JAPAN ACADEMIC WORKSHOP

Friday, 17 November | 1:00pm -5:15pm

One Researcher's Opinion About Why Academics in the United States Haven't Widely Used CDISC Standards and Recent Policy That May Prompt Change

Presented by Meredith Nahm Zozus, PhD

Meet the Speaker

Meredith Nahm Zozus, PhD

Title: Professor, Division Chief and Director of Clinical Research Informatics

Organization: Joe R. and Teresa Lozano Long School of Medicine

Dr. Zozus started her career at Duke University where she served as the Director for the data center at the Duke Clinical Research Institute and the Associate Director for Clinical Research Informatics in the Duke Translational Medicine Institute for 18 years. Her research career has focused on data quality in health care and health-related research including collection and management of data for clinical studies, and assessment and use of Electronic Health Record (EHR) data in clinical studies. Dr. Zozus is currently leading the **A**n**C**illiary Studies to **E**valuate **R**eal-**W**orld **D**ata Quality (*ACE-RWD* Program) assessing FHIR® data from EHRs. She is a Professor and Division Chief and Director of Clinical Research Informatics at the Joe R. and Teresa Lozano Long School of Medicine at University of Texas Health Science Center at San Antonio (United States).

In addition to over 100 published articles, she has led the development of six national/international data standards, and recently published The Data Book, covering fundamental principles behind the collection and management of research data. Dr. Zozus served as the Founding Editor in Chief of the Good Clinical Data Management Practices (GCDMP) and the Journal of the Society for Clinical Data Management (JSCDM).

Disclaimer and Disclosures

- *The views and opinions expressed in this presentation are those of the author(s) and do not necessarily reflect the official policy or position of CDISC.*

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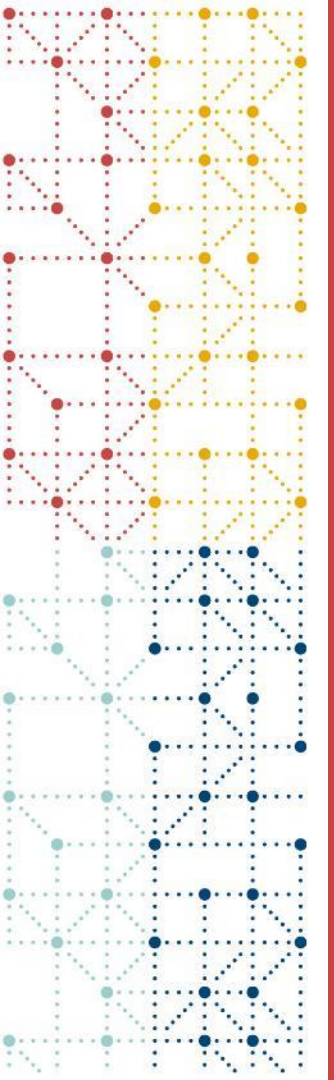
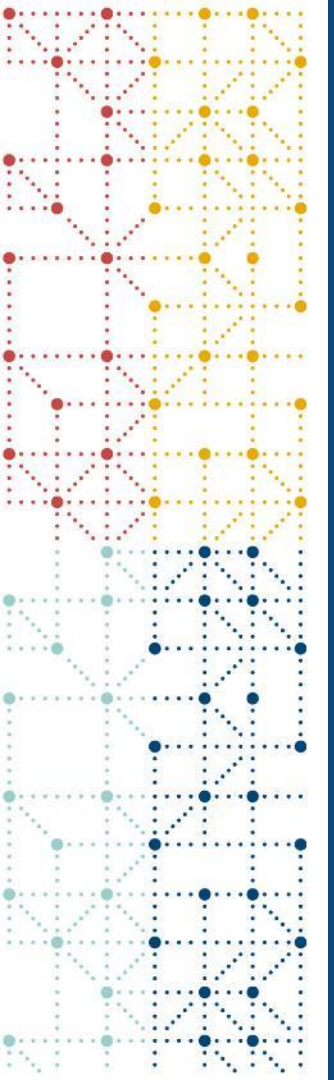


Agenda

1. Historic use of CDISC standards in American academia
2. Forces for and against standards use in American academia
3. Recent events that may change the landscape



Historically, use of CDISC standards in American academia has been low.

Early system dynamic research pinned implementation time and cost as major factors.

Little in the first two decades tipped the balance.

In 2006, ahead of the FDA requiring CDISC standards for regulatory submissions, Gartner and CDISC with support from PhRMA conducted an economic analysis.

Demonstrated that data standards can save significant time and money.

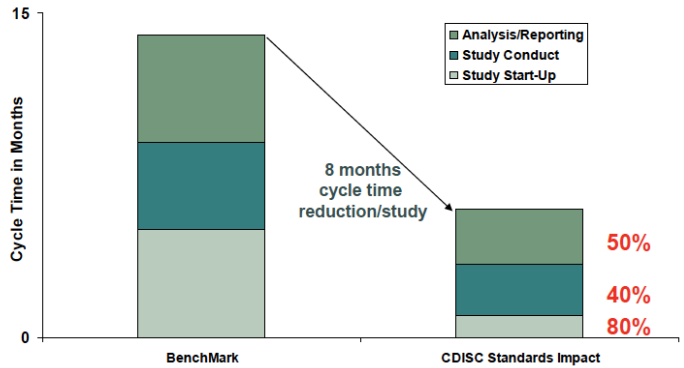
To gain the most savings, they must be implemented up front, i.e., the protocol and CRF design stage.

(Rozwell et al. 2007a)

Savings vary based on study stage at implementation:

1. Start-up Stage (70-90% savings)
2. Study Conduct (~ 40% savings)
3. Analysis and Reporting (~ 50% savings)
4. Overall (~ 60% savings)

(Rozwell et al. 2007b)

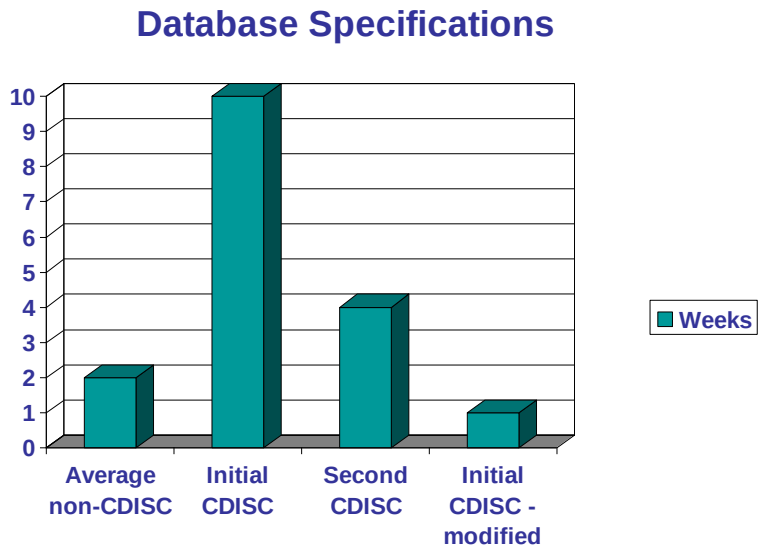


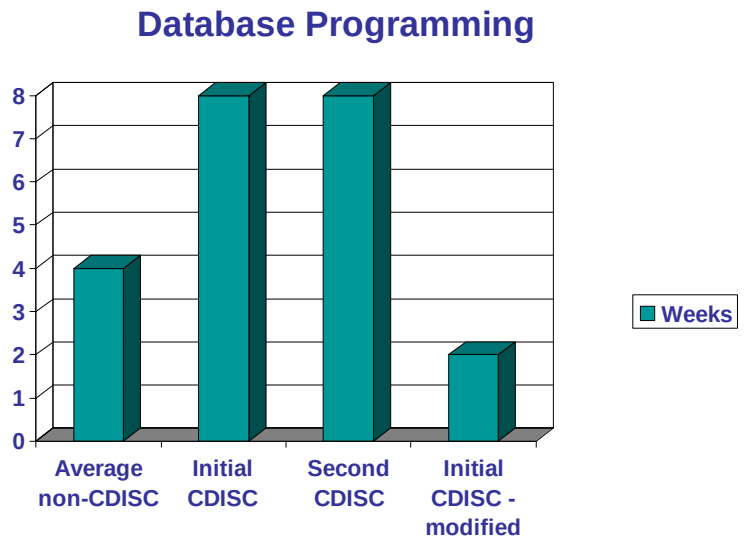
So what's the problem ?

a. Rozwell C, Kush R, Helton E: Saving Time and Money. Applied Clinical Trials 2007, 16(6).
b. Rozwell C, Kush R, Helton E , Newby F, Mason T, Getz K, Report on the Business Case for CDISC Standards. 2007 CDISC Interchange.

An Old Tale of Three Studies

Three industry sponsored studies, same compound, same therapeutic area run by an academic coordinating center. The first of the three studies was the first study for which the coordinating center used the CDISC SDM v3.0 standards. The standards were implemented after CRF design in the study operational database. Conducted in 2004.





50% decrease in specification development and database programming by the 3rd study

At My Institution

- ~800 ongoing Investigator Initiated Studies
- Only 3 of them use any of the CDISC standards.
- All three are using the CDASH Demographics only.

Why ?

So What's The Problem ? *"By the 3rd study …"*

Industry

- Development programs for a compound with many similar studies (lots of chance for ROI)
- Regulations in multiple regions require the standards
- Some software that leverages the standards (more chance for ROI)

Academia

- Pilot study + the real study
  (Little chance for ROI)
  (ROI accrues to those *other* than those who incurred cost)
- Standards historically not required
- Historically no software that leveraged the standards
- (mis-) Perception that very dollar spent on operations is a dollar that can't go toward statistical power (sample size)

The Research

Cofiel et al. Health Research Policy and Systems 2010, 8:38
http://www.health-policy-systems.com/content/8/1/38

RESEARCH Open Access

A system dynamics analysis determining willingness to wait and pay for the implementation of data standards in clinical research

Luciana Cofiel[1], Guilherme R Zammar[2], Amrapali J Zaveri[3], Jatin Y Shah[4], Elias Carvalho[5], Meredith Nahm[6], Gustavo Kesselring[7], Ricardo Pietrobon[8*]

Abstract

Background: Industry standards provide rigorous descriptions of required data presentation, with the aim of ensuring compatibility across different clinical studies. However despite their crucial importance, these standards are often not used as expected in the development of clinical research. The reasons for this lack of compliance could be related to the high cost and time-intensive nature of the process of data standards implementation. The objective of this study was to evaluate the value of the extra time and cost required for different levels of data

Objective of study: to evaluate

1. the value *to study researchers* of the extra time and cost expended for different levels of data standards implementation and
2. the corresponding likelihood of researchers to implement the standards.

Methods:

- Twenty different data standardization scenarios exploring three levels of cost and corresponding benefit
- Responded to by 28 researchers (18 USA, 10 Brazil; all informed about advantages and limitations of data standards)
- Asked to choose which of two options (presented in each scenario) they would consider implementing in one of their clinical trials. For example, choosing between high cost / high benefit and mid-range cost / medium benefit

Range of Cost and Benefit Parameters Considered

Table 1 Possible data standards implementation levels - time and money parameters for defining the different levels of implementation

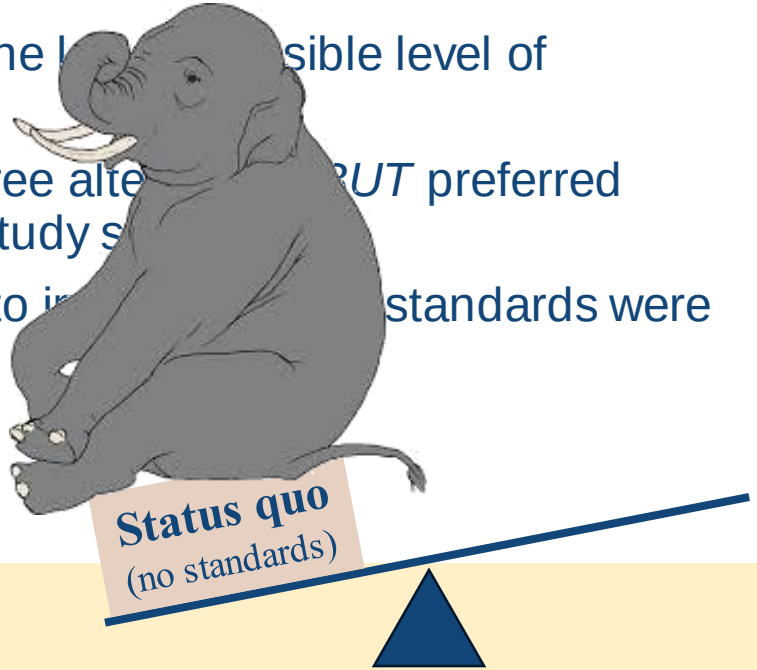
	Attributes	Levels
Financial cost →	Additional cost of study	no additional cost, $10,000, $40,000 for US or R$5,000, R$20,000 for Brazil
Standards Benefit →	Standards implementation	LITE, INTERMEDIATE, FULL
Time cost →	Additional time before initiation of study	no additional time, 1 month, 4 months

Lite implementation level: low cost, a faster implementation time and a low level of standardization.
Intermediate implementation level: mid-range cost and time for completion, and greater level of standardization.
Full implementation level: high cost, a slower rate of completion and the highest level of standardization.

System Dynamics part: Assumed the cost and time required to implement a standard decreases with the number of standards already implemented. Assumed implementation of standards will lead to the generation of uniform, easily combinable datasets, making it possible for the researcher to work with larger databases. “This will result in higher quality research and publication, creating the desire for more uniform datasets which in turn will lead to the further implementation of data standards.”

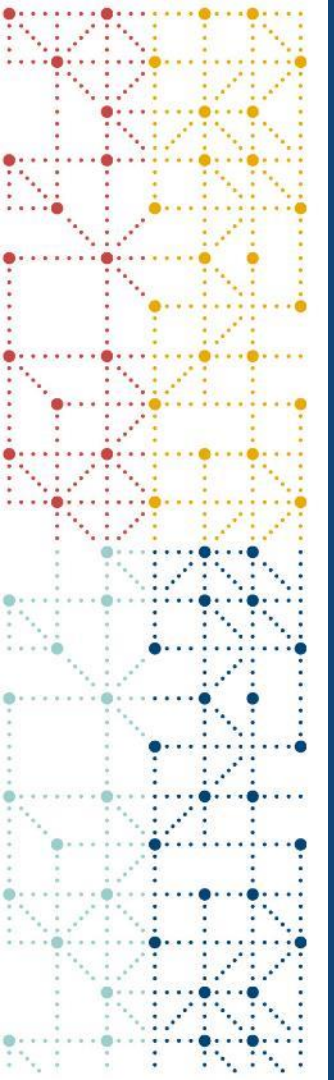
Results

- Whenever possible a researcher chose the l sible level of standards
- Researchers indicated preference for a free alte *RUT* preferred incurring cost over accepting a delay in study s
- Increased expenditure and time needed to i standards were seen as barriers to a study.



Conclusion

"Future studies should explore ways of creating mechanisms which decrease the time and cost associated with standardisation processes."



Recent events may change the landscape.

The United States National Institutes of Health (NIH) Policy on Data Management and Sharing went into effect on January 25, 2023.

→ Requires public data sharing to maximal extent possible

→ Encourages standards

2003 — NIH Requires Data Sharing Policy

2006 — OECD

2008 — Genome-Wide Association Studies Policy

2011 — NSF requires Data Management Plans

2013 — White House memorandum re expanding public access to research

2014 — NIH Genomic Data Sharing (GDS) Policy,

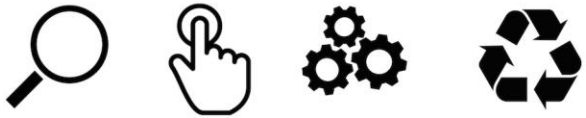
2015 — NIH Plan for Increasing Access to Scientific Publications and Digital Scientific Data from NIH Funded Scientific Research

2016 — NIH Policy on Dissemination of NIH-Funded Clinical Trial Information

2020 — **NIH Final DMS Policy**

2023 — Effective

The Findable Accessible Interoperable Reusable Guiding Principles



Findable:

F1. (meta)data are assigned a globally unique and persistent identifier

F2. data are described with rich metadata (defined by R1 below)

F3. metadata clearly and explicitly include the identifier of the data it describes

F4. (meta)data are registered or indexed in a searchable resource

Accessible:

A1. (meta)data are retrievable by their identifier using a standardized communications protocol

A1.1 the protocol is open, free, and universally implementable

A1.2 the protocol allows for an authentication and authorization procedure, where necessary

A2. metadata are accessible, even when the data are no longer available

Interoperable:

I1. (meta)data use a formal, accessible, shared, and broadly applicable language for knowledge representation.

I2. (meta)data use vocabularies that follow FAIR principles

I3. (meta)data include qualified references to other (meta)data

Reusable:

R1. meta(data) are richly described with a plurality of accurate and relevant attributes

R1.1. (meta)data are released with a clear and accessible data usage license

R1.2. (meta)data are associated with detailed provenance

R1.3. (meta)data meet domain-relevant community standards

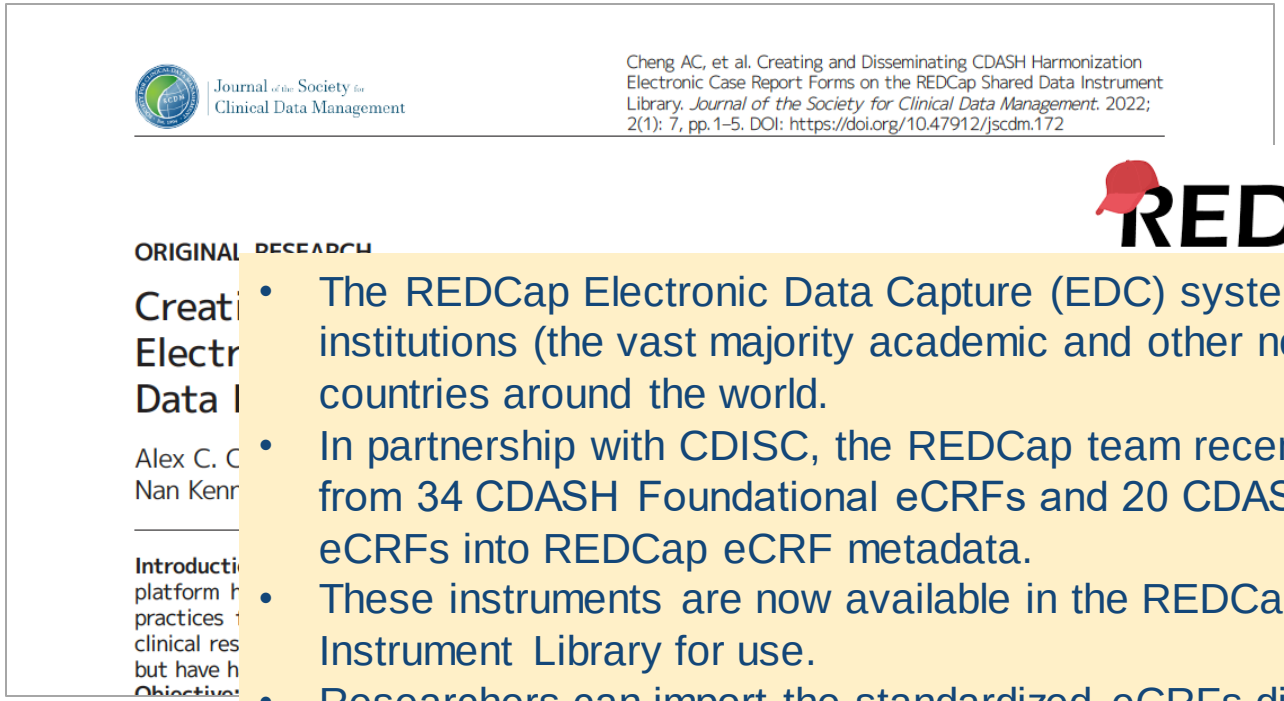
cdisc

Wilkinson, M., Dumontier, M., Aalbersberg, I. *et al.* The FAIR Guiding Principles for scientific data management and stewardship. *Sci Data* **3**, 160018 (2016). https://doi.org/10.1038/sdata.2016.18

U.S. National Cancer Institute

- NCI adopted the CDISC Clinical Data Acquisition Standards Harmonization (CDASH) model for all trials, and
- Aligned the NCI data collection standards and template forms with CDISC, CDASH, and SDTM models. … to enable study builders to easily map the NCI standard CDEs to CDISC variables for FDA submission of IND trial data sets in SDTM format.
- The effort, “eased the institutional burden of transformation to CDISC SDTM when submitting trial data to the FDA.”

Remember that research conclusion about decrease the time and cost associated with using standards ?



Journal of the Society for Clinical Data Management

Cheng AC, et al. Creating and Disseminating CDASH Harmonization Electronic Case Report Forms on the REDCap Shared Data Instrument Library. *Journal of the Society for Clinical Data Management*. 2022; 2(1): 7, pp. 1–5. DOI: https://doi.org/10.47912/jscdm.172

ORIGINAL RESEARCH

Creati
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Nan Kenr

Introducti
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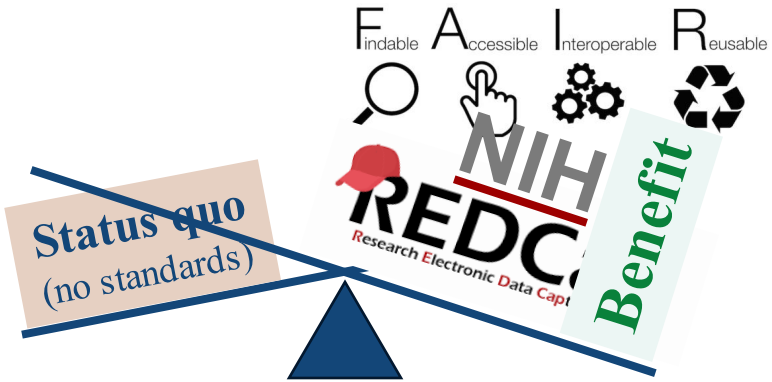
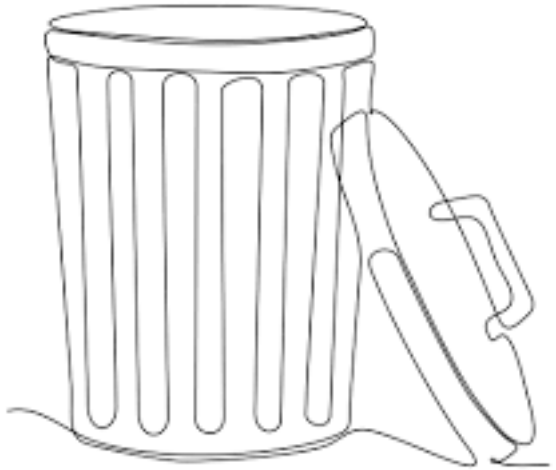
Objectives:

REDCap

- The REDCap Electronic Data Capture (EDC) system is used by 6890 institutions (the vast majority academic and other non-profits) in 155 countries around the world.
- In partnership with CDISC, the REDCap team recently translated metadata from 34 CDASH Foundational eCRFs and 20 CDASH Crohn's Disease eCRFs into REDCap eCRF metadata.
- These instruments are now available in the REDCap Shared Data Instrument Library for use.
- Researchers can import the standardized eCRFs directly into their REDCap projects for immediate use in clinical trial data collection.

Is it enough to tip the balance ?





Thank You!


I READ YOUR DOCUMENTATION; IT LOOKS LIKE THESE DATA WILL MEET MY NEEDS. THANK YOU SO MUCH!
EVERYTHING YOU NEED TO USE THE DATA IS RIGHT HERE.
VS
IT'S PROBABLY THERE. YOU FIGURE IT OUT. IS MINUTES THEN I'M OUTTA HERE!!
I'VE BEEN TRYING TO CATCH YOU FOR MONTHS!
WAIT! THERE MAY BE DATA IN THERE THAT I NEED!