Therapeutic Area Standards Initiative
Project Plan

Version: 3.0

Document Date: October, 2015

REVISION HISTORY

Version Number	Revision Date	Description of Change
1.0	September, 2013	Initial Document
2.0	June, 2014	Updated based on yearly progress
3.0	October 2015	Updated based on yearly progress

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1 Background

Establishing common study data standards will provide new opportunities to transform a vast and continually increasing amount of clinical study data into useful information to speed the delivery of new therapies to patients.[1] Standardized data elements, terminologies, and data structures enable automation of important analyses of clinical study data to support more efficient and effective regulatory decision-making. In 2011, in response to an urgent need to further standardize study data terminologies and concepts for efficacy analysis, FDA's Center for Drug Evaluation and Research (CDER) and Center for Biologics Evaluation and Research (CBER) compiled a prioritized list of disease and therapeutic areas (TAs) for which additional data standardization was needed, and made the list available on the FDA website.[2] Several factors were considered in the identification and prioritization of these areas: (1) number and type of active investigational new drug applications (INDs), (2) existing standardization projects underway, and (3) industry input on drug development pipeline activity. The list has been updated periodically to reflect progress and changes in prioritization by stakeholders.

Under section 745A(a) of the Federal Food, Drug, and Cosmetic Act (FD&C Act), at least 24 months after the issuance of a final guidance document in which the Food and Drug Administration (FDA) has specified the electronic format for submitting certain submission types to the Agency, such content must be submitted electronically and in the format specified by FDA. On December 17, 2014 the final guidance stated that submissions of study data will be required to conform to the data standards listed in the Data Standards Catalog.[3]

Under Section XII of the Prescription Drug User Fee Act V (PDUFA V) performance goals (reauthorized by FDASIA), FDA agreed to publish a project plan for developing clinical terminologies in distinct therapeutic areas using a public process that allows for stakeholder input. In November 2012, the FDA issued a *Federal Register* (FR) notice to inform the public of its intent to prioritize and develop clinical terminology standards for distinct TAs, and to request public comment on the TA priority roadmap. In addition, the notice requested recommendations on how the effort could be accomplished most efficiently. In October, 2013 FDA published a FR notice (for public comment) announcing the Therapeutic Area Standards Initiative Project Plan, version 1.0. It is updated annually and this version of the project plan, version 3.0, includes updates based on progress over the past year.

[1] Woodcock, J. FDA_Voice., http://www.raps.org/focus-online/news/news-article-view/article/2451/groups-fda-announce-launch-of-new-clinical-data-standards-harmonization-partner.aspx.

[2] http://www.fda.gov/downloads/Drugs/DevelopmentApprovalProcess/FormsSubmissionRequirements/ElectronicSubmissions/UCM297093.pdf

[3] http://www.fda.gov/forindustry/datastandards/studydatastandards/default.htm

The CDER Data Standards Strategy is available on the FDA website.[4] This document focuses on the ongoing commitment to develop, implement and maintain needed standards through a comprehensive data standards program. The strategy provides the operational framework and organizational structure within which this project plan will be implemented and maintained. Its companion document, the Data Standards Strategy – Action Plan, was published in March 2013. This plan provides a quarterly status of the center's portfolio of projects and activities with respect to the data standards program objectives. The Action Plan includes projects that are directly relevant to the effort and in which FDA participates, but may be led by external parties (e.g., grants to develop TA standards).

2 Therapeutic Area Standards Initiative Overview

This initiative focuses on the development of therapeutic area standards based on the recommendations for the efficacy review and evaluation of new medical products. FDA recognizes, however, that the value of TA standards extends well beyond the regulatory drug review process, and that the standards are essential to the consistent delivery of quality health care. As such, FDA has embraced several core operating principles in the execution of this initiative:

- Ensure engagement and input of key authoritative clinical and medical professional societies in TA projects
- Adopt or adapt existing standards where possible
- Harmonize with nationally recognized healthcare standards and controlled terminologies wherever possible
- Use a well-defined data standards governance function
- Scope projects to develop standards incrementally such that progress can be achieved within a relatively short time, with additional value added iteratively.

This project plan guides all major aspects of this multi-year initiative. Updated annually, the plan provides the overall management framework for addressing and accomplishing the PDUFA V goals to develop/adopt clinical terminology standards for therapeutic areas. This plan is not intended to provide a detailed timeline for the development, adoption and support of each TA standard. The Data Standards Strategy-Action Plan provides a reference to the list and status of projects addressing each therapeutic area standard.[5]

4 http://www.fda.gov/Drugs/DevelopmentApprovalProcess/FormsSubmissionRequirements/ElectronicSubmissions/ucm249979.htm

5 http://www.fda.gov/Drugs/DevelopmentApprovalProcess/FormsSubmissionRequirements/ElectronicSubmissions/ucm249979.htm.

The 5-year goals for this initiative:

- Make significant progress in developing and implementing clinical terminology (TA) standards for distinct therapeutic areas
- Implement binding guidance for study data standards with a consistent and predictable approach
- Establish a consistent process that supports continued TA development
- Define a forward-looking model and timeline for study data standards to ensure sustainability and flexibility over time
- Promote interoperability with healthcare data standards

3 Scope and Objectives

The scope of this initiative includes the development and implementation of distinct TAs to support the regulatory review process for drugs and biologics.

FDA's objectives for this initiative are as follows:

- *Establish and implement standards that support FDA's recommendations*

Data needed to support efficacy analyses (including primary, secondary, and exploratory outcome measures) remain largely non-standardized. FDA must understand and document its recommendations for efficacy data for the different TA standards. These recommendations are provided to inform Standards Development Organizations (SDOs) and other stakeholders in project scoping and standards development, including evaluation of existing data standards, models, and terminologies that may meet the need.

- *Use an open and transparent process*

Effective collaboration with open, consensus-based SDOs is important to the success of this initiative. In addition, collaboration with stakeholder organizations that have domain knowledge and common interests is essential.

FDA continues to engage with stakeholders involved in standards development such as SDOs, collaborative consortia, and the public through *Federal Register* notices. The Communications Plan[6] further describes collaboration efforts.

- *Express TA recommendations in sustainable standards*

In this initiative, TA clinical terminology standards are being developed through the Coalition for Accelerating Standards and Therapies (CFAST) initiative using Clinical Data Interchange Standards Consor-

6 http://www.fda.gov/Drugs/DevelopmentApprovalProcess/FormsSubmissionRequirements/ElectronicSubmissions/ucm249979.htm

tium (CDISC) standards. Where possible, TA development projects adopt / adapt existing data elements and terminologies that are fit for their purposes. FDA envisions a semantically interoperable and sustainable submission environment that serves both regulated clinical research and health care.

FDA recognizes the constant progress in medical science and information technology, therefore, a continuous effort is underway to identify the best future direction to ensure that standards and terminologies are sustainable without undue burden to stakeholders. The efforts to support interoperability include participation in the development of the information models shared across the regulated clinical research and health care, support of tools to enable greater usability of the present CDISC standards, and exploration of the new technologies capable of enabling reuse of the content developed across the biomedical community.

- *Implement in guidance*

As noted above, FDA issued guidance which states that electronic study data will be required to conform to the data standards listed in the FDA Data Standards Catalog. FDA will announce support for new data standards and version updates to current data standards in the *Federal Register*.

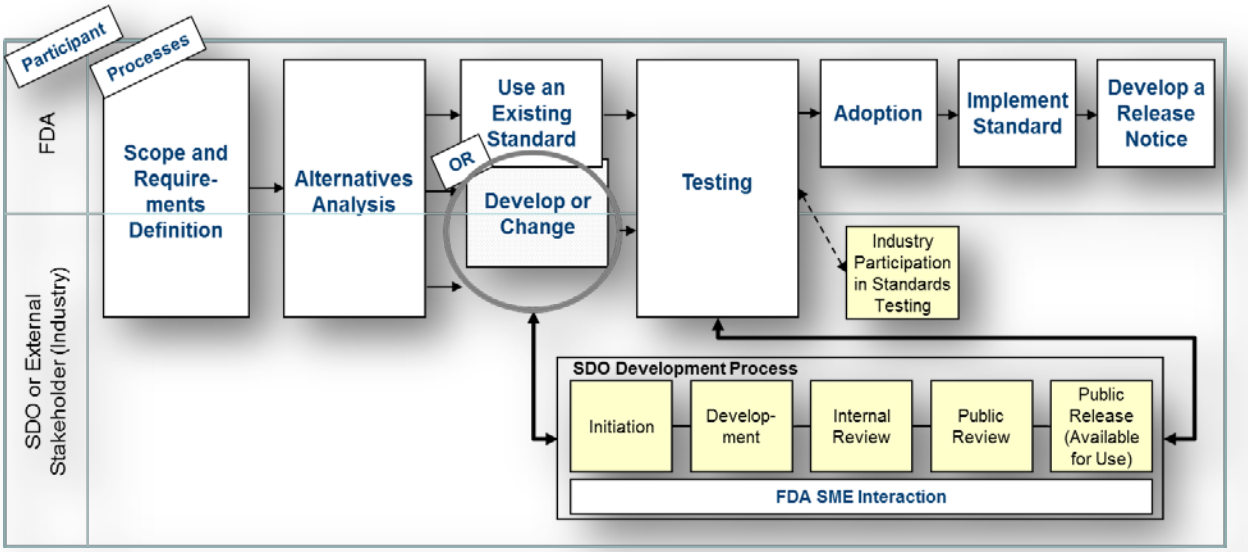
4 Collaborative Development and Testing Approach

4.1 Collaborative Standards Development Process

The implementation approach for data standards development, in general, and specifically for clinical terminologies for TAs involves collaboration with stakeholders to define the business case, any potential alternatives, development, review and public release.

Figure 1 depicts the FDA collaborative data standards development framework, including mechanisms to engage with stakeholders, such as industry, medical/ clinical societies and SDOs, in key activities (See Appendix B – Definition of Terms).

Figure 1. Collaborative Standard Development Process



4.2 TA Recommendations and Approach

FDA has completed numerous TA projects to capture review division recommendations on efficacy endpoints. The approach we have taken to develop FDA TA recommendations with subject-matter experts includes a description of the impact on tools, processes, and information technology, as well as future-state benefits and high level recommendations. The results are provided as input to standards development projects as FDA recommendations.

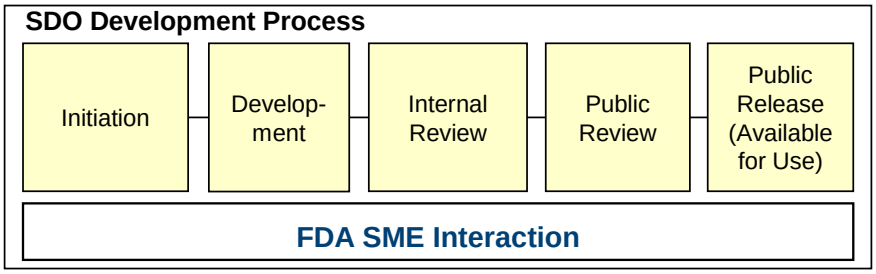
4.3 FDA TA Recommendations

Each new TA standard augments the standardized clinical data elements, concepts, and terminologies necessary for any study across disease domains (e.g., those presently captured in CDISC Standard Data Tabulation Model (SDTM) domains).

FDA believes that a unified conceptual representation should be maintained as the "backbone" of the overall CDISC data model. FDA is actively working on adapting the existing conceptual models (such as Biomedical Research Integrated Domain Group (BRIDG)) to accommodate present and future business needs. FDA is actively engaged in the evaluation of the present state and discussion of the process for moving forward, such as leadership and participation in the activities of the HL7 BRIDG Working Group (started on May 6, 2014).

Figure 2 outlines the SDO data standards development process for the development of TA standards (see Appendix B – Definition of Terms). SDOs may have additional steps such as draft or provisional releases and multiple public reviews. Currently, CFAST coordinates TA development work streams leading to the delivery of standard data elements, concepts and terminologies for prioritized therapeutic areas (See Section 8). Initially, published SDTM representations and examples, a model of the disease area clinical concepts, essential core data elements and identified terminologies are included in technical specifications and TA User Guides.

Figure 2. SDO Development Process



4.4 Grant Program for TA Standards Development

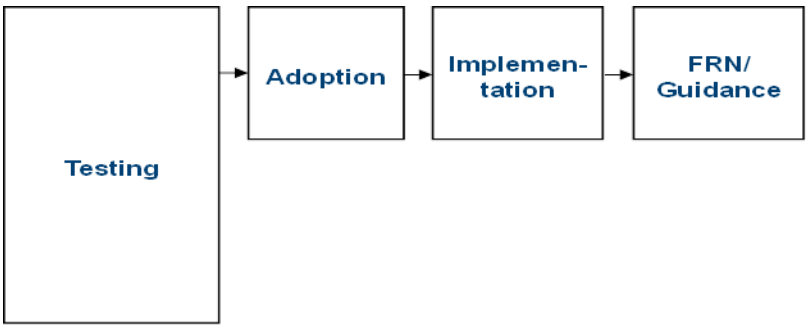
To facilitate progress on TA standards development, CDER has established a grants program to fund projects that develop disease/domain-specific standards. The outcomes of grants and cooperative agreements are anticipated to be of limited scope (e.g., concerned with a subset of a TA or the most commonly used endpoints), with the possibility of adding to the project's scope as needs and resources

dictate. FDA has awarded a number of grants to external organizations for development of clinical data elements in areas such as Cardiovascular Imaging and Endpoints, Major Depressive Disorder, Virology, Schizophrenia, Bipolar Disorder, Generalized Anxiety Disorder, Prostate Cancer, Diabetes, QT Studies, Hepatitis C and Dyslipidemia. All were developed with active participation of the FDA subject matter experts (SMEs). The grant program releases a new funding announcement annually that includes updates based on the outcomes, lessons learned from previous projects, and additional areas of research interest.

4.5 Testing and Acceptance of TA Standards

Generally, when a data standard is released for public use by the SDO, it is not supported by FDA and is not listed in the FDA Data Standards Catalog. FDA will perform acceptance testing, as shown in Figure 3 (See Appendix B – Definition of Terms), to confirm its ability to process, review and archive the format, standard, terminology.

Figure 3. Testing and Implementation Processes



FDA's criteria for the acceptance of a therapeutic area standard include the following:

- Use of a public, transparent and collaborative process
- Conformity with FDA regulatory review recommendations
- Harmonization with existing standards and/or data elements, wherever feasible
- Harmonization with nationally recognized healthcare standards and controlled terminologies wherever possible
- Availability of validation rules
- Ability to process, review, and archive received datasets

An acceptance testing process has been developed, pilot tested, and is currently in use. This process defines testing approaches and appropriate measurement criteria to assess readiness to accept data standards. The testing criteria include the following key aspects:

- Compliance to FDA regulation or policy, and supportive to FDA medical review process
- Impact to existing FDA tools which enable receipt, processing/validation, and review
- Level of effort on supporting reviewers with the proposed new standards

5 Sustainability

Concurrent with advancing TA standards as described above, we are taking steps to ensure that standards remain viable over time. We recognize that a unified conceptual representation is needed to accommodate the needs of multiple stakeholders. To that end, FDA is exploring options for harmonizing between different representations of clinical concepts to allow flexibility and efficient sustainability.

FDA is and will continue assess options based on a number of considerations critical to increasing the efficiency and effectiveness of the TA content development process, including:

- The need for a widely-accepted, open technology to support and maintain the TA standards
- Ability to support evolving models that are implemented and shared by multiple stakeholders and systems, including maximized re-use and built-in business validation
- Availability of reliable tools and infrastructure promoting data discovery, re-use, pooling, and harmonization
- Potential to enable development of standards that can be harmonized, as needed
- Ability to achieve conceptual alignment through computable semantic interoperability, by reducing or eliminating the impact of differences in implementation technologies and transport protocols
- Having a significant base of current clinical research and life sciences standards and terminologies already captured and available for being referenced from TA models.

6 Progress Reporting

The Data Standards Strategy-Action Plan[7] is the primary medium that FDA will use to present the status of projects within this initiative. The plan is updated quarterly and is posted on CDER's Data Standards Program website. The list of prioritized TAs is listed on the FDA Priority Therapeutic Area Development webpage.[8]

7 http://www.fda.gov/Drugs/DevelopmentApprovalProcess/FormsSubmissionRequirements/ElectronicSubmissions/ucm249979.htm.

8 http://www.fda.gov/downloads/drugs/developmentapprovalprocess/formssubmissionrequirements/electronicsubmissions/ucm297093.pdf

7 Guidance to Industry

As noted above, FDA published guidance in December 2014 specifying the requirements for an electronic submission of standardized study data entitled "Providing Regulatory Submissions in Electronic Format-Standardized Study Data" (eStudy Data guidance).[9] In accordance with section 745A(a) of the FD&C Act, following the issuance of the final eStudy Data guidance, study data contained in NDAs, ANDAs, and certain[10] BLAs, and INDs must be submitted electronically in a standardized format that FDA can process, review, and archive. The eStudy Data guidance provides detail on the implementation and the lifecycle management of required study data standards. The eStudy Data guidance incorporates by reference two other components: the Data Standards Catalog and the Study Data Technical Conformance Guide.

7.1 Data Standards Catalog

The Data Standards Catalog (DSC), posted to the Study Data Standards Resources Web page,[11] provides a listing of currently supported data standards. The DSC also reflects the dates when data standards are required as outlined in the eStudy Data Guidance (see section 7).

7.2 Study Data Technical Conformance Guide

The Study Data Technical Conformance Guide version 2.2, posted to the Study Data Standards Resources Web page[12] on March 18, 2015, provides descriptions and recommendations on how to submit

[9] http://www.google.com/url?sa=t&rct=j&q=&esrc=s&frm=1&source=web&cd=1&cad=rja&uact=8&ved=0CC4QFjAAahUKEwjwxbiRwPLIAhXBNT4KHSKbDq8&url=http%3A%2F%2Fwww.fda.gov%2Fdownloads%2FDrugs%2F...%2FGuidances%2FUCM292334.pdf&usg=AFQjCNFbti4hchw47qEubgpw0jGT1RiPIQ [10] http://www.google.com/url?sa=t&rct=j&q=&esrc=s&frm=1&source=web&cd=1&cad=rja&uact=8&ved=0CB0QFjAAahUKEwjtjb3fwPLIAhVENT4KHUVwAXw&url=http%3A%2F%2Fwww.fda.gov%2Fdownloads%2FDrugs%2FGuidances%2FUCM384686.pdf&usg=AFQjCNHvjfFWSU6Sl4zpd4EttbjfTZjkXQ&bvm=bv.106379543,d.cWw

[11] http://www.fda.gov/forindustry/datastandards/studydatastandards/default.htm

[10] http://www.google.com/url?sa=t&rct=j&q=&esrc=s&frm=1&source=web&cd=1&cad=rja&uact=8&ved=0CB0QFjAAahUKEwjtjb3fwPLIAhVENT4KHUVwAXw&url=http%3A%2F%2Fwww.fda.gov%2Fdownloads%2FDrugs%2FGuidances%2FUCM384686.pdf&usg=AFQjCNHvjfFWSU6Sl4zpd4EttbjfTZjkXQ&bvm=bv.106379543,d.cWw

[11] http://www.fda.gov/forindustry/datastandards/studydatastandards/default.htm

[11] http://www.fda.gov/forindustry/datastandards/studydatastandards/default.htm

[12] http://www.fda.gov/forindustry/datastandards/studydatastandards/default.htm [13] http://www.fda.gov/downloads/Drugs/DevelopmentApprovalProcess/FormsSubmissionRequirements/ElectronicSubmissions/UCM250306.pdf

standardized study data in electronic submissions. It has a section specifically for TA standards which is updated as information on the support of a specific standard is available. This technical conformance guide augments, for purposes of clarity, study data standards such as SDTM or SEND Implementation Guides as well as Therapeutic Area User Guides (TAUGs).

Periodically, through an FR Notice, FDA will update the Study Data Technical Conformance Guide with new or revised technical guidance.

8 Governance

8.1 Internal Governance

To meet this initiative's objectives and those of other data standardization efforts ongoing in the Centers, a comprehensive FDA TAS operating structure has been established to provide the leadership and management required. CDER's Data Standards Program Board (DSPB) [13] is comprised of representatives from each CDER super office involved with data standards, CBER, and the Center for Devices and Radiological Health (CDRH). The DSPB provides the leadership and oversight to guide FDA's overall data standards strategy, and to ensure that its objectives are accomplished. The DSPB's Operations Subcommittee ensures appropriate outreach and engagement on data standards development activities with other stakeholders and advisory government agencies, including, but not limited to, the Office of the National Coordinator (ONC) and the National Institutes of Health (NIH). The operating structure ensures that the FDA approaches critical initiatives and program components consistently across all projects. The DSPB has oversight for these data standards operations.

8.2 External Governance

The identification of data concepts for a therapeutic area and their subsequent representation as data standards for example, in CDISC SDTM format is a complex process that includes many disciplines and has many stakeholders. FDA recognized that in order to accomplish the resource-intensive process to develop and implement multiple therapeutic area standards, it had to collaborate with key external stakeholders. In 2012, CDISC formed a partnership with the C-Path Institute to establish the CFAST, an initiative to accelerate clinical research and medical product development by creating and maintaining data standards. Shortly thereafter, representatives from TransCelerate BioPharma, FDA, NIH, and the European Innovative Medicines Initiative joined the CFAST initiative.[14] The CFAST program is governed by Therapeutic Area Standards Program Steering Committee (TAPSC). The FDA

[12] http://www.fda.gov/forindustry/datastandards/studydatastandards/default.htm [13] http://www.fda.gov/downloads/Drugs/DevelopmentApprovalProcess/FormsSubmissionRequirements/ElectronicSubmissions/UCM250306.pdf

[13] http://www.fda.gov/downloads/Drugs/DevelopmentApprovalProcess/FormsSubmissionRequirements/ElectronicSubmissions/UCM250306.pdf

[14] http://www.cdisc.org/cfast-0

participates on both the TAPSC and Scientific Advisory Committee[15], as well as providing expert advice and review through CDER's review divisions.

FDA role in its collaboration with CFAST includes:

1. Participation on the CFAST Steering and Scientific Committees
2. Review Divisions consult / review proposed scope of TA projects
3. Periodic review of data element concepts
4. Review of draft and final TA User Guides

The CFAST TA development process has been published and includes a public comment period that facilitates stakeholder participation in an open forum. The development and maintenance of TA standards is a continuous process and will likely necessitate version updates as medical and regulatory sciences change.

9 Communications Management

The DSPB has established a Communications Plan[16] that provides a framework to support the successful execution of the data standards program. The framework addresses information needs of internal and external stakeholders, and outlines the requirements of communication efforts to reach and inform each group, as well as to receive feedback. The plan is a key tool for promoting support, cooperation, participation, coordination, and transparency among all stakeholders involved in data standards. The stakeholders for this initiative are captured in the Communications Plan and this initiative will use that plan to inform its communication requirements.

10 Risk Management

Risk Management is an important component to the overall management of this initiative and its projects. The goal of risk management is to increase the likelihood of a project's success by eliminating or mitigating those events that might adversely affect the project. For this project plan, risk is a measure of the ability to achieve the overall project objectives within the defined project requirements and constraints. This ability may be dependent on a number of factors, including funding, schedule, technical issues, and external events. FDA is committed to a risk mitigation strategy; Appendix A provides a list of risk categories, risk description, FDA impact, and mitigation strategies. Each project under the initiative incurs these risks, and will employ mitigation strategies relevant to the specific project and circumstances. The DSPB serves as the decision-making data standards governance body and is granted authority by the Center Director to make any decisions necessary during the course of this initiative to facilitate mitigation strategies.

[15] http://www.cdisc.org/system/files/all/standard_category/application/pdf/CFAST%20SAC%20Charter-Final.pdf

[16] http://www.fda.gov/Drugs/DevelopmentApprovalProcess/FormsSubmissionRequirements/ElectronicSubmissions/ucm249979.htm

This initiative proceeds under the following assumptions:

- Stakeholders (e.g., CDISC, industry, government agencies) will commit adequate resources to define, model, and produce the required standards updates for each prioritized therapeutic area
- The development of standards for any TA is an incremental process and the specification may be a sub-set of data elements that support regulatory review recommendations
- TA standardization projects will be scoped narrowly enough to be accomplished (e.g., scoping, modeling to SDTM Implementation Guide) within an estimated 8-12 month period
- TA projects will be coordinated to ensure awareness and consistent use of data elements to the widest extent possible
- Stakeholders and existing or concurrent work will be clearly identified and included in TA standardization efforts. Stakeholders may include healthcare, research, quality improvement, performance measurement, and public health reporting. For example, clinical/medical professional societies could provide helpful input on clinical terminology data definitions
- TA development projects will take into account availability and engagement of stakeholder organizations
- Standards and related implementation guides will be reviewed and acceptance testing performed to ensure that they support scientific and regulatory needs

11 Metrics

PDUFA V goals state that FDA will perform an "Assessment of the impact of electronic submissions and data standards on the efficiency and other performance attributes of the human drug review process beginning in FY2015." In FY2015, only ~73% of NDAs had one or more studies with data compliant with CDISC standards (e.g., SDTM). FDA will continue its collaboration with industry to provide metrics on submissions that are in conformance with FDA-supported study data standards.

Appendix A: Risks and Mitigations

	Risk Category	Risk Description	FDA Impact	Mitigation Strategy	Status
1	Scope	FDA's recommendations for TAS have not been clearly articulated and vetted internally and/or externally.	A published clinical terminology standard for a TA does not include FDA's recommendations and would not be supported by FDA.	The Table of Priority Therapeutic Area Standards[17] document lists TAs where FDA has started recommendations definition efforts. FDA has developed and implemented a process for gathering and vetting specific FDA recommendations for each TA. FDA has developed and is executing a testing and acceptance process to ensure the standard includes its *r*ecommendations.	This risk has been managed. Using a well-defined process for gathering and vetting recommendations, FDA has developed recommendations for approximately 85% of the TAs on the priority list.
2	Resources	TAS projects may not have sufficient funding or staff to complete all planned deliverables**.**	FDA recommendations may not be met, project timeline	FDA must assess resources to complete the project and then determine the best approach to address gaps (e.g., perhaps further prioritize the implementation of FDA TAS recommendations).	

17 http://www.fda.gov/downloads/Drugs/DevelopmentApprovalProcess/FormsSubmissionRequirements/ElectronicSubmissions/UCM297093.pdf

	Risk Category	Risk Description	FDA Impact	Mitigation Strategy	Status
			may be affected, and project objectives not fully accomplished.		
3	Resources	External clinical/medical professional societies are not adequately engaged during the development and review of data elements for a therapeutic area.	The quality of the deliverables may be adversely impacted if key clinical/medical groups are not involved.	Projects should identify desired external stakeholders participants and include their engagement throughout development where appropriate. In addition, the standards will be released for public comment to ensure all groups have ample opportunity to provide comment. FDA will seek to identify major stakeholders whose input should be sought prior to a TA project initiating.	This risk has been managed. The CFAST organization has a mechanism in place that has been successful at engaging external stakeholders through its CFAST Scientific Advisory Committee.
4	Resources	FDA resources assigned to participate in the TAS development process are constrained, due to competing priorities. This would include: scoping, review, testing and acceptance of each new standard.	PDUFA V goal to develop clinical terminology for therapeutic areas will be	FDA will work to use project plans to mitigate conflicts. Leadership support is gained in advance of commitment to projects. If conflicts arise, alternates may be identified or scope adjusted.	This risk has been managed. Using a well-defined process for gaining resource support in advance of project kick-off has been successful and sufficient resources, both externally and internally have been

	Risk Category	Risk Description	FDA Impact	Mitigation Strategy	Status
			de-layed.		available.
5	Resources	Personnel with the requisite skills to complete all project deliverables on time and with the highest quality may not be available.	This may ad-versely affect the sched-ule and quality of the deliver-ables.	FDA will need to identify alternative strategies to acquire personnel with the required skills and prioritize projects to avoid competing for the same resources. Along with the de-termination of level of effort for the project, an assessment of skill availability for each resource is re-quired before a commitment for a specific technical so-lution is made.	
6	Process	The implementation of the TA standards could be compro-mised due to seman-tic incompatibilities resulting from their timing, number, and differences between them.	The objec-tives of the ini-tiative will not be met.	FDA will use project plans to manage the schedule and scope. Using a well-defined implementation ap-proach that includes modeling recommen-dations, and a stand-ard development process, as TA standards are devel-oped will lead to a successful implemen-tation. CDISC has a tech-nical group to review draft standards for	

	Risk Category	Risk Description	FDA Impact	Mitigation Strategy	Status
				incompatibilities or duplications.	
7	Process	Accountability for the TAS development process may not be clear across all stakeholders.	This may affect project plans or quality of deliverables.	The implementation approach section highlights stakeholder participation throughout the development process. The CFAST consortium, through the use of charters and agreements among stakeholders and clear documented processes for all stakeholders, which has been published, has established a governance and standards TA process that describe the roles and responsibilities of stakeholders within the governance and project development teams.	
8	Process	A clear, consistent and transparent process for the development of clinical data elements has not been adequately presented for public comment.	This may impact the quality of the deliverables and their	The Lead group facilitates the TA data elements and associated artifacts to be released for a public review comment period. Comments are addressed per the Lead group's pro-	This risk has been managed. A clear, consistent and transparent process is in place.

	Risk Category	Risk Description	FDA Impact	Mitigation Strategy	Status
			broader acceptance across stakeholder groups.	cess. In addition, FDA will recommend external stakeholders inform their stakeholder groups of this comment period.	
9	Stake-holder Manage-ment	External stakeholder partnerships may not be able to sustain the development of TA projects due to financial constraints and/or insufficient staffing	Significant delays may occur in starting and completing TA projects, resulting in fewer TA standards and thus reduced benefit to stakeholders	FDA has implemented a Grants mechanism to encourage a level of activity in TA development. FDA must provide public support of the effort through communications and engagement in TA projects.	

APPENDIX B: Standard Development Process – Definition of Terms

Project Stage	Status Description
Initiation	The SDO, grantee, or other lead group working with the FDA and other Subject Matter Experts (SMEs) defines the project scope (e.g., what is needed for regulatory review decision making), develops a charter to define the project and ensure available resources, develops a plan, and conducts a kick-off of the project.
Development	The SDO, grantee, or other lead group conducts an iterative process of data element identification (e.g., elements needed to describe the study primary endpoint), definition, validation, and conducts a review with defined expert groups. FDA's subject matter experts participate throughout the development phase. A key output is a user guide for the study data standard.
Internal Review	The Lead group conducts an internal review of internal teams or experts and begins the development of educational training materials. Once all internal comments are addressed, the standard package is prepared for external posting.
Public Review	The Lead group facilitates the data elements and associated artifacts to be released for a public review comment period. Comments are addressed per the Lead group's process.
Public Release	The initial version of a standard is released.

Project Stage	Status Description
Testing	Depending on the standard, a project may be required to conduct testing for the standard to simulate regulatory review decision making. This testing ensures that all identified factors (e.g., scale, impact, ability to meet regulatory review needs, fit within FDA infrastructure) are assessed and that all policy, regulatory, guidance, training, and technical specification needs are identified. Different approaches may be taken depending on the standard.
Adoption	If needed, changes to policy, guidance, and technical specification will be made to support implementation of a given data standard. The standard is added to the Data Standards Catalog.
Implementation	The standard is implemented within the FDA environment. This phase includes all the steps to make this part of the regulatory review process.
Public notification (FRNs and guidance)	As needed, FDA will issue FR notices announcing the support of new data standards.

Appendix C: Acronym List

BRIDG	Biomedical Research Integrated Domain Group
CBER	Center for Biologics Evaluation and Research
CDER	Center for Drug Evaluation and Research
CDISC	Clinical Data Interchange Standards Consortium
CDRH	Center for Devices and Radiological Health
CFAST	Coalition for Accelerating Standards and Therapies
C-Path	Critical Path Institute
CRFs	Case Report Forms
DSPB	Data Standards Program Board
eCTD	Electronic Common Technical Document
FDASIA	FDA Safety and Innovation Act
FD&C Act	Food, Drug, and Cosmetic Act
FRN	Federal Register Notice
HL7	Health Level Seven
IND	Investigational New Drug Application
NIH	National Institutes of Health
OBE	Office of Biostatistics and Epidemiology
OBI	Office of Business Informatics
OCS	Office of Computational Sciences
ONC	Office of National Coordinator
OSP	Office of Strategic Programs
PDUFA	Prescription Drug User Fee Act
SEND	Standard for Exchange of Nonclinical Data
SDO	Standards Development Organization
SDTM	Standard Data Tabulation Model
SME	Subject Matter Expert
Sponsor	Regulated Industry
TA	Therapeutic Area
TAS	Therapeutic Area Standards