Developing Standards for Cell and Gene Therapy Product Monitoring

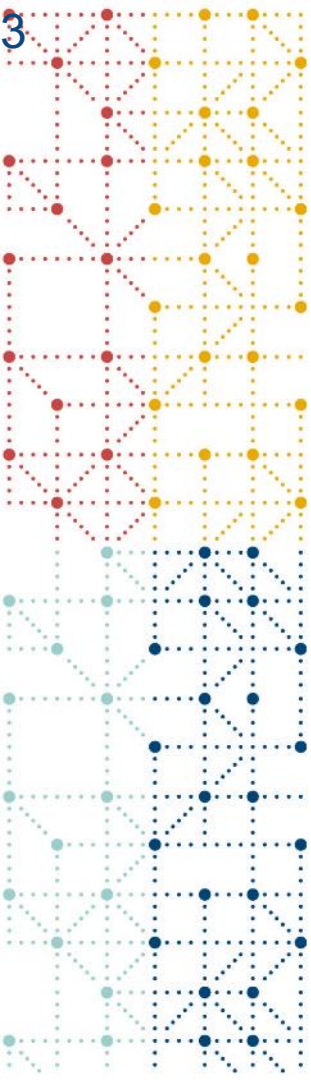
Robert Chu, CEO & Founder, Embleema
Christine Connolly, Senior Project Manager, Standards Development CDISC
Dave Evans, President & CEO, CDISC
Rhonda Facile, VP, Partnerships & Development, CDISC
Vahan Simonyan, Ph.D., Chief Science Officer, Embleema
Peter Van Reusel, CSO, CDISC

cdisc

Thursday, 7 July
11:00AM – 12:30PM US ET

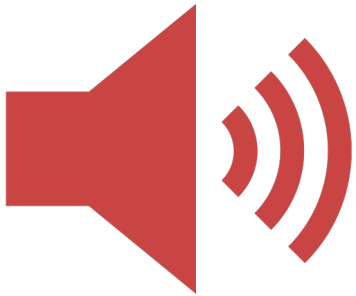
Today's Agenda

1. Housekeeping
2. Speaker Introduction
3. Feature Presentation
4. Upcoming Learning Opportunities & Events



Housekeeping

Housekeeping

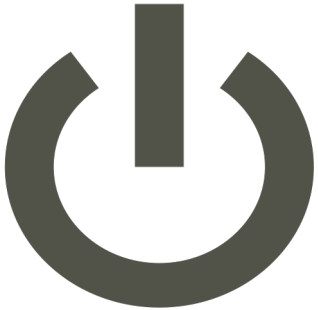


You will remain on **mute**

Housekeeping

Submit questions at any time via the Questions tool on your Zoom app

Housekeeping



Audio Issues?

First, close and restart your Zoom App
Second, check your local internet connection strength

Housekeeping

A recording of this webinar and the slides will be available in the **Members Only** section of CDISC website

Our Presenters

Robert Chu CEO & Founder Embleema	**Christine Connolly** Senior Project Manager, Standards Development CDISC
Dave Evans President & CEO CDISC	**Rhonda Facile** VP, Partnerships & Development CDISC
Vahan Simonyan, Ph.D. Chief Science Officer Embleema	**Peter Van Reusel** Chief Standards Officer CDISC

Developing Standards for Cell and Gene Therapy Product Monitoring

Robert Chu, CEO & Founder, Embleema
Christine Connolly, Senior Project Manager, Standards Development CDISC
Dave Evans, President & CEO, CDISC
Rhonda Facile, VP, Partnerships & Development, CDISC
Vahan Simonyan, Ph.D., Chief Science Officer, Embleema
Peter Van Reusel, CSO, CDISC

cdisc

Thursday, 7 July
11:00AM – 12:30PM US ET

Developing Standards for Cell and Gene Therapy Product Monitoring

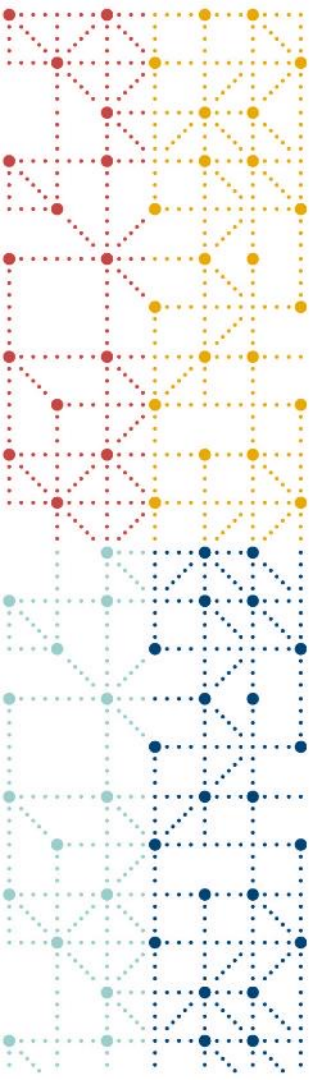
Dave Evans, President and CEO, CDISC
Rhonda Facile, VP, Partnerships and Development, CDISC
Christine Connolly, Sr. Project Manager
Robert Chu, CEO and Founder, Embleema
Vahan Simonyan, Chief Science Officer, Embleema

07 July 2022

Welcome and Introductions

Agenda

1. Introduction to CDISC – Dave Evans
2. Introduction to Embleema – Robert Chu
3. Standards for Cell and Gene Therapy Product Monitoring – Vahan Simonyan and Chris Connolly
4. Path Forward – Rhonda Facile
5. Q & A



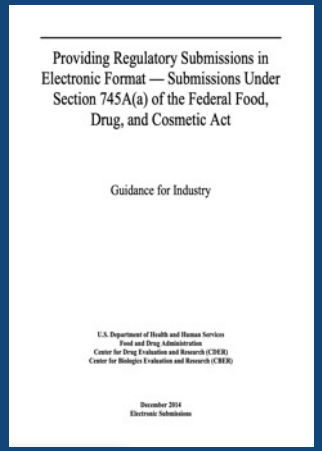
Introduction to CDISC

What is CDISC?

Global Non-profit Consensus-based Standards Development Organization	20 Years of Regulatory Clinical Data Standards Development and Implementation	Experienced Leadership Team and Dedicated Staff of 40+ Professionals and SMEs
Volunteer Network of 1000+ Industry Experts	545+ Member Organizations	Freely Available & Widely Adopted Clinical Research Data Standards
Innovative Open-Source Technology for Standards Library and Metadata Management	Addition of TMF Reference Model to CDISC Family of Standards	Education available online and classroom for most standards

CDISC Standards and Global Regulation

https://www.fda.gov/media/88120/download



Providing Regulatory Submissions in Electronic Format — Submissions Under Section 745A(a) of the Federal Food, Drug, and Cosmetic Act

Guidance for Industry

U.S. Department of Health and Human Services
Food and Drug Administration
Center for Drug Evaluation and Research (CDER)
Center for Biologics Evaluation and Research (CBER)

December 2014
Electronic Submissions

https://www.fda.gov/media/82716/download

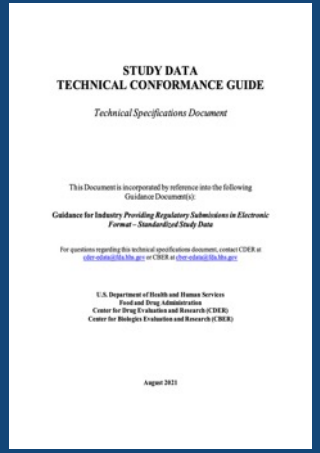
Providing Regulatory Submissions In Electronic Format — Standardized Study Data

Guidance for Industry

U.S. Department of Health and Human Services
Food and Drug Administration
Center for Drug Evaluation and Research (CDER)
Center for Biologics Evaluation and Research (CBER)
Oncology Center of Excellence (OCE)

June 2021
Electronic Submissions
Revision 2

https://www.fda.gov/media/147233/download



STUDY DATA
TECHNICAL CONFORMANCE GUIDE

Technical Specifications Document

This Document is incorporated by reference into the following Guidance Document(s):

Guidance for Industry *Providing Regulatory Submissions in Electronic Format – Standardized Study Data*

For questions regarding this technical specifications document, contact CDER at cder-edata@fda.hhs.gov or CBER at cber-edata@fda.hhs.gov

U.S. Department of Health and Human Services
Food and Drug Administration
Center for Drug Evaluation and Research (CDER)
Center for Biologics Evaluation and Research (CBER)

August 2021

https://www.pmda.go.jp/english/review-services/reviews/0002.html

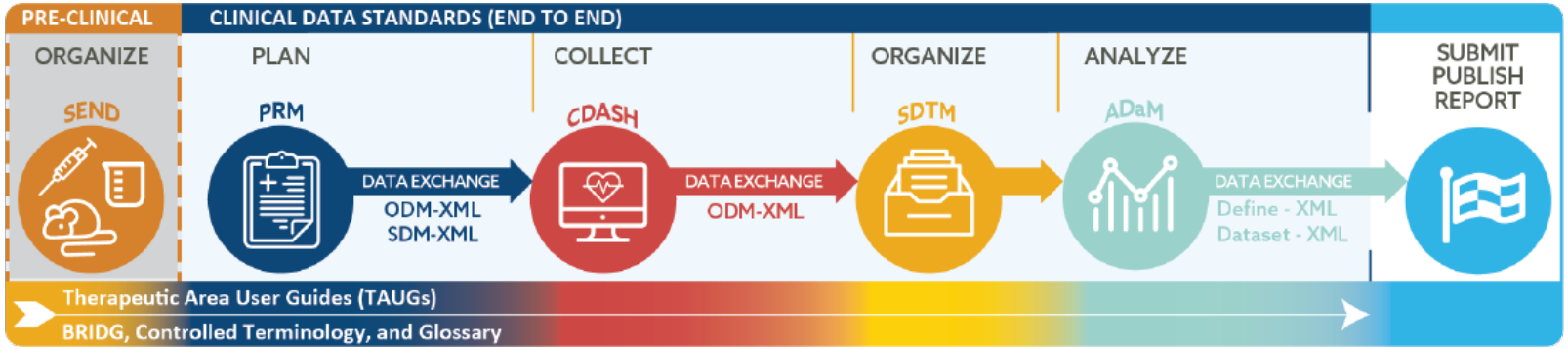
BINDING DOCUMENTS

- CDISC standards are required for submission to FDA and Japan PMDA
- CDISC standards are the only standards recognized for submissions by China NMPA
- CDISC standards can be used for patient-level data submission to EU EMA

CDISC Standards Development

- Standards for clinical and translational research
- Standards are freely available at www.cdisc.org
- IP Policy ensures open standards.
- Ongoing global research support in the Americas, Europe, Japan, China, India and Korea.
- Standards and supporting documents available in English, Japanese, and Chinese.

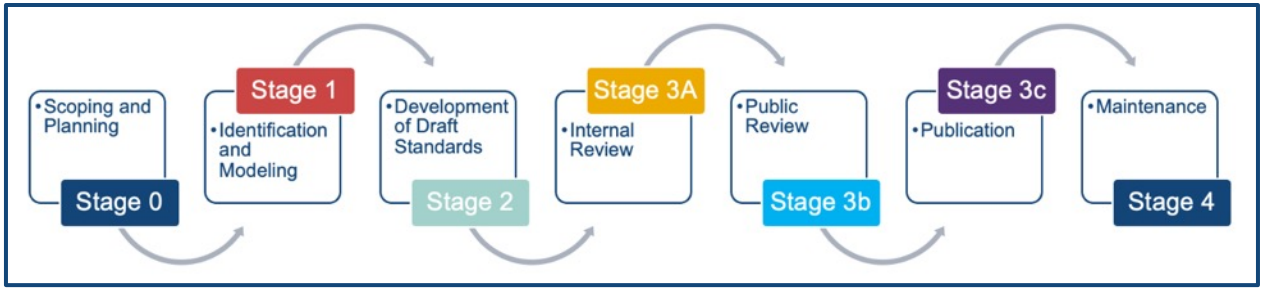
CDISC Standards in the Research Process



End to End

CDISC Standards Development Process

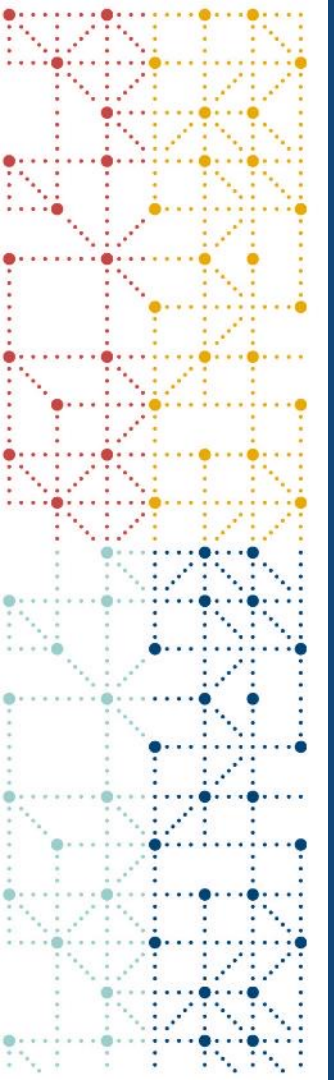
- The FDA requires that standards adopted by the agency follow consensus process for development
- Consensus means general agreement about the standard developed, full agreement is not required
- The FDA expects that “during the development of consensus, comments and objections are considered, using fair, impartial, open, and transparent processes”



https://www.cdisc.org/system/files/about/cop/CDISC-COP-001-Standards_Development_2019.pdf

Benefits for the Clinical Research Community

- Expansion of scope of clinical information standards to trial design, trial administration, clinical operations, regulatory documentation
- CDISC serves as the hub for cross-industry standards initiatives
- Strategically, there is a natural progression to the development and governance of standards, so why reinvent the wheel when so much work has already been done
- Evolution organizationally to embrace governance of clinical research information standards, not just the clinical data
- Broadening the harmonization of clinical research information standardization



Introduction to Embleema

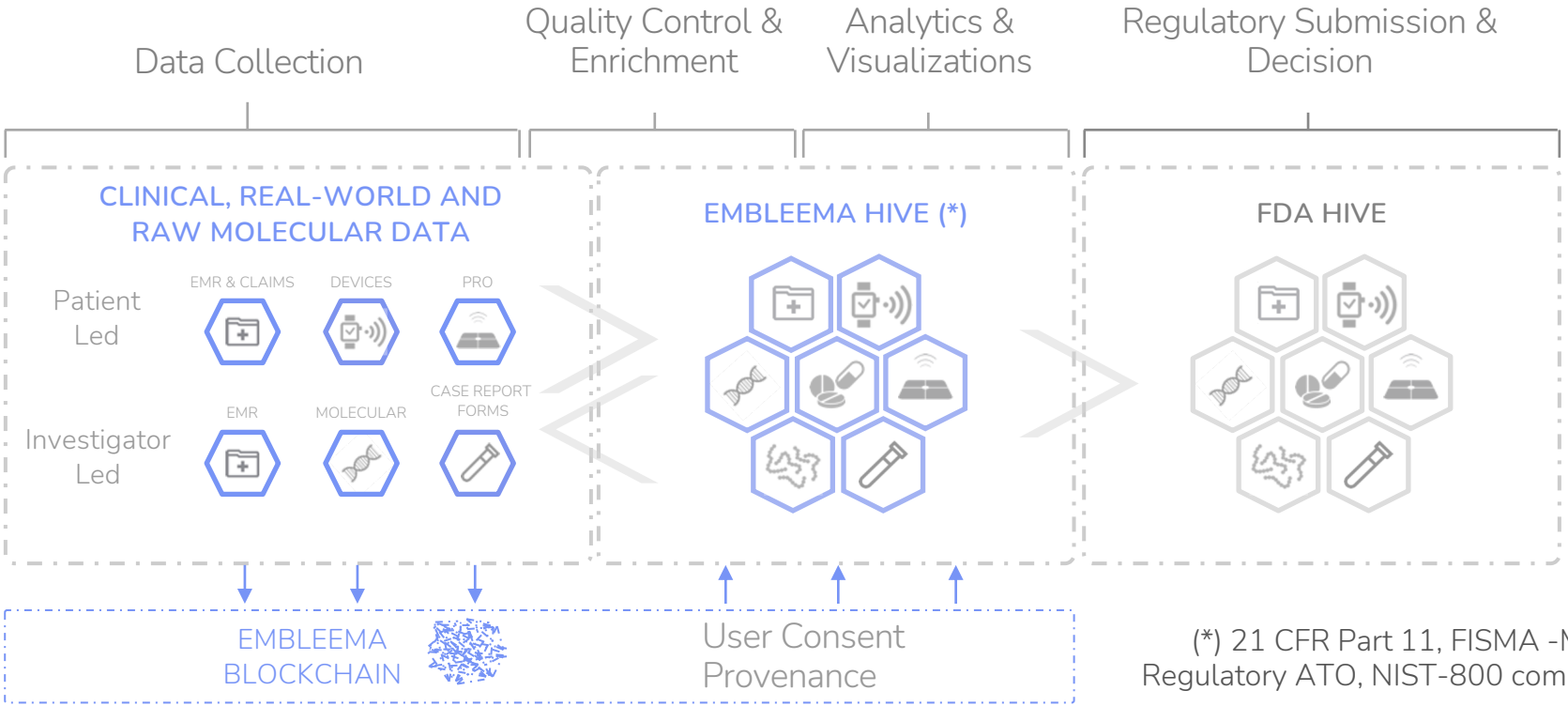
Embleema's standard technology platform

accelerates precision medicine by expediting evidence

generation and regulatory reviews of new treatments

cdisc

Embleema is the Only Comprehensive Data & Analytics Platform for Precision Medicine



(*) 21 CFR Part 11, FISMA -M, Regulatory ATO, NIST-800 compliant

embleema

cdisc

HIPAA & GDPR Compliant

Embleema Bioinformatics Solutions for Cell and Gene Therapy Products

CRISPR Biotechs

Evidence submitted to the FDA as part of IND was unsatisfactory to the agency and led to **regulatory clinical hold**.

In six weeks, using HIVE, we verified and reperformed the **on target/off target and viral integration analysis** with HIVE, packaged it into a HIVE Pack which was submitted to the FDA by the sponsor. FDA **lifted the hold in 2 weeks.**

AAV Biotechs

Traditional animal testing for viral vector products manufacturing quality control is costly, time-consuming and may **miss re-virulent genomic mutations** of the product.

HIVE performs a population analysis at genomic level of manufactured batches of product, providing a significantly **more sensitive and comprehensive comparison with the reference sample** and a less expensive solution for manufacturing consistency. The FDA Office of Vaccines Research and Review (OVVR) uses the same analytical pipeline

Using the same bioinformatics platform than the FDA aligns the manufacturer's evidence with the FDA's regulatory analytics protocols and accelerates regulatory approvals by months

embleema

cdisc

Standards for
Cell and Gene Therapy Product Monitoring

Why Do We Need Standards?

Because Cell and Gene Therapy Products (CGTP) involve inoculation of active ingredients such as proteins, genes, attenuated viruses, altered cells and other live tissues, their activity inside hosts is difficult to control. Additionally, special considerations are needed to monitor cellular and viral delivery products manufacturing consistency.

The current lack of standards for monitoring and analyzing such activity makes it difficult for sponsors to demonstrate safety and efficacy of their products and regulators to review them

Uncertainty on how regulators will evaluate experimental assays and bioinformatics protocols lead to longer and more expensive product development cycles and delay the cure to patients

cdisc

CDISC and Embleema are partnering to develop standards for CGTP monitoring

- The broadest network of regulators, life sciences and clinical research organizations
- Standardization process and deployment
- Required by U.S. FDA and Japan PMDA, recommended by China NMPA

New Standards for CGTP Monitoring

Experimental Assays and Bioinformatics Protocols

Interoperability, Privacy and Provenance of Multi-Omics Data

Longitudinal Patient Monitoring and CGTP Specific Outcome Measures

- Embleema HIVE bioinformatics platform is used by the FDA and life sciences to align regulatory evidence for CGTP
- Expertise in CGTP clinical data generation and analytics
- Regulatory expertise in evaluating CGTP

Standardization Goals

- Creating standards for CGTP monitoring will provide clarity on the regulatory requirements
- Sponsors will save time and cost by applying the standard protocols
- Standards are defined at platform-level rather than product-level, and can therefore be applied by CGTP manufacturers in pre-competitive realm
- We plan to start with 2 important use cases
  - On-target, off-target and viral integration activity
  - Assessment of manufacturing consistency for viral delivery products

cdisc

Flow and Standardization

Gene or cell therapy research and development

In Clinic → Laboratory → Sponsor → Regulatory Agency

A treated subject	Donates a biospecimen	Genomic specimen derived	Next Generation Sequencing	Subject Results	Submission

Post Market

CDISC Exposure and Biospecimens
CDASH, SDTM, ADaM, Controlled Terminology

BioSample, BioCompute

Protocols for experimental assays and bioinformatics pipelines

CDISC Genomics Findings
SDTM, ADaM, Controlled Terminology

Opportunities

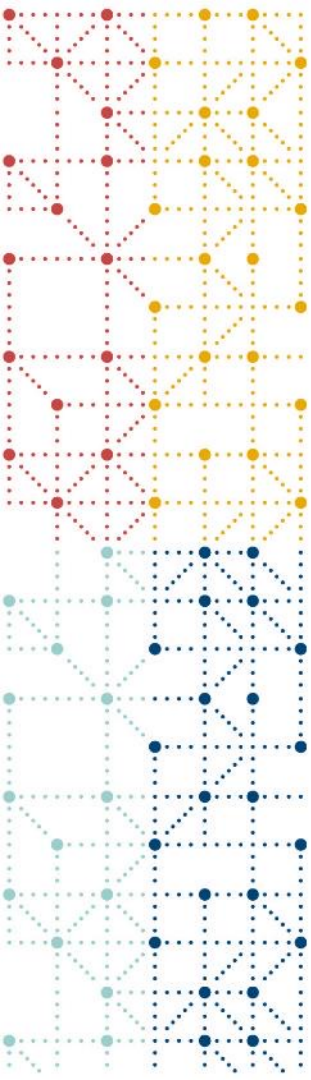
Embleema
HIVE

HIVE instance

Path Forward

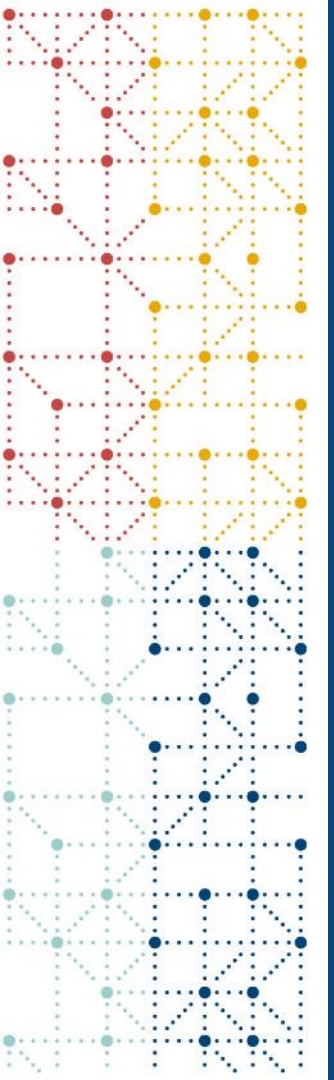
Path Forward

Secure funding	• FDA CDER • FDA CDMH
Build Small Scoping Team	• CDISC standards experts, Embleema experts, FDA experts, others. • Determine what standards content is needed, where largest benefit can be gained, ensure the right experts are on board, etc.
Determine the Standards Product	• User Guide, Specification, other
Develop Project Plan	• Estimated September project start • CDISC, Embleema
Project Set-up in Support Systems	• CDISC PMO • CDISC Wiki/JIRA • CDISC website
Build Consortia	• Call for volunteers



Discussion/Q&A

Thank You!



Questions & Answers

Upcoming Events

July

Asia

Virtual Training Event

Regional discounts will appear at checkout.

September

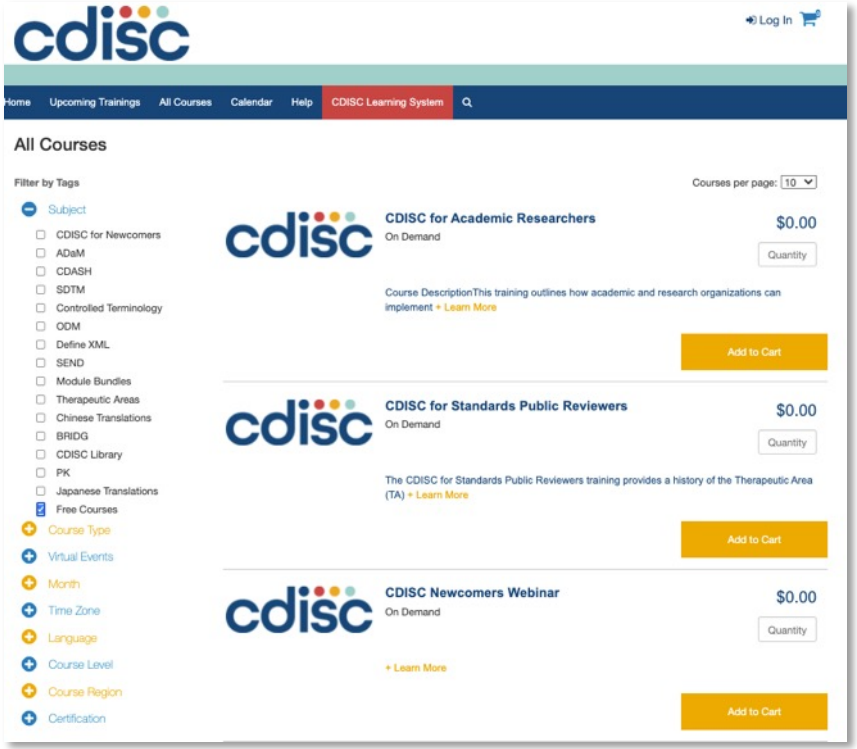
US

Virtual Training Event

- Information available at: www.cdisc.org
- Register at: https://learnstore.cdisc.org/
- Contact us at: training@cdisc.org

cdisc

Free CDISC Courses



Http://learnstore.cdisc.org

Upcoming Webinars

Date	Title
12 JUL	Pediatrics User Guide Public Review
8 SEP	QRS Office Hours
15 SEP	Genomics Findings Office Hours
29 SEP	COSA Spotlight Q3 (registration coming soon!)
4 OCT	Controlled Terminology Updates: P51 Publication / P52 Public review

Do you have a suggestion or idea for a webinar topic you'd like us to cover?

https://www.cdisc.org/form/webinartopicreq

2022 CHINA INTERCHANGE

CDISC VIRTUAL CONFERENCE

29-30 JULY

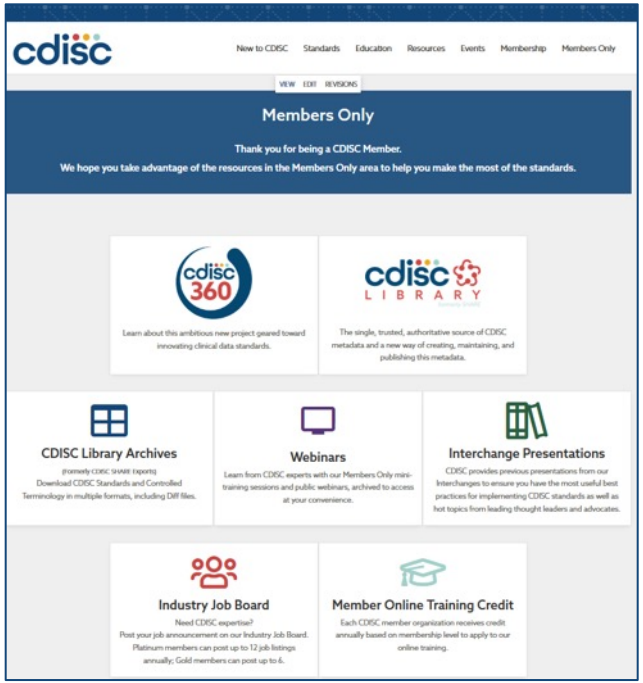
2022 US INTERCHANGE

26-27 OCTOBER | AUSTIN, TX

cdisc

Why Become a Member?

- To ensure the CDISC standards remain open and free
- To support CDISC in the development and maintenance of global standards
- To work with the CDISC community and be a voice in the development of clinical research standards
- To impact the development of regulatory requirements for submissions
- To access members only resources and benefits
- To gain visibility in the marketplace



CDISC MEMBERSHIP

Become a Member!

Join nearly 500 member organizations that contribute to bringing clarity to data.

Already a Member?

Thank you! It is our members' support which enables us to develop standards, keeping it free and accessible to all.

Email: membership@cdisc.org

Thank you!

Contact the Events inbox:
events@cdisc.org

Contact Education inbox:
training@cdisc.org

Contact Bernard directly:
bklinke@cdisc.org