CDER-CBER Data Standards Program

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Regulatory Education for Industry Annual Conference – June 5th, 2023

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Agenda

- Program Mission & Framework
- Data Standards Strategic Goals
  - Goal 1 - Improve Data Standards for Regulatory Use
  - Goal 2 – Data Standards Policy
  - Goal 3 - Efficient Information Management
  - Goal 4 – Enhance Transparency & Stakeholder Engagement
- Aligning Strategic Goals with Regulatory Review Process
- Data Standards Program Project Highlights:
  - Structured Product Labeling - Fast Health Interoperable Resources Technology Assessment
  - Pharmaceutical Quality / Chemistry, Manufacturing and Controls Data Standardization
  - Identification of Medicinal Products

CDER-CBER Data Standards (DS) Mission

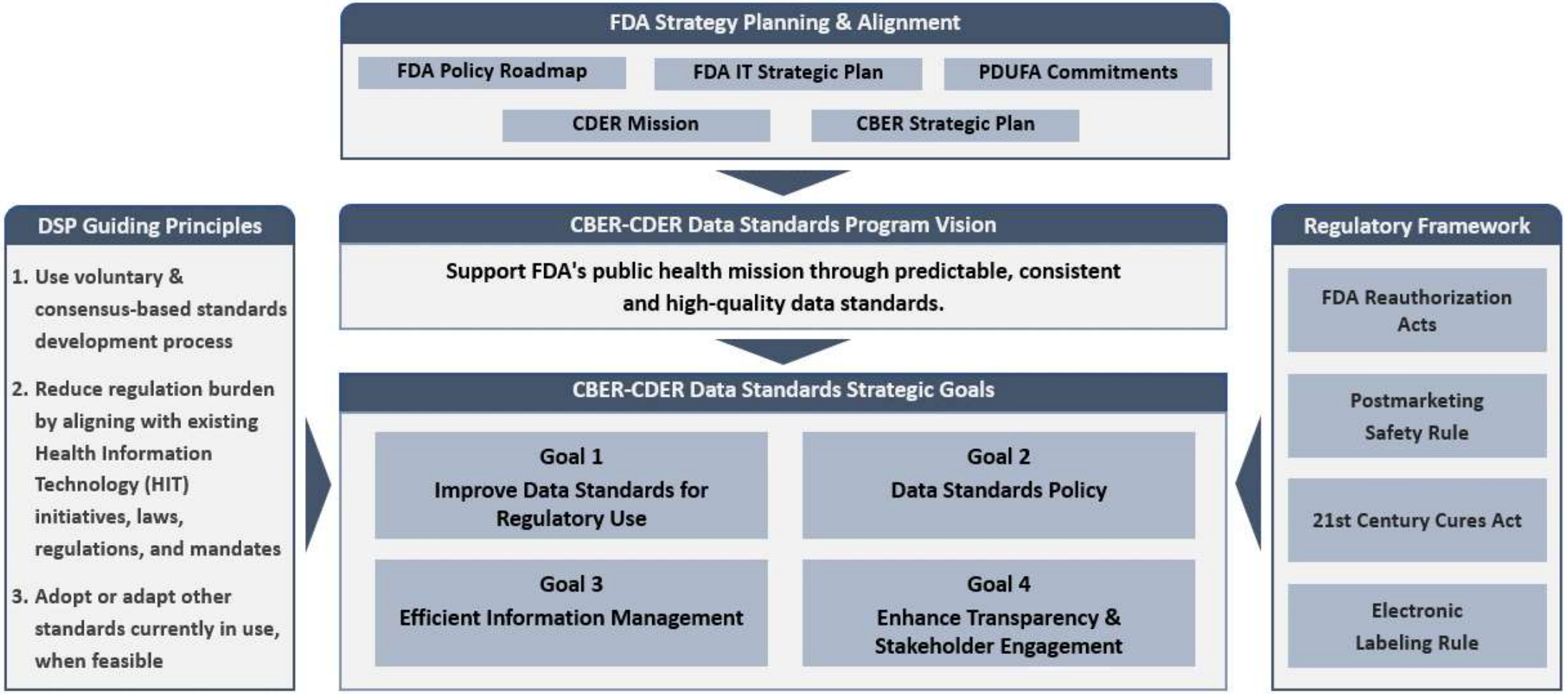
The FDA Data Standards Program promotes electronic information exchange standards and terminologies to enable the effective and efficient use of regulatory submissions through stakeholder collaboration, policy development, and project implementation.

Develop

Collaborate

Implement

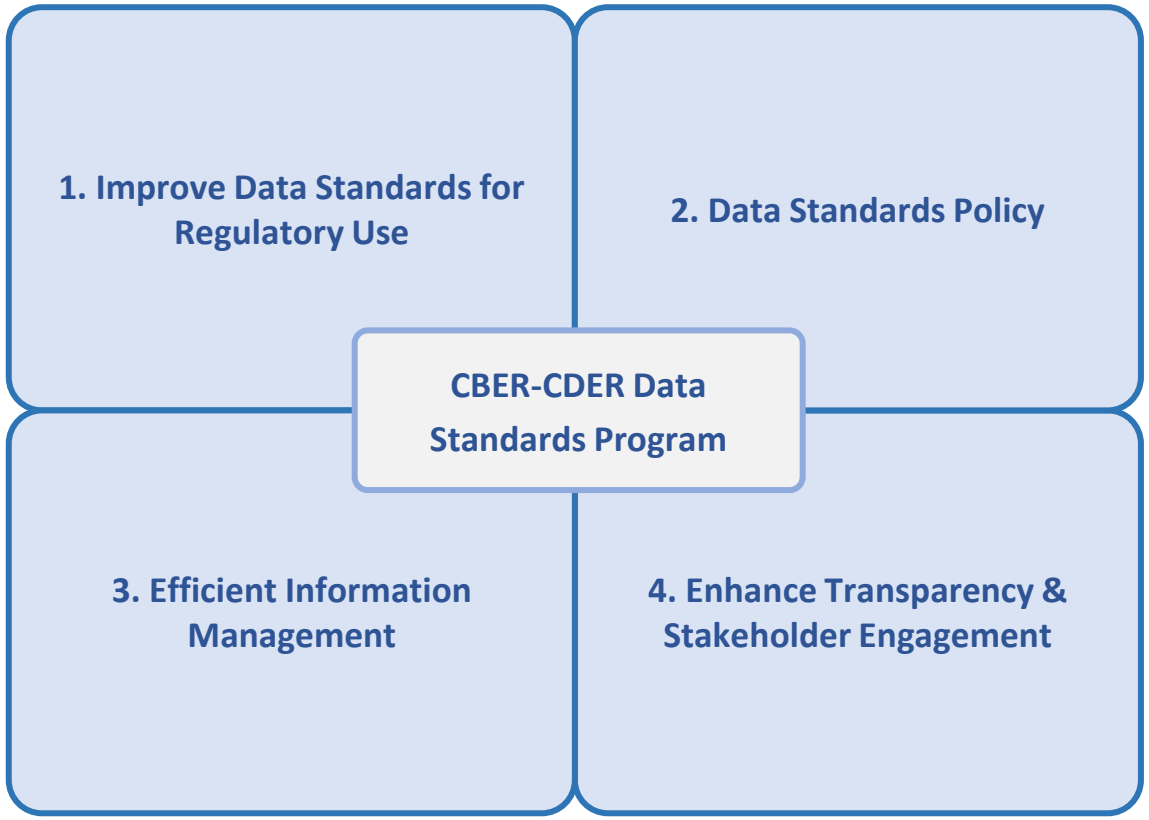
CDER-CBER DS Program Framework



DS Strategic Goals

Goal 1: Improve data standards for the receipt and exchange of regulatory data to achieve predictable and consistent results. Identify efficiencies to allow data to be systematically captured, processed, and analyzed.

Goal 3: Enhance data quality and data governance, and effectively populate FDA systems with predictable and consistent data formats that can be more easily used by analytics systems.



Goal 2: Implement and refine governance processes to ensure proper oversight during the development, publication, and maintenance of guidance documents detailing the use of data standards, terminologies, and exchange formats for regulatory submissions.

Goal 4: Improve transparency and promote stakeholder engagement in the agency's decision-making process regarding adoption of new standards and updates to existing data standards.

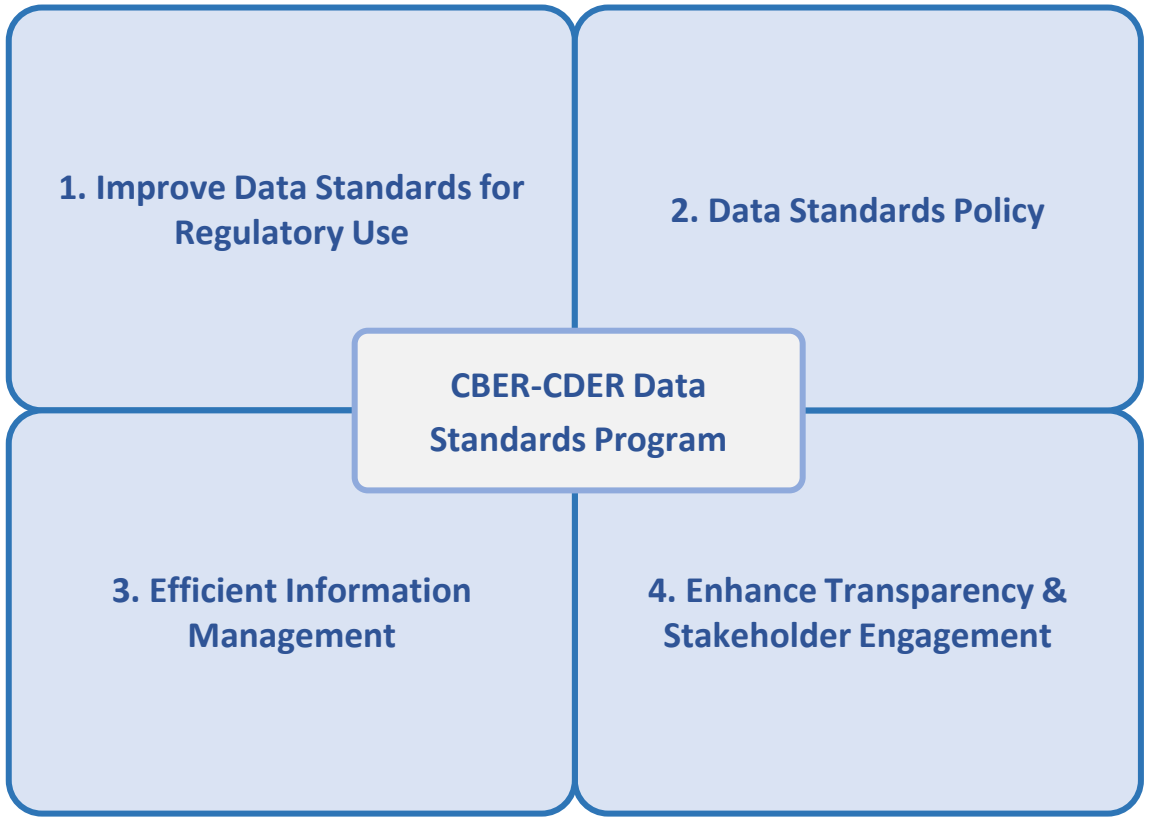
DS Strategic Goals – Initiatives Alignment

Goal 1 Initiatives

- SPL-FHIR Assessment
- PQCMC Standardization
- RWD Standardization
- IDMP Implementation
- File Transport Format Assessment
- Study Data Testing & Evaluation

Goal 3 Initiatives

- Data Governance Framework
- Data Control Boards
- Common Product Data Dictionary



Goal 2 Initiatives

- eStudy Data Guidance
- Data Standards Catalog
- Study Data TCG
- Draft and Final Guidances
- Rulemaking efforts

Goal 4 Initiatives

- Collaborative Standards Development
- Requests for Public Comments
- Program Publications
- Project-specific Webpages
- Public Outreach Efforts

Goal 1 - Improve Data Standards for Regulatory Use

Structured Product Labeling (SPL) - Fast Health Interoperable Resources (FHIR) Technology Assessment

- SPL is an implementation of HL7 V3 and was adopted by FDA for labeling but later expanded for other uses. HL7 FHIR is a more modern exchange standard that offers improved healthcare system interoperability. This project is an effort to explore the potential approaches to transition from the aging SPL submissions to FHIR

Pharmaceutical Quality / Chemistry, Manufacturing and Controls (PQCMC) Data Standardization

- The PQCMC project aims to standardize data elements, terminologies, and data structures by adopting HL7 FHIR standard, to enable automation of key analyses of PQ/CMC data to support more efficient and effective regulatory decision-making

Identification of Medicinal Products (IDMP)

- IDMP is a suite of five standards developed within the International Organization for Standardization (ISO) and is an internationally-accepted framework to uniquely identify and describe medicinal products. The goal is to conform to ISO IDMP to support global standardization of medicinal product and substance identification, and to facilitate information exchange both regionally and across regions

Goal 1 - Improve Data Standards for Regulatory Use

Real World Data (RWD) Standardization

- The 21st Century Cures Act of 2016 mandates that FDA establish a program for reviewing applications using Real World Evidence generated by RWD. This project was launched to assessing the gaps between RWD and currently accepted data standards at FDA and the opportunities for supporting the needs of RWD use for research and regulatory submissions

Study Data Testing & Evaluation

- An ongoing effort to test new and updated study data standards to determine and establish FDA support (e.g., Annotated ECG R1, ADaMIG v1.3, SENDIG v3.1.1, etc.)

File Transport Format Assessment

- Evaluated interim and long-term interoperable transport mechanism options for regulatory submissions (i.e., SAS V8, XML, and JSON). Explored approaches to address the limitations of SAS V5 and to better understand the level of effort required for transitioning to a more modern and interoperable standard

Goal 2 – Data Standards Policy

Guidance: *"Providing Regulatory Submissions in Electronic Format — Standardized Study Data"*

- Implements the electronic submission requirements of section 745A(a) of the FD&C Act for study data contained in NDAs, ANDAs, BLAs, and INDs

➢ Data Standards Catalog

- Specifies the data standards, formats, and terminologies that are required or supported for electronic submissions to the Agency

➢ Study Data Technical Conformance Guide

- Provides specifications, recommendations, and general considerations on how to submit standardized study data using FDA-supported data standards located in the FDA Data Standards Catalog

Draft Guidance: *"Data Standards for Drug and Biological Product Submissions Containing Real-World Data"*

Final Guidance: *"Identification of Medicinal Products — Implementation and Use Guidance for Industry"*

Goal 3 - Efficient Information Management

Data Governance

- Improves data governance framework for managing the availability, usability, and integrity of regulatory review data. Refine and implement internal standards and policies for data usage and changes

Data Control Boards

- Serves as the governance body focused on improving the overall efficiency of the regulatory review process by capturing and prioritizing stakeholder needs, identify the required data, ensure consistent definitions, standards, and controlled terminologies

Common Product Data Dictionary

- Establishes and implements a framework through which systems can more effectively share product and substance information through common data elements

Goal 4 – Enhance Transparency & Stakeholder Engagement

Collaborative standards development through SDO engagements

- Collaborates with EMA and WHO-UMC to facilitate cross-region implementation of IDMP
- PQCMC FHIR resources development through HL7
- HL7 FHIR Connectathons

Requests for Public Comments

- PQCMC Data Exchange Federal Register Notice
- Draft Guidance "*Data Standards for Drug and Biological Product Submissions Containing RWD*"

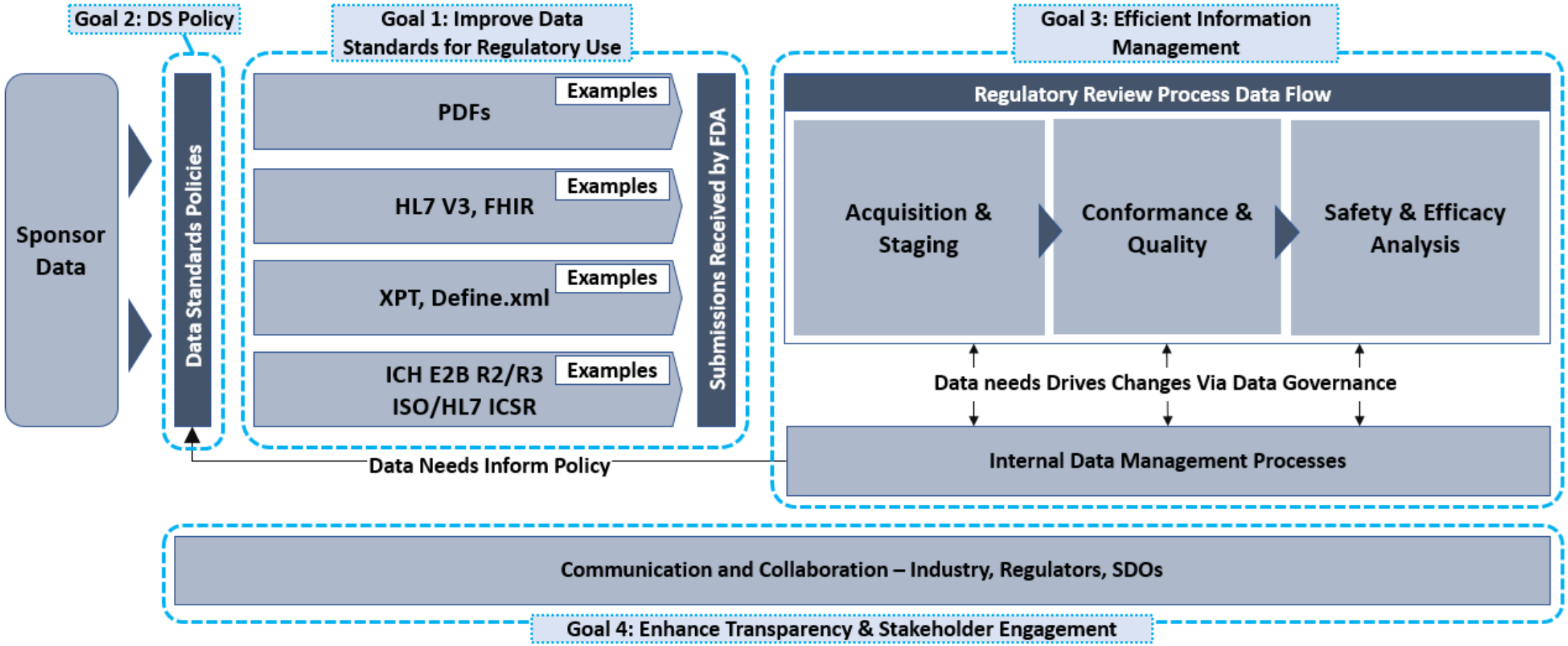
Data Standards Program Publications

- Annual Assessment
- Data Standards Action Plan

Data Standards Project-specific Webpages

- Study Data Standards Resource
- IDMP
- PQCMC

Aligning Strategic Goals with Regulatory Review Process



Data Standards Project Highlights

SPL-FHIR Technology Assessment

Data Standards Project Highlight

SPL-FHIR Technology Assessment

SPL is a data standard based on HL7 v3 for use by FDA, originally focused on exchange of drug product information, including drug labels and inserts, and was later adapted for other uses

Sample labelling and package insert

FULL PRESCRIBING INFORMATION

1. INDICATIONS AND USAGE

Tonsillitis and/or Pharyngitis

MOXATAG is a penicillin-class antibacterial indicated for the treatment of tonsillitis and/or pharyngitis secondary to *Streptococcus pyogenes (S. pyogenes)* in adults and pediatric patients 12 yrs and older.

To reduce the development of drug-resistant bacteria and maintain the effectiveness of MOXATAG and other antibacterial drugs, MOXATAG should be used only to treat or prevent infections that are proven or strongly suspected to be caused by susceptible bacteria. When culture and susceptibility information are available, they should be considered in selecting or modifying antibacterial therapy. In the absence of such data, local epidemiology and susceptibility patterns may contribute to the empiric selection of therapy.

2. DOSAGE AND ADMINISTRATION

Tonsillitis and/or Pharyngitis

The recommended dose of MOXATAG is 775 mg once daily taken within 1 hour of finishing a meal for 10 days. The full 10-day course of therapy should be completed for effective treatment of tonsillitis and/or pharyngitis secondary to *S. pyogenes*.

Do not chew or crush tablet.

3. DOSAGE FORMS AND STRENGTHS

775 mg blue film-coated, oval-shaped tablets printed with "MB-111" on one side in black edible ink.

MOXATAG

amoxicillin tablet, extended release

Product Information			
Product Type		Item Code (Source)	NDC:11042-142
Route of Administration	ORAL		

Active Ingredient/Active Moiety		
Ingredient Name	Basis of Strength	Strength
amoxicillin (UNII: 804826J2HU) (amoxicillin - UNII:804826J2HU)		775 mg

Inactive Ingredients	
Ingredient Name	Strength
Crospovidone ()	
FD&C Blue #2 lake ()	
hypromellose ()	
hypromellose acetate succinate ()	
iron oxide ()	
magnesium stearate (UNII: 70097M6I30)	
methacrylic acid copolymer ()	
microcrystalline cellulose (UNII: OP1R32D61U)	
polyethylene glycol 400 ()	
polyoxyl 35 castor oil ()	
shellac ()	
colloidal silicon dioxide (UNII: ETJ7Z6XBU4)	
sodium lauryl sulfate (UNII: 368GB5141J)	
talc (UNII: 7SEV7J4R1U)	
titanium dioxide (UNII: 15FIX9V2JP)	
triethyl citrate (UNII: 8Z96QXD6UM)	

Product Characteristics			
Color	blue (BLUE)	Score	no score
Shape	OVAL (OVAL)	Size	22mm
Flavor		Imprint Code	MB-111
Contains			
Coating	true	Symbol	false

Packaging			
# Item Code	Package Description	Marketing Start Date	Marketing End Date
1 NDC:11042-142-03	30 in 1 BOTTLE		
2 NDC:11042-142-02	10 in 1 BLISTER PACK		

Labeler - Middlebrook Pharmaceuticals, Inc.

Source: DailyMed (https://dailymed.nlm.nih.gov/dailymed)

Other SPL Use Cases

- Drug/Biologic Label
- NDC Labeler code
- Establishment information
- GDUFA Self-Identification
- Risk Evaluation and Mitigation Strategies

Data Standards Project Highlight

SPL-FHIR Technology Assessment (cont.)

SPL-FHIR Project Scope and Approach

- Assess all SPL use cases at FDA
- Determine FHIR representation supporting each use case
- Determine validation methods consistent with those used for SPL V3
- Develop FHIR Implementation Guide
- Build and test implementation proof of concept

Progress To-Date

Draft IG in continual development currently supports:

- Request an NDC Labeler Code; Register/update Establishment Info; Submit GDUFA Facility Self-Identification
- Submit a Drug or Biologic Label: Human Prescription Drug

Continue development of support for additional labelling and other FDA SPL use cases

Further testing of SPL submissions in FHIR with sponsor participation tentatively planned for late 2024

Data Standards Project Highlight

PQCMC Data Standardization

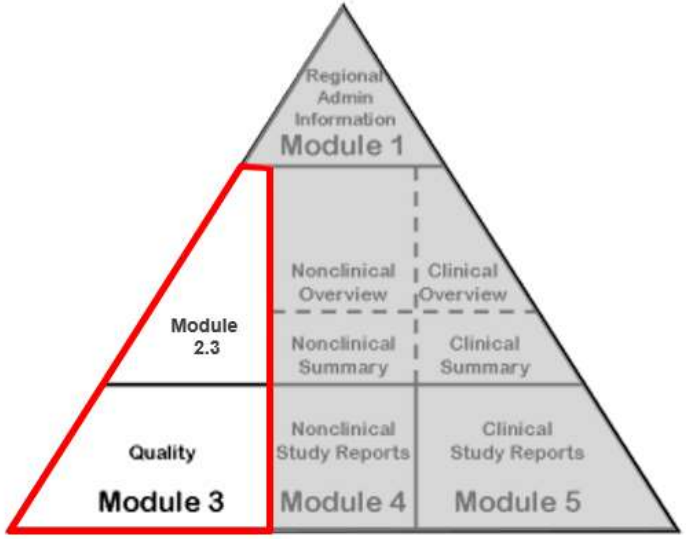
Data Standards Project Highlight

PQCMC Data Standardization

Pharmaceutical Industry

Prepare Application

Application Package



Submit Application

Pharmaceutical Regulator

Electronic Common Technical Document (eCTD)

Submission of Module 3 (and 2.3) information from Sponsors to regulatory agencies

Data Standards Project Highlight

PQCMC Data Standardization (cont.)

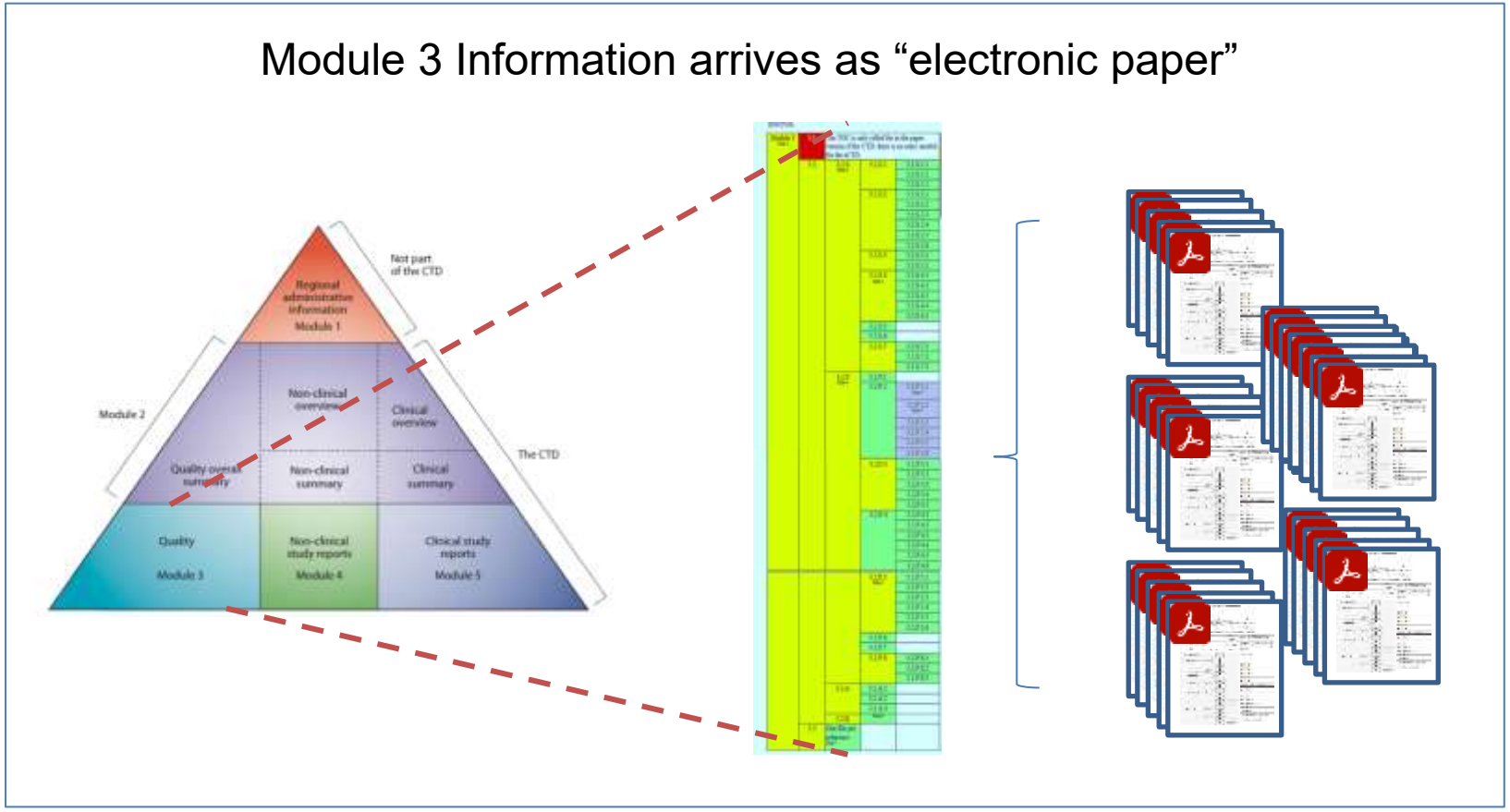
Module 3 Data Standardization Scope

- Comprehensive definition of every drug product and every substance within a product; Recipes for making batches of the drug product; Quality control tests, and acceptance criteria, and test results for products and ingredients and batches; Details on packaging/containers
- Description of manufacturing processes for drug substances and drug products. How a manufacturer:
  - ❖ Puts everything together to create the products
  - ❖ Every step, every mechanism, machine, process, etc.
  - ❖ What steps takes place at which facility, of which there are many for one product

Data Standards Project Highlight

PQCMC Data Standardization (cont.)

Rationale for PQCMC Data Standards



Current-State:

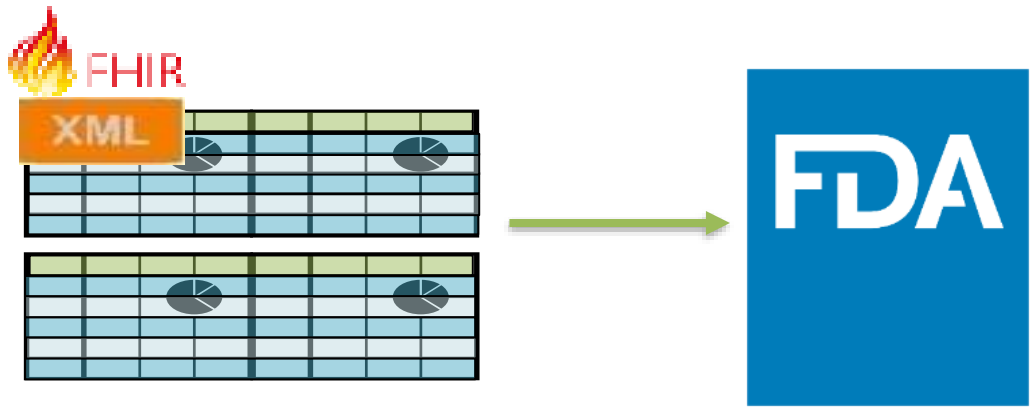
- Unstructured
- Non-standardized
- Manual work to create
- Manual transcription to analyze
- Time-consuming

Data Standards Project Highlight

PQCMC Data Standardization (cont.)

PQCMC effort aims to develop a data standard to support the submission of module 3 information so that data is:

- Consistent in format and values
- Computable and ready for analysis



Sponsor Benefits:

- Clear format expectations
- Can pre-check content and quality before submission

FDA Benefit:

- Consistent format and values received
- Software-powered analysis, much faster review
- Can check for valid content and data quality on receipt

Shared Benefit:

- Sponsor submits information *one time*, FDA can use for *many purposes*

Data Standards Project Highlight

PQCMC Data Standardization (cont.)

Structuring and FHIR development in 2 Phases

Phase 1

- Comprehensive definition of every drug product and every substance within a product
- Recipes for making batches of the drug product
- Quality control tests, and acceptance criteria, and results for products and ingredients and batches
- Details on packaging/containers

Phase 2

Description of manufacturing processes for drug substances and drug products. How a manufacturer:

- Puts everything together to create the products
- Every step, every mechanism, machine, process, etc.
- What steps takes place at which facility, of which there are many for one product

Progress To-Date

- Phase 1 structuring complete; Phase 2 structuring underway
- Draft of data elements and terminologies; Most current list published by Federal Register Notice in May 2023
- Early draft HL7 Implementation Guide for Phase 1
- Expanded submission testing of PQCMC FHIR messages with sponsor participation tentatively planned for 2025

Data Standards Project Highlight

Identification of Medicinal Products

Data Standards Project Highlight

Identification of Medicinal Products

IDMP is a set of five ISO standards that:

- Establishes a framework to uniquely identify and describe medicinal products with consistent documentation and terminologies
- Use substance, dosage form and strength information for global identification
- Will share the same *pharmaceutical product identifier or* PhPID, regardless of e.g., brand name & packaging

- ISO 11238 – Substance Identification
- ISO 11239 – Pharmaceutical dose forms, units of presentation and routes of administration
- ISO 11240 – Units of measurement
- ISO 11615 – Medicinal Product Identification
- ISO 11616 – Pharmaceutical Product Identification

Two Key Benefits of Global IDMP

- Improve drug safety and pharmacovigilance by uniquely identifying and uniformly exchanging the medicinal product and substance identifiers between regulators in ICSRs via ICH E2B(R3) format
- Mitigate Product Shortage through grouping of similar products

Data Standards Project Highlight

Identification of Medicinal Products (cont.)

FDA's Standards Conform to the ISO IDMP Standards

Data Standards Project Highlight

Identification of Medicinal Products (cont.)

IDMP Guidance

- Published IDMP Guidance in March 2023: “Identification of Medicinal Products: Implementation and Use”
- This guidance explains FDA’s position and progress on aligning the Agency’s standards to IDMP standards, with the goal of harmonizing the standards for the international exchange of medicinal product data
  - ❖ Collaborate with various stakeholders to resolve issues that are impeding IDMP implementation beyond local or regional boundaries
  - ❖ Work with these stakeholders to establish a framework for the global implementation of the ISO IDMP standards and the maintenance of global identifiers

International Collaboration on IDMP

HL7 International · ISO · UNICOM · ICH · IPRP International Pharmaceutical Regulators Programme · GIDW · Uppsala Monitoring Centre · World Health Organization · ICMRA

Closing Thoughts

Our Continuing Focus

- Explore and adopt modern, consensus-based data standards
- Enhance the efficiency of data exchange between the agency and our stakeholders
- Improve drug safety and pharmacovigilance through harmonization initiatives with other regulators

Additional Resources

Study Data Standards

- Study Data Standards Resource

PQ/CMC

- PQ/CMC Project Page at FDA.gov
- PQ/CMC FHIR project page at HL7 (BR&R)

SPL-on-FHIR

- SPL-on-FHIR project page at HL7 (BR&R)
- SPL-on-FHIR draft Implementation Guide

IDMP

- IDMP Webpage