
| 35 | M001 Shipping | 031231200001x | 00312345000123x | 12 | 031231200001x | 1/5/2023 12:00 AM | Shipping | ADD | InTransit | 031231200001x | 031233300022x | 125 | 1/20/2026 | | Med001P | 200 | Tab | 100 | 0312312C W001 | 200 | Comr Suite 154 | Newark | NJ | 08842 | 0312444C M001 | 450 | Production Way | Edison | NJ | 08817 | |
| 36 | M001 Commissioning | 031244400001x | 00312345000123x | 16 | 031244400001x | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 | | | | | | | | | | | | | | | | | | |
| 37 | M001 Shipping | 031231200001x | 00312345000123x | 13 | 031231200001x | 1/5/2023 12:00 AM | Shipping | ADD | InTransit | 031231200001x | 031233300022x | 125 | 1/20/2026 | | Med001P | 200 | Tab | 100 | 0312312C W001 | 200 | Comr Suite 154 | Newark | NJ | 08842 | 0312444C M001 | 450 | Production Way | Edison | NJ | 08817 | |
| 38 | M001 Shipping | 031231200001x | 00312345000123x | 14 | 031231200001x | 1/5/2023 12:00 AM | Shipping | ADD | InTransit | 031231200001x | 031233300022x | 125 | 1/20/2026 | | Med001P | 200 | Tab | 100 | 0312312C W001 | 200 | Comr Suite 154 | Newark | NJ | 08842 | 0312444C M001 | 450 | Production Way | Edison | NJ | 08817 | |
| 39 | M001 Commissioning | 031244400001x | 00312345000123x | 17 | 031244400001x | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 | | | | | | | | | | | | | | | | | | |
| 40 | M001 Shipping | 031231200001x | 00312345000123x | 15 | 031231200001x | 1/5/2023 12:00 AM | Shipping | ADD | InTransit | 031231200001x | 031233300022x | 125 | 1/20/2026 | | Med001P | 200 | Tab | 100 | 0312312C W001 | 200 | Comr Suite 154 | Newark | NJ | 08842 | 0312444C M001 | 450 | Production Way | Edison | NJ | 08817 | |
| 41 | M001 Commissioning | 031244400001x | 00312345000123x | 18 | 031244400001x | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 | | | | | | | | | | | | | | | | | | |
| 42 | M001 Shipping | 031231200001x | 00312345000123x | 16 | 031231200001x | 1/5/2023 12:00 AM | Shipping | ADD | InTransit | 031231200001x | 031233300022x | 125 | 1/20/2026 | | Med001P | 200 | Tab | 100 | 0312312C W001 | 200 | Comr Suite 154 | Newark | NJ | 08842 | 0312444C M001 | 450 | Production Way | Edison | NJ | 08817 | |
| 43 | M001 Commissioning | 031244400001x | 00312345000123x | 19 | 031244400001x | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 | | | | | | | | | | | | | | | | | | |
| 44 | M001 Shipping | 031231200001x | 00312345000123x | 17 | 031231200001x | 1/5/2023 12:00 AM | Shipping | ADD | InTransit | 031231200001x | 031233300022x | 125 | 1/20/2026 | | Med001P | 200 | Tab | 100 | 0312312C W001 | 200 | Comr Suite 154 | Newark | NJ | 08842 | 0312444C M001 | 450 | Production Way | Edison | NJ | 08817 | |
| 45 | M001 Commissioning | 031244400001x | 00312345000123x | 20 | 031244400001x | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 | | | | | | | | | | | | | | | | | | |
| 46 | M001 Shipping | 031231200001x | 00312345000123x | 18 | 031231200001x | 1/5/2023 12:00 AM | Shipping | ADD | InTransit | 031231200001x | 031233300022x | 125 | 1/20/2026 | | Med001P | 200 | Tab | 100 | 0312312C W001 | 200 | Comr Suite 154 | | | | | | | | | | |

Proposed use of Master Data

Reconstructing the "TI"

Reduced Transaction Information

| GTIN | SN | Location (GLN) | GLN Extension | Day/Time | Business Step | Action | Disposition | Sold From GLN | Sold To GLN | Lot Number | Lot Expiration |
|-----------------|----|----------------|---------------|-------------------|---------------|--------|--------------|---------------|---------------|------------|----------------|
| 00312345000123x | 1 | 031244400001x | | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 20-Jan-26 |
| 00312345000123x | 2 | 031244400001x | | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 |
| 00312345000123x | 1 | 031231200001x | | 1/5/2023 12:00 AM | Shipping | ADD | InTransit | 031231200001x | 031233300022x | 125 | 1/20/2026 |
| 00312345000123x | 3 | 031244400001x | | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 |
| 00312345000123x | 4 | 031244400001x | | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 |
| 00312345000123x | 2 | 031231200001x | | 1/5/2023 12:00 AM | Shipping | ADD | InTransit | 031231200001x | 031233300022x | 125 | 1/20/2026 |
| 00312345000123x | 3 | 031231200001x | | 1/5/2023 12:00 AM | Shipping | ADD | InTransit | 031231200001x | 031233300022x | 125 | 1/20/2026 |
| 00312345000123x | 5 | 031244400001x | | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 |
| 00312345000123x | 4 | 031231200001x | | 1/5/2023 12:00 AM | Shipping | ADD | InTransit | 031231200001x | 031233300022x | 125 | 1/20/2026 |
| 00312345000123x | 6 | 031244400001x | | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 |
| 00312345000123x | 5 | 031231200001x | | 1/5/2023 12:00 AM | Shipping | ADD | InTransit | 031231200001x | 031233300022x | 125 | 1/20/2026 |
| 00312345000123x | 7 | 031244400001x | | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 |
| 00312345000123x | 6 | 031231200001x | | 1/5/2023 12:00 AM | Shipping | ADD | InTransit | 031231200001x | 031233300022x | 125 | 1/20/2026 |
| 00312345000123x | 8 | 031244400001x | | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 |
| 00312345000123x | 9 | 031244400001x | | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 |
| 00312345000123x | 7 | 031231200001x | | 1/5/2023 12:00 AM | Shipping | ADD | InTransit | 031231200001x | 031233300022x | 125 | 1/20/2026 |
| 00312345000123x | 10 | 031244400001x | | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 |
| 00312345000123x | 8 | 031231200001x | | 1/5/2023 12:00 AM | Shipping | ADD | InTransit | 031231200001x | 031233300022x | 125 | 1/20/2026 |
| 00312345000123x | 11 | 031244400001x | | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 |
| 00312345000123x | 12 | 031244400001x | | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 |
| 00312345000123x | 9 | 031231200001x | | 1/5/2023 12:00 AM | Shipping | ADD | InTransit | 031231200001x | 031233300022x | 125 | 1/20/2026 |
| 00312345000123x | 13 | 031244400001x | | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 |
| 00312345000123x | 10 | 031231200001x | | 1/5/2023 12:00 AM | Shipping | ADD | InTransit | 031231200001x | 031233300022x | 125 | 1/20/2026 |
| 00312345000123x | 14 | 031244400001x | | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 |

Trade Item

| Product Master Data | | | |
|---------------------|----------|---------|----------|
| Proprieta | Strength | DosageF | Containe |
| Med001P | 200 | Tab | 100 |

Suppliers

| Entity/Location Master Data | | | | | |
|--|--------------------|---------|--------|-------|-------|
| From whom ownership is being transferred | | | | | |
| Entity/Lo Name | Street1 | Street2 | City | State | Zip |
| 0312312(W001 | 200 Comr Suite 154 | | Newark | NJ | 08842 |

Customers

| Entity/Location Master Data | | | | | |
|--|--------------------|---------|--------|-------|-------|
| To whom ownership is being transferred | | | | | |
| Entity/Lo Name | Street1 | Street2 | City | State | Zip |
| 0312444(M001 | 450 Production Way | | Edison | NJ | 08817 |



Reference Model based Exploration and Education

DSCSA and MDM Study

| Data Owner | GTIN | SN | Location (GLN) | GLN Extension | Day/Time | Business Step | Action | Disposition | Sold From GLN | Sold To GLN | Lot Number | Lot Expiration | Inference? | Proprieta | Strength | DosageF | Containe | Entity/Lo Name | Street1 | Street2 | City | State | Zip | Entity/Lo Name | Street1 | Street2 | City | |
|---------------|-----------------|----|----------------|---------------|-------------------|---------------|--------|--------------|---------------|---------------|------------|----------------|------------|-----------|----------|---------|----------|----------------|--------------------|---------|--------|-------|-------|----------------|--------------------|---------|--------|--|
| 031244400001x | 00312345000123x | 1 | 031244400001x | | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 20-Jan-26 | | | | | | | | | | | | | | | | |
| 031244400001x | 00312345000123x | 2 | 031244400001x | | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 | | | | | | | | | | | | | | | | |
| 031231200001x | 00312345000123x | 1 | 031231200001x | | 1/3/2023 12:00 AM | Shipping | ADD | InTransit | 031231200001x | 031233300022x | 125 | 1/20/2026 | | Med001P | 200 | Tab | 100 | 0312312(W001 | 200 Comr Suite 154 | | Newark | NJ | 08842 | 0312444(M001 | 450 Production Way | | Edison | |
| 031244400001x | 00312345000123x | 3 | 031244400001x | | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 | | | | | | | | | | | | | | | | |
| 031244400001x | 00312345000123x | 4 | 031244400001x | | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 | | | | | | | | | | | | | | | | |
| 031231200001x | 00312345000123x | 2 | 031231200001x | | 1/5/2023 12:00 AM | Shipping | ADD | InTransit | 031231200001x | 031233300022x | 125 | 1/20/2026 | | Med001P | 200 | Tab | 100 | 0312312(W001 | 200 Comr Suite 154 | | Newark | NJ | 08842 | 0312444(M001 | 450 Production Way | | Edison | |
| 031231200001x | 00312345000123x | 3 | 031231200001x | | 1/5/2023 12:00 AM | Shipping | ADD | InTransit | 031231200001x | 031233300022x | 125 | 1/20/2026 | | Med001P | 200 | Tab | 100 | 0312312(W001 | 200 Comr Suite 154 | | Newark | NJ | 08842 | 0312444(M001 | 450 Production Way | | Edison | |
| 031244400001x | 00312345000123x | 5 | 031244400001x | | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 | | | | | | | | | | | | | | | | |
| 031231200001x | 00312345000123x | 4 | 031231200001x | | 1/5/2023 12:00 AM | Shipping | ADD | InTransit | 031231200001x | 031233300022x | 125 | 1/20/2026 | | Med001P | 200 | Tab | 100 | 0312312(W001 | 200 Comr Suite 154 | | Newark | NJ | 08842 | 0312444(M001 | 450 Production Way | | Edison | |
| 031244400001x | 00312345000123x | 6 | 031244400001x | | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 | | | | | | | | | | | | | | | | |
| 031231200001x | 00312345000123x | 5 | 031231200001x | | 1/5/2023 12:00 AM | Shipping | ADD | InTransit | 031231200001x | 031233300022x | 125 | 1/20/2026 | | Med001P | 200 | Tab | 100 | 0312312(W001 | 200 Comr Suite 154 | | Newark | NJ | 08842 | 0312444(M001 | 450 Production Way | | Edison | |
| 031244400001x | 00312345000123x | 7 | 031244400001x | | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 | | | | | | | | | | | | | | | | |
| 031231200001x | 00312345000123x | 6 | 031231200001x | | 1/5/2023 12:00 AM | Shipping | ADD | Commissioned | 031231200001x | 031233300022x | 125 | 1/20/2026 | | Med001P | 200 | Tab | 100 | 0312312(W001 | 200 Comr Suite 154 | | Newark | NJ | 08842 | 0312444(M001 | 450 Production Way | | Edison | |
| 031244400001x | 00312345000123x | 8 | 031244400001x | | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 | | | | | | | | | | | | | | | | |
| 031244400001x | 00312345000123x | 9 | 031244400001x | | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 | | | | | | | | | | | | | | | | |
| 031231200001x | 00312345000123x | 7 | 031231200001x | | 1/5/2023 12:00 AM | Shipping | ADD | InTransit | 031231200001x | 031233300022x | 125 | 1/20/2026 | | Med001P | 200 | Tab | 100 | 0312312(W001 | 200 Comr Suite 154 | | Newark | NJ | 08842 | 0312444(M001 | 450 Production Way | | Edison | |
| 031244400001x | 00312345000123x | 10 | 031244400001x | | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 | | | | | | | | | | | | | | | | |
| 031231200001x | 00312345000123x | 8 | 031231200001x | | 1/5/2023 12:00 AM | Shipping | ADD | InTransit | 031231200001x | 031233300022x | 125 | 1/20/2026 | | Med001P | 200 | Tab | 100 | 0312312(W001 | 200 Comr Suite 154 | | Newark | NJ | 08842 | 0312444(M001 | 450 Production Way | | Edison | |
| 031244400001x | 00312345000123x | 11 | 031244400001x | | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 | | | | | | | | | | | | | | | | |
| 031231200001x | 00312345000123x | 12 | 031231200001x | | 1/5/2023 12:00 AM | Shipping | ADD | InTransit | 031231200001x | 031233300022x | 125 | 1/20/2026 | | Med001P | 200 | Tab | 100 | 0312312(W001 | 200 Comr Suite 154 | | Newark | NJ | 08842 | 0312444(M001 | 450 Production Way | | Edison | |
| 031244400001x | 00312345000123x | 12 | 031244400001x | | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 | | | | | | | | | | | | | | | | |
| 031231200001x | 00312345000123x | 9 | 031231200001x | | 1/5/2023 12:00 AM | Shipping | ADD | InTransit | 031231200001x | 031233300022x | 125 | 1/20/2026 | | Med001P | 200 | Tab | 100 | 0312312(W001 | 200 Comr Suite 154 | | Newark | NJ | 08842 | 0312444(M001 | 450 Production Way | | Edison | |
| 031244400001x | 00312345000123x | 12 | 031244400001x | | 1/3/2023 12:00 AM | Commissioning | ADD | Commissioned | | | 125 | 1/20/2026 | | | | | | | | | | | | | | | | |
| 031231200001x | 00312345000123x | 9 | 031231200001x | | 1/5/2023 12:00 AM | Shipping | ADD | InTransit | 031231200001x | 031233300022x | 125 | 1/20/2026 | | Med001P | 200 | Tab | 100 | 0312312(W001 | 200 Comr Suite 154 | | Newark | NJ | 08842 | 0312444(M001 | 450 Production Way | | Edison | |

Retrieving previous “TI” data and reconciling it.

Is it possible to tell whether 2 data sets agree with each other?

Case:

1. Manufacturer 1 transfers 1 pallet containing 400 bottles (10 bottles in 40 cases in 1 pallet) of Product “X” to Wholesaler 1.
2. Wholesaler 1 unpacks the pallet and places individual bottles into racks for customer order picking.
3. Wholesaler 1 picks 10 bottles of Product “X” (along with other products) and packs the items into totes for shipping to Wholesaler 2.
4. Wholesaler 2 unpacks the Tote and places individual bottles into racks for customer order picking.
5. Wholesaler 2 picks 3 bottles of Product “X” (along with other products) and packs the items into totes for shipping to Dispenser 1.
6. Dispenser 1 unpacks the Tote and places individual bottles onto pharmacy shelves for patient dispensing.



Observations (assuming EPCIS events):

1. M1 sends W1:
 1. Commission data (Sn, Lot#, Exp Date)
 2. Packing data (ID bottles in cases in pallet)
 3. Shipping data (for pallet, based on Packing data it is inferred that the specific bottles were also shipped)
2. When D1 asks for “TI” info on the 3 bottles D1 purchased from W2, M1 sends:
 1. Commission data on the 3 bottles
 2. Shipping data on the 3 bottles that mirrors the original Shipping event, **or** Packing data showing only the Pallet, Case(s) and 3 bottles and shipping event of the Pallet.
 3. If compared, the original “TI” information and the retrieved “TI” information will be in agreement as to the lineage of the 3 bottles, but will not hold the same exact data.

Note: This slide may not be pertinent to this particular study. It may be removed from these notes.
May be a focus for another study regarding how to interpret EPCIS event data sets.

