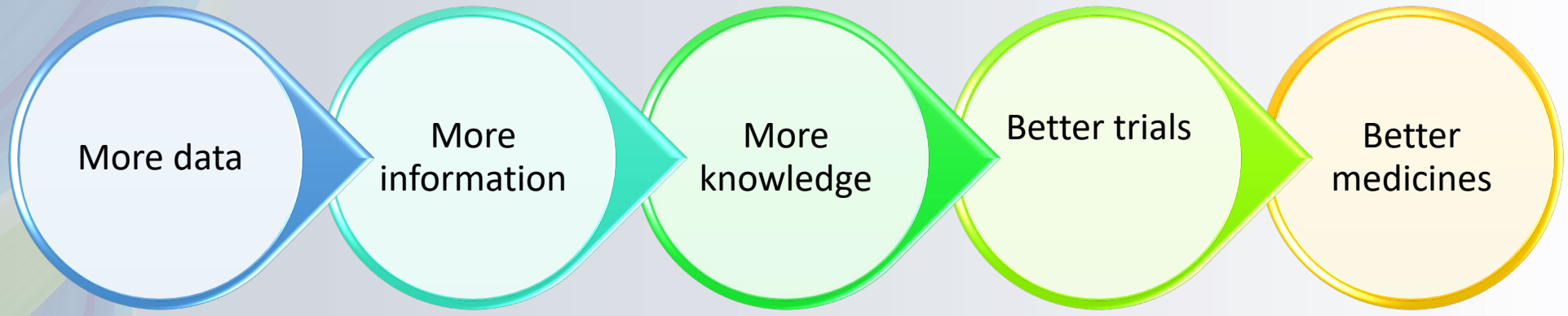
The c4c Paediatric Data Harmonisation Journey

Rebecca Leary
Newcastle University

Problem: Paediatric data is scarce and siloed

- Despite scientific advances, safety and efficacy data on the use of medicines in children is scarce.



- There is increasing awareness about the importance of data sharing, particularly in publicly funded research.

Solution?

- Create tools and resources to support data reuse sharing
- Encourage data standardisation and harmonisation
- Collaborate
- Dream of culture change!
- FAIR principles are central to success

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21 March 2019
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Several regulators, research bodies, learned societies and EFPIA have published on the importance, principles and challenges of data sharing and data reuse.

Vivli
CENTER FOR GLOBAL CLINICAL RESEARCH DATA

American Medical Association Journal of Ethics
December 2015, Volume 17, Number 12: 1152-1159

POLICY FORUM
US Federal Government Efforts to Improve Clinical Trial Transparency with Expanded Trial Registries and Open Data Sharing
Daniel L. Shaw and Joseph S. Ross, MD, MHS

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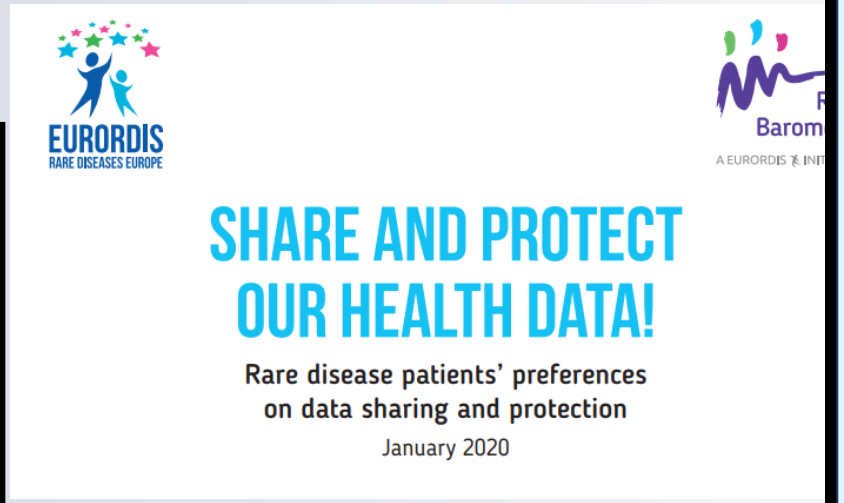
Why reuse data? – Scientific

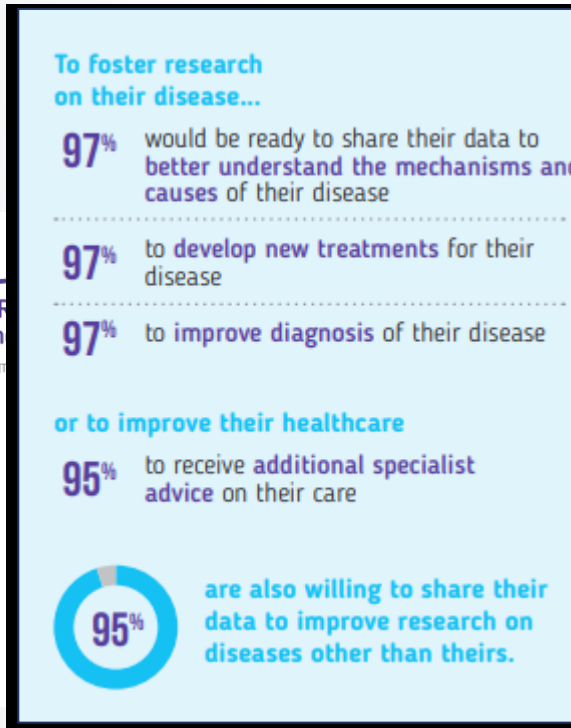
- Independent verification of published results – resulting in increase of data validity
- Evaluation of new hypothesis
- Not sharing is wasteful and could result in missed opportuities to advance knowledge
- Data from multiple studies can be aggregated for meta analysis – even more important for rare diseases
- Covid showed us the potential power of data sharing and reuse

Why reuse data? - Ethical

- Respect for trial participants
- Patients are gifting their bodies and their data to research
- Re-using this commitment from patients will increase the utility of the data
- Deterring inaccurate reporting of trial results
- Most patients want it!

Less than 8% of respondents felt that the potential negative consequences of data sharing outweighed the benefits (Mello et al 2018)





Why reuse data? -Economic

- Data can be seen as a new form of capital for research and knowledge based communities.
- If data is reused it maximises the value of the original research investment
- Promotes a thriving ‘health data economy’ which can drive innovation
- Facilitates data ‘entrepreneurship’
- Better designed trials, informed by existing data will reduce the number of trials failing (or prevent unfeasible trials ever starting)

In the beginning….

Which standard to recommend?

How to make the biggest impact?

How to engage academics?

Why use data standards?

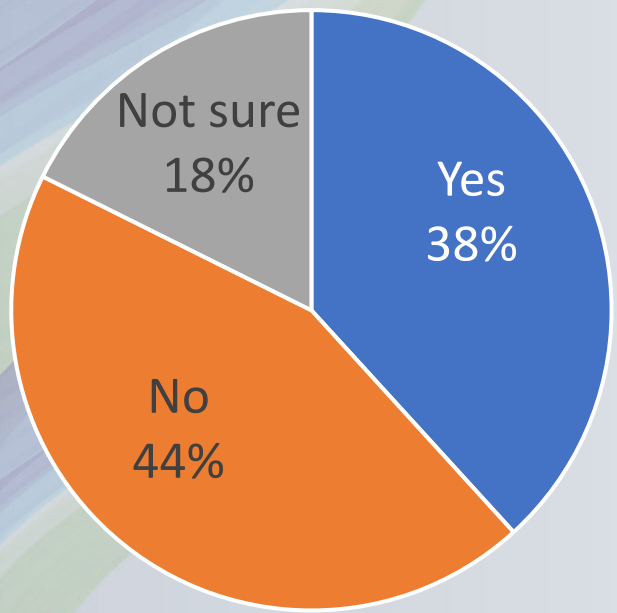
- Data standards provide structure and meaning to data
- Allows for easier data-reuse
- Interoperability and data sharing
- Adherence to FAIR data principles

C linical
D ata
I nterchange
S tandards
C onsortium

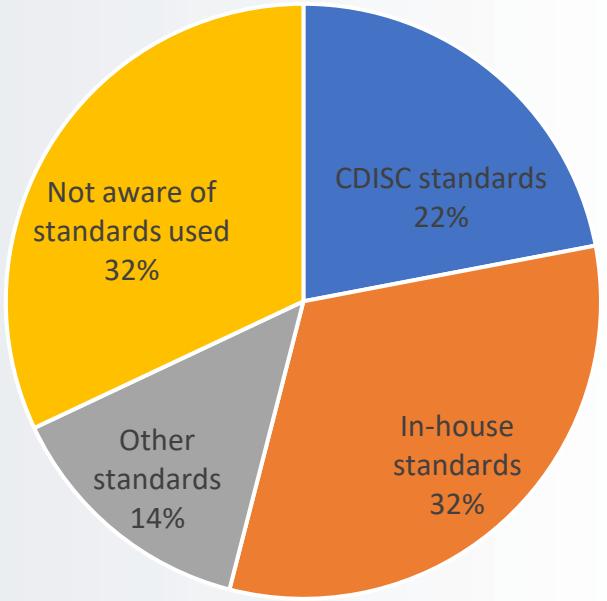
Awareness of data Standards in c4c

Very low awareness of data standards and CDISC among academia.

Are you aware of any formal standards, such as CDISC, being used when constructing CRFs for your trial?



Are you aware of what type of standards have been used in clinical trials you have participated in?



Version 1.0

c4c Cross-Cutting Paediatric Data Dictionary

CDISC mapped Item	recommended units (fo	CDISC units (CDISC Codelist) C-CODE value in brackets	value range C-CODE value in brackets	CDISC Evaluation	CDISC SDTM Domain	CDISC Qualifier Variables	Guidance	Source of information CDASH = Data Collection SDTM = Data Tabulation
Height	cm, metres, inches, feet	cm (C49668) m (C41139) in (C48500) ft (C71253)	not needed	Vital signs test exisits in CDISC CT (HEIGHT (C25347)) CDISC Definition "*The vertical measurement or distance from the base to the top of an object; the vertical dimension of extension. (NCI)*"	Vital Signs (VS)	unit, standardised unit	Specify standardised unit	CDASHIG v2.0 - https://www.cdisc.org/standards/foundational/cdash/cdash-20#Bookmark256 SDTMIG v3.3 - https://www.cdisc.org/standards/foundational/sdtmig/sdtmig-v3-3#Vital+Signs
Total body Length	cm, inches, feet	cm (C49668) in (C48500) ft (C71253)	not needed	Vital signs test exisits in CDISC CT (BODLNGTH (C81298)) CHANGE DEFINITION: CDISC Definition "*The linear extent in space from one end of the body to the other end, or the extent of the body from beginning to end.*" Consider (NCI C81298) "*The total linear extent of the body measured from the crown of the head to the heel in the recumbent position*"	Vital Signs (VS)	Vital Signs Position of Subject (VSPOS)? - not needed if new definition accepted as it states "recumbent"	Specify standardised unit	CDASHIG v2.0 - https://www.cdisc.org/standards/foundational/cdash/cdash-20#Bookmark256 SDTMIG v3.3 - https://www.cdisc.org/standards/foundational/sdtmig/sdtmig-v3-3#Vital+Signs

- NOT a mandatory set of items
- Includes demographic, vital signs, pubertal status
- Developed through consensus building approach
- Used by 3 PoV studies
- Mapped to CDISC standards (where they exist)

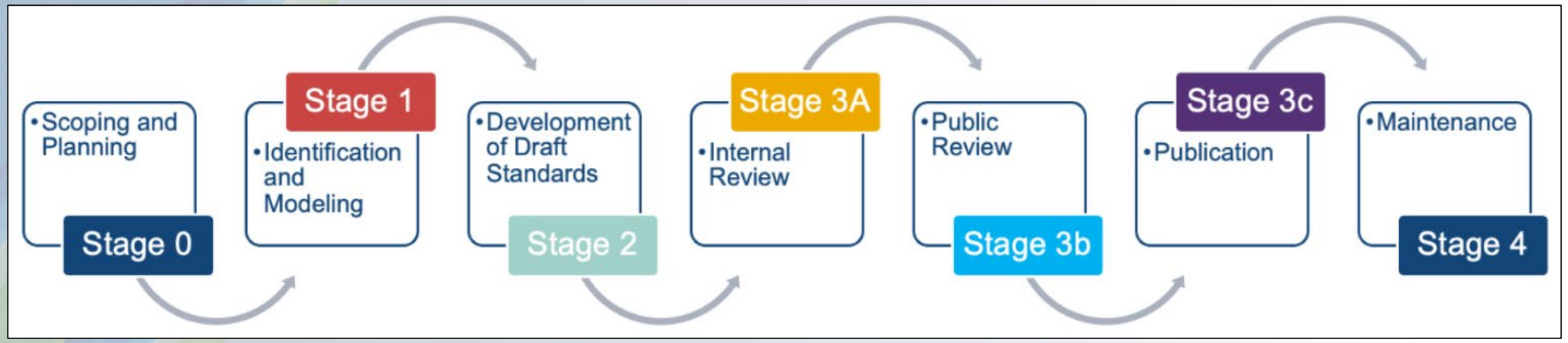
CDISC Paediatric User Guide
PUG

Development of the Paediatric User Guide (PUG)

Data items had to be cross-cutting and frequently used in clinical trials

A group of expert volunteers from c4c and CDISC was established

Weekly calls were held for 26 Months!



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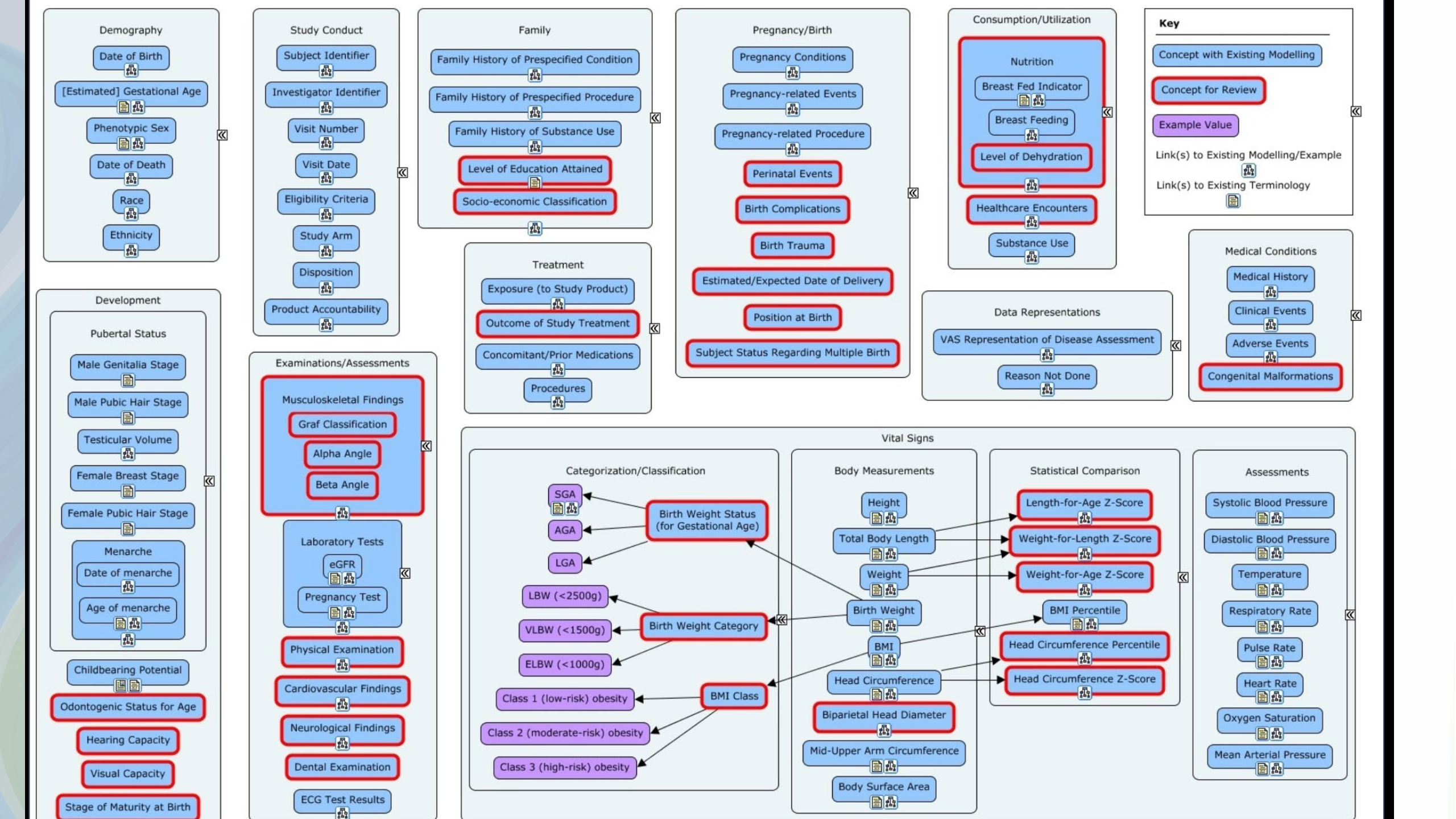
Demography
Date of Birth
[Estimated] Gestational Age
Phenotypic Sex
Date of Death
Race
Ethnicity
Study Conduct
Subject Identifier
Investigator Identifier
Visit Number
Visit Date
Eligibility Criteria
Study Arm
Disposition
Product Accountability
Family
Family History of Prespecified Condition
Family History of Prespecified Procedure
Family History of Substance Use
Level of Education Attained
Socio-economic Classification
Pregnancy/Birth
Pregnancy Conditions
Pregnancy-related Events
Pregnancy-related Procedure
Perinatal Events
Birth Complications
Birth Trauma
Estimated/Expected Date of Delivery
Position at Birth
Subject Status Regarding Multiple Birth
Consumption/Utilization
Nutrition
Breast Fed Indicator
Breast Feeding
Level of Dehydration
Healthcare Encounters
Substance Use
Key
Concept with Existing Modelling
Concept for Review
Example Value
Link(s) to Existing Modelling/Example
Link(s) to Existing Terminology
Treatment
Exposure (to Study Product)
Outcome of Study Treatment
Concomitant/Prior Medications
Procedures
Data Representations
VAS Representation of Disease Assessment
Reason Not Done
Medical Conditions
Medical History
Clinical Events
Adverse Events
Congenital Malformations
Development
Pubertal Status
Male Genitalia Stage
Male Pubic Hair Stage
Testicular Volume
Female Breast Stage
Female Pubic Hair Stage
Menarche
Date of menarche
Age of menarche
Childbearing Potential
Odontogenic Status for Age
Hearing Capacity
Visual Capacity
Stage of Maturity at Birth
Examinations/Assessments
Musculoskeletal Findings
Graf Classification
Alpha Angle
Beta Angle
Laboratory Tests
eGFR
Pregnancy Test
Physical Examination
Cardiovascular Findings
Neurological Findings
Dental Examination
ECG Test Results
Vital Signs
Categorization/Classification
SGA
AGA
LGA
Birth Weight Status (for Gestational Age)
LBW (<2500g)
VLBW (<1500g)
ELBW (<1000g)
Birth Weight Category
Class 1 (low-risk) obesity
Class 2 (moderate-risk) obesity
Class 3 (high-risk) obesity
BMI Class
Body Measurements
Height
Total Body Length
Weight
Birth Weight
BMI
Head Circumference
Biparietal Head Diameter
Mid-Upper Arm Circumference
Body Surface Area
Statistical Comparison
Length-for-Age Z-Score
Weight-for-Length Z-Score
Weight-for-Age Z-Score
BMI Percentile
Head Circumference Percentile
Head Circumference Z-Score
Assessments
Systolic Blood Pressure
Diastolic Blood Pressure
Temperature
Respiratory Rate
Pulse Rate
Heart Rate
Oxygen Saturation
Mean Arterial Pressure

Data Standards User Guide for Pediatrics

Version 1.0 (Final)

Prepared by the
Pediatrics Standards Development Team

Notes to Readers

- This is the final Version 1.0 of the Data Standards User Guide for Pediatrics.
- This document is based on CDASH Model v1.2, CDASHIG v2.2, SDTM v2.0, and the SDTM Implementation Guides (SDTMIG v3.4, SDTMIG-AP v1.0, SDTMIG-MD v1.1).

See Appendix E for representations and warranties, limitations of liability, and disclaimers.

This project has received funding from the Innovative Medicines Initiative 2 Joint Undertaking under grant agreement No 777389. The Joint Undertaking receives support from the European Union's Horizon 2020 research and innovation programme and EFPIA.

The publication reflects input from its contributors and neither the IMI nor the European Union, EFPIA, or any Associated Partners are responsible for any use that may be made of the information contained therein.

CDISC would like to recognize the support of the subject matter experts from the consortium in development of this user guide.

Ensuring Sustainability of the PUG? The CDISC User Network

- CDISC User Groups are free to set their own goals and agendas.
- The networks are comprised of CDISC users who provide mutual support to help users implement and utilize CDISC standards.
- Limited support from CDISC to recognized user networks to foster awareness and adaptation of CDISC standards.

CDISC Pediatric User Network (CPUN)

- Bring **global** data and clinical experts together to discuss implementation experiences and learning regarding **paediatric data.**
- Identify missing paediatric data items from the CDISC standards and channel these back into CDISC.
- Support the development of more TAUGs in paediatric disease areas- including funding brokerage.
- Manage c4c / c4c-s involvement in the **development of new standards**.

- Support development of a **training module** on the implementation of the Data Standards User Guide for Pediatrics.

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Join the CPUN

Pediatric User Network

Created by Matthew Warren, last modified by John Owen on Sep 17, 2024

Welcome!

Welcome to the CDISC Pediatric User Network (CPUN).

- The mission of the CPUN is to develop a global volunteer-led pediatric user network composed of stakeholders actively meeting to discuss CDISC Standards and foster awareness of CDISC standards in the pediatric community.
- The CPUN will share experiences of implementing CDISC standards and collaborate to identify missing paediatric data items from the CDISC standards and channel these back into CDISC.
- The CPUN will be a cross functional membership group, providing a broad representation of roles across the pediatric research community with an interest in clinical data standards.
- CPUN members are welcome from all areas of research e.g., academia & industry and a range of roles e.g., Clinicians & Pediatricians, Clinical Data Managers, Biostatisticians, Clinical Data Standards Experts, CDISC experts (CDASH, SDTM, ADaM) in order to support this community in the adoption and implementation of CDISC standards.

› Pediatric User Network Charter

› Pediatric User Network Meetings

› Pediatric User Network Leadership Meetings

To sign-up to the Network please submit your name and email below

Full Name:

Email:

Submit

- The network email is pedun@lists.cdisc.org
- **You must be a member of the list to send to it.**
- To unsubscribe, click the link in the footer of the email received from the list.

click above for info

The next CPUN meeting will take place:

Date: Wednesday 18 Sep 2024

Time: 5:00-6:00 pm CET | 4:00-5:00 pm UK | 11:00am-12:00pm EDT

Use the sign-up box below to be added to the invite

Calendar of CPUN events

Today ‹ › **September 2024**

Mon	Tue	Wed	Thu
26	27	28	29
2	3	4	5

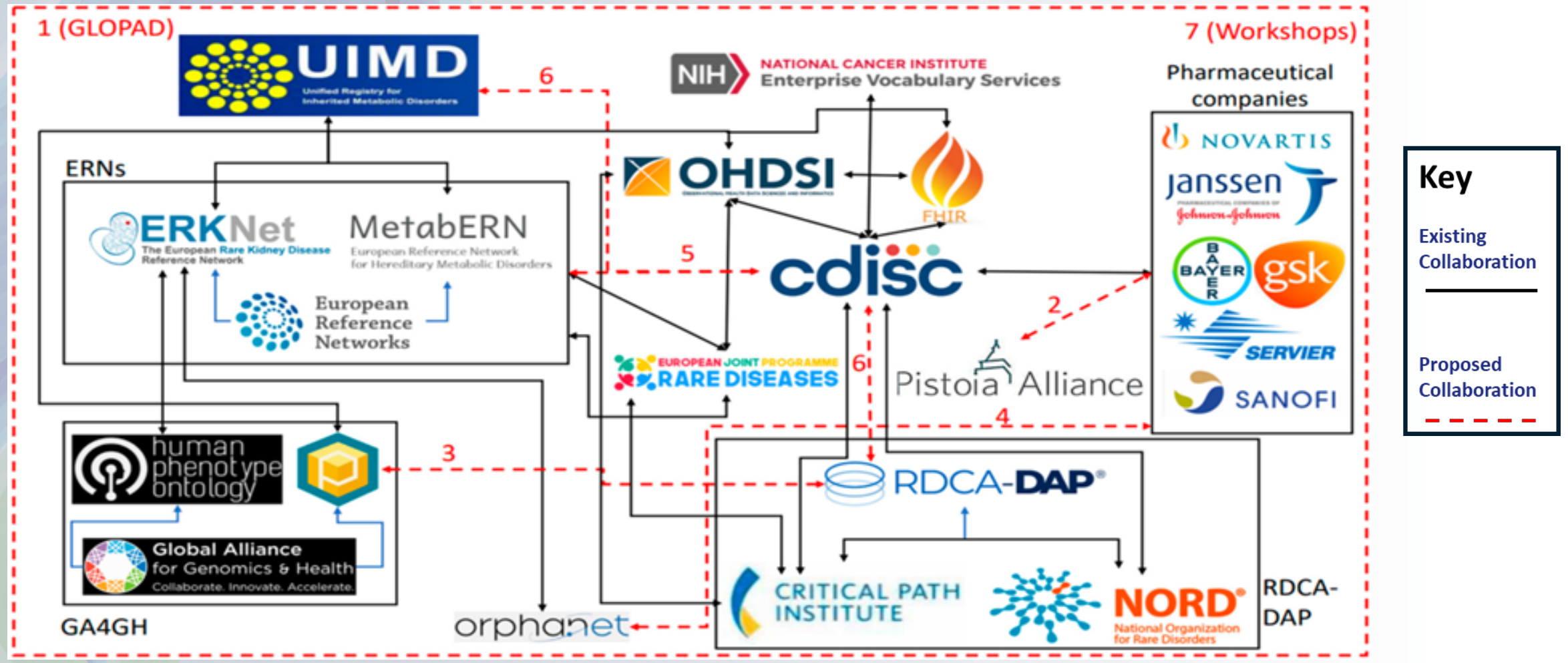
https://wiki.cdisc.org/display/PEDUN

Disease Specific Data

Disease-specific data standardisation

- CDISC user guides development not possible due to vastness of disease-specific data items
- Focus on fostering collaborations between existing resources
- Formation of the Global Paediatric Data Forum (GLOPAD) to understand and foster collaborations

Collaboration Network



Key

Existing Collaboration

Proposed Collaboration

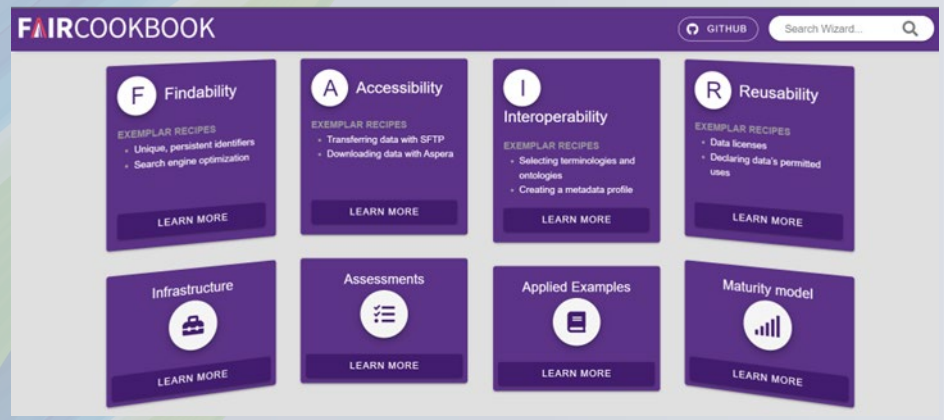
Global paediatric data forum (GLOPAD)

- Avoid duplication in the field
- Identify collaborative opportunities
- Ensure c4c can address the paediatric-specific aspects of data harmonisation, by partnering with others.
- Ensure relevant initiatives and projects meet the needs of the paediatric / RD population
- Ensure that the paediatric clinical research community is both using and shaping the best possible tools and resources.
- Create and maintain a log of each initiative, vision and opportunities
- Consider scaling capabilities for a 'Rosetta stone' type of solution
- Raise awareness of data interoperability and the FAIR principles
- Lobbying?
- Long term: Service brokerage.

Apply the FAIR principles

Increase the FAIR-ness of paediatric metadata

FAIRplus



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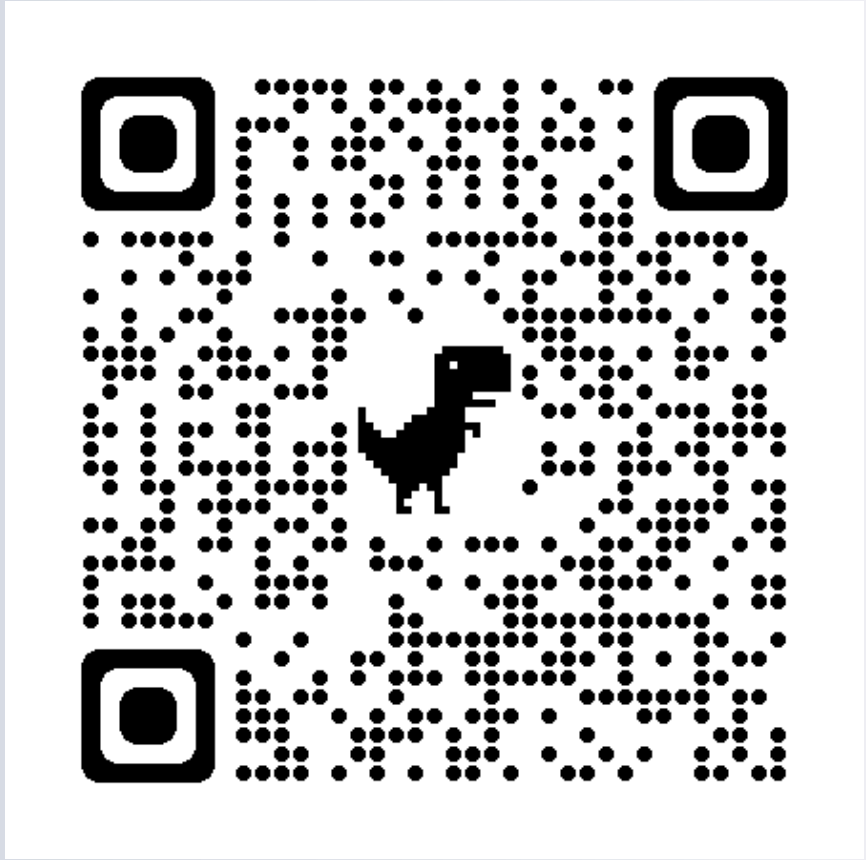
Lessons Learnt

- Data field is large, rapidly evolving and growing collaboration rather than duplication is key
- Paediatric data has specificities that are often forgotten
- Academic networks need support to understand and implement standards
- The culture change around sharing data is slowly coming

Read Our Papers here



Additional Slides