The Future of CDISC

PharmaSUG Workshop
La Jolla, CA
13 September 2013

Rebecca Kush, PhD
President, CDISC
Themes for the Future of CDISC

• Develop global research standards faster and better
  ▪ CDISC Teams and CFAST

• Make the standards readily accessible
  ▪ SHARE

• Support the global trends in healthcare
  ▪ Healthcare Link
What is CDISC?
Clinical Data Interchange Standards Consortium (CDISC)

- Global, open, multi-disciplinary, vendor-neutral, non-profit standards developing organization (SDO), a 501c3
- Founded 1997, incorporated 2000
- Member-supported (> 300 member organizations: academia, biopharma, service and technology providers and others)
- Liaison A Status with ISO TC 215
- Charter agreement with HL7 (2001-)
- Leadership of Joint Initiative Council (JIC) for Global Harmonization of Standards
- Member of ANSI-led ISO TAG
- Active Coordinating Committees (3C)
  - Europe, Japan, China
- >> 90 countries (18,000 individuals) in participant/contact database

CDISC Standards are freely available via the website www.cdisc.org
Members, Supporters, Volunteers, Stakeholders, Adopters
Global Clinical Research Standards End-to-End

Study Start-up
70-90% Savings

Study Conduct
40-60% Savings

Analysis and Reporting
50-60% Savings

Therapeutic Area Standards

Harmonized through BRIDG Model and Controlled Terminology

Protocol Representation Model (PRM)
Study Design Model, Clinical Trial Registration

eCase Report Forms (CDASH)

Laboratory (LAB)

Study Data Tabulation Model (SDTM)
SEND for pre-clinical data

Analysis Dataset Model (ADaM)

Operational Data Model (ODM)
XML Data Exchange

Define.xml

© CDISC 2012
TB and CV (ACS) elements through NIH Roadmap Grants w/ Duke
Polycystic Kidney Disease w/ Tufts
Pain w/ Rochester through FDA Grant
Virology through NIH/FDA Grant
Alzheimer’s Disease w/ C-Path / CAMD
Parkinson’s Disease w/ C-Path / NIH-NINDS
TB with C-Path/CPTR, TB Alliance, Gates Foundation, IMI…
MS with C-Path

2008 Present
A New Process

Stage 0: Initiation & Scoping
- CDISC-COP-001
- SC/SRC Approval
- Project charter
- Scope assessment
- Proposal
- Project Plan

Stage 1: Identification of research concepts
- BRIDG
- Gap assessment
- Concept maps
- Defined research concepts

Stage 2: Development of draft standards
- Project Plan
- Draft SHARE Metadata
- SDTM
- CDASH
- Controlled Terminology
- UG

Stage 3: Internal Review
- Approval by SC/SRC/CTO
- Portal
- Education plan
- Controlled Terminology

Stage 3: Public Review
- Approval by SC/SRC/CTO
- Portal
- Controlled Terminology
- Public comments

Stage 3: Public Release
- CDISC website
- Portal
- Lessons Learned
- Archival checklist + artifacts
- Education materials

Stage 3: Maintenance & education
- Feedback

End
## Target Timelines Under New Process

<table>
<thead>
<tr>
<th>Stage 0</th>
<th>Stage 1</th>
<th>Stage 2</th>
<th>Stage 3</th>
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</thead>
<tbody>
<tr>
<td>Months &lt;1-2</td>
<td>Months 2-4</td>
<td>Months 3-6</td>
<td>Public Review</td>
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Coalition for Accelerating Standards & Therapies

- In response to CDISC member value surveys and PDUFA V (with the FDA's statement of need for therapeutic area data standards), C-Path and CDISC established CFAST

- CFAST is an initiative to accelerate clinical research and medical product development by creating and maintaining data standards, tools and methods for conducting research in therapeutic areas that are important to public health

- Now contributing to CFAST: FDA, TransCelerate Biopharma, NCI EVS, ACRO and IMI
Therapeutic Area Standards Governance

CFAST SAC
Scientific Advisory Committee
- Provides Scientific Advice to TAPSC
- Identifies Risks and Opportunities
- Identifies/Engages Relevant Partners

CFAST TAPSC
Therapeutic Area Program Steering Committee
- Prioritizes/Approves Proposals
- Approves Projects & Charters
- Resources & Oversees Projects

CDISC TA Standards Project Teams
Project Leader +
Clinical leads (SMEs), BRIDG Modeler, Concept Creators, Terminologists, Metadata Analysts, Stats Consultants, Writers, Communications

Ongoing Maintenance & Enhancement of Foundational CDISC Standards
## Therapeutic Area Standards Under Development

<table>
<thead>
<tr>
<th>Therapeutic Area</th>
<th>Coordinating Organization(s)</th>
<th>Project Manager</th>
<th>Stage 0</th>
<th>Stage 1</th>
<th>Stage 2</th>
<th>Stage 3a</th>
<th>Stage 3b</th>
<th>Stage 3c</th>
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**Project Status:**
- Stage ongoing
- Stage completed
- *Italics = Projected*

## Published Therapeutic Area Standards

<table>
<thead>
<tr>
<th>Published Therapeutic Area Standards</th>
<th>Status</th>
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<tr>
<td>Alzheimer's Disease V1 - Final</td>
<td>Polycystic Kidney Disease V1 - Provisional</td>
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<td>Pain V1 - Provisional</td>
<td>Tuberculosis V1 - Provisional</td>
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<td>Parkinson's Disease V1 - Provisional</td>
<td>Virology V1 - Provisional</td>
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IMI-CDISC-FDA Synergies

IMI Therapeutic Area projects

- *Alzheimer’s Disease - EMIF
- *Asthma (Severe) – U-BIOPRED
- Autism
- *Cancer (Breast, Colon, Lung and Prostate Cancer)
- *Chronic Pain – EUROPAIN
- *Diabetes Type II – DIRECT
- *Neurodegenerative Diseases – Pharma-Cog
- *Rheumatoid Arthritis – 2 IMI projects
- *Tuberculosis – PredictTB
- Other US-EU project synergies e.g. TBI, PTSD

* = FDA Therapeutic Area Priority as well
CDISC SHARE

A global, accessible electronic metadata library, which through advanced technology, enables precise and standardized data element definitions and richer metadata that can be used in applications and studies to improve biomedical research and its link with healthcare.

http://www.cdisc.org/cdisc-share

- Accelerates standards development
- Improves standards accessibility
• Single, trusted, authoritative source for CDISC data standards
• Concepts, metadata, collections, relationships, value sets across the full spectrum of CDISC content
• Links research to healthcare concepts to support interoperability
• Aligned with NCI Semantic Systems

BRIDG, ISO21090
Protocol, CDASH
SDTM, ADaM
Terminologies

Facilitates Data Exchange
• Access to data standards
• Source to target mapping & traceability
• Transformation logic

Adapted from Source by Sue Dubman, Sanofi (Genzyme)
Future Standards will be Built in SHARE: SHARE Business Template Example

In SHARE:
- Each variable is a unique object, assembled into metadata sets, domains and standards
- Each terminology value is an object, assembled into value sets and codelists
- SHARE templates will reuse component objects, assembling new metadata for new versions of standards and new therapeutic areas
- Object-level repository will also improve ease of translation
Research findings to inform healthcare decisions

Information from healthcare (private, aggregated) to enable research

How can we Accelerate the Cycle?

Healthcare
- Quality healthcare
- Informed decisions
- Personalized medicine
- Patient safety and privacy
- Public health
- Improved therapies
- Efficiencies/reduced costs

Research
- Discovery of new therapies
- Understanding diseases
- Testing/comparing therapies (CER)
- Assessing efficacy
- Monitoring safety
- Understanding responses (genomics, biomarkers)
- Public health/quality evaluations
- Post-marketing surveillance
Goal: Optimize the Process

Healthcare Delivery

(e)Source Documents EHR

(e)CRFs

Clinical Research

Data conception

Auto reconciliation

~1997
eSource Data Interchange (eSDI) Initiative

• **Purpose:** FDA initiative to facilitate the use of electronic technology in the context of existing regulations for the collection of eSource data in clinical research

*Note: eSource pertains to collecting data electronically initially through eDiaries, ePatient Reported Outcomes, eData Collection, EHRs*

• **Overarching Goals:**
  - To make it easier for physicians to conduct clinical research,
  - Collect data only once in an industry standard format for multiple downstream uses, and thereby
  - Improve data quality and patient safety

• **Product from multidisciplinary team:**
  - eSDI Document
  - 12 requirements for eSource
  - Available at [www.cdisc.org/eSDI-document](http://www.cdisc.org/eSDI-document)
  - Formed the basis for the Retrieve Form for Data Capture (RFD) Integration Profile
Patient Value: Quality of Healthcare, Safety

De-identified Continuity of Care Doc (CCDA) -> CRD

HITSP Interoperability Specification # 158

Site Research Archive

EHR

RFD

Study Sponsor EDC DB
Research Results, eSubmission Standard Formats

Reviewers (Regulators, Sponsor, Others)

Produce a standard core research dataset; Enables 21CFR11-compliant interoperability and eSource
Standards will facilitate the collection of data so that any researcher, clinical trial sponsor, reporting and/or oversight entity can access and interpret the data in electronic format.

Will leverage existing standards such as XML and CDISC Retrieve Form for Data Capture (RFD).

Advances Stage 3 MU vision to design trusted infrastructure to enable patient information to flow securely from EHRs to other systems, such as research consortia, registries, and bio repositories.

Source: HHS/ONC SDC Launch Presentation
CDISC- IHE Profiles for EHR-enabled Research

- **make the connection**
  - Retrieve Form for Data-capture (RFD)

- **auto-populate the eCRF**
  - Clinical Research Data (CRD)
  - Drug Safety Content (DSC)
  - Redaction Services
  - Data Element Exchange (DEX)

- **automate collaborative business processes**
  - Retrieve Process for Execution (RPE)
  - Clinical Research Process Content (CRPC)
  - Research Matching (RM)
Capabilities with Available (Core) Data Standards and Integration Profiles/Interoperability Specifications (Standards-inspired Innovation)

- Dramatic reduction in time and effort to report core data for safety, research, public health
- Can accommodate eDiaries, patient-entered data
- Improved data quality
- Data can be more readily aggregated and analyzed or queried
- Extensible; paves the way for more complex research and clinical genomics for personalized healthcare
- RFD is easily implemented by vendors; endorsed by EHRA
A National-Scale Learning Health System

Pharma

State Public Health

Patient-centered Groups

Federal Agencies

Beacon Community

Integrated Delivery System

Health Center Network

Health Information Organization

Governance

Patient Engagement

Trust

Analysis

Dissemination

Source: Dr. C. P. Friedman

CDISC Leading ESTEL = Essential Standards to Enable Learning
Regulatory Agencies and CDISC

• PMDA (Japan) – According to new J3C Chair, plan to adopt CDISC by 2016
  ▪ PMDA leader met with CDISC, J3C and TRI leaders at Japan Interchange 2012
  ▪ PMDA recently announced a CDISC pilot

• CFDA (China) – Visiting U.S. in November; requested one-day training in CDISC in PA and half-day meeting with CDISC
  ▪ In discussions with CDISC/C3C for several years
EMA

From: Peter Van Reusel (Chair) to E3C
Subject: FW: EMA policy on publication and access to clinical-trial data released for public consultation

Dears,
FYI below, the EMA has released the draft policy for public review. The policy will come into effect on Jan 2014. Data standards are mentioned as follows:

Wherever technically possible, analysable, de-identified raw CT data shall be made available for downloading in the format in which they have been analysed by the applicant, submitted and evaluated. For the time being, this can be according to CDISC (Clinical Data Interchange Standards Consortium) or other appropriate standard. In future, CDISC shall be the required standard, in line with future guidance from the Agency. No conversion of formats is recommended, either by the marketing-authorisation holder or the Agency.
• Guidances & Notices in Process

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<td>eCTD Guidance</td>
<td>• Published January 3, 2013</td>
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<tr>
<td>eSource Guidance</td>
<td>• Publication November 20, 2012</td>
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<td>• Comment Review Completed</td>
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<td>• Final Guidance in Clearance</td>
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<td>eStudy Data Guidance</td>
<td>• Revised Draft Completed</td>
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<td>• New Draft in Clearance</td>
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<tr>
<td>Therapeutic Area Project Plan</td>
<td>• Plan in Clearance</td>
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• Federal Register Notices
  • SDTM 3.1.1 retirement date
  • Data Standards Strategy and Action Plan
How can you and your companies benefit from CDISC?

Participate in the Interchange - 6-7 November, Bethesda, MD
Keynoters: Drs. Mark McClellan, Dr. Lisa LaVange (FDA Statistics)

- Join a team; attend the INTRAchanges
- Comment on the standards during public reviews
- Use the standards from the start – CDASH (and Protocol)
- Participate in the Tuft’s CSDD Study
- Take authorized CDISC training courses
- Make sure your organization is a member of CDISC and you are on the mailing list; participate in the CDISC Advisory Council
Communication is Essential

CDISC eNewsletter

• Hot Topics
• Success Stories
• Technical News
• FAQs
• Blogs and Press Releases
• 3C and User Networks
• Membership
• Education
• Networking Events

Sign up online to our e-mail list!

CDISC Annual Report
“All too many observations lie isolated and forgotten on personal hard drives and CDs, trapped by technical, legal and cultural barriers.”

*Nature, September 2009*
CDISC is more than Standards!

- Quality Improvement
- Enablers
- Speed
- Process Redesign
- Workflow Integration
- Standards-inspired Innovation
- Resource Savings
- Strength through collaboration