Real-World Data Quality – Experience by Industry

Kelly H. Zou, PhD, PStat®, FASA

Industry Representative

Head, Global Medical Analytics and Real World Evidence, Viatris

Multi-stakeholder workshop on Real World Data (RWD) quality and experience in use of Real World Evidence (RWE) for regulatory decision-making

European Medicines Agency and Heads of Medicines Agencies

Hybrid meeting / EMA, Amsterdam

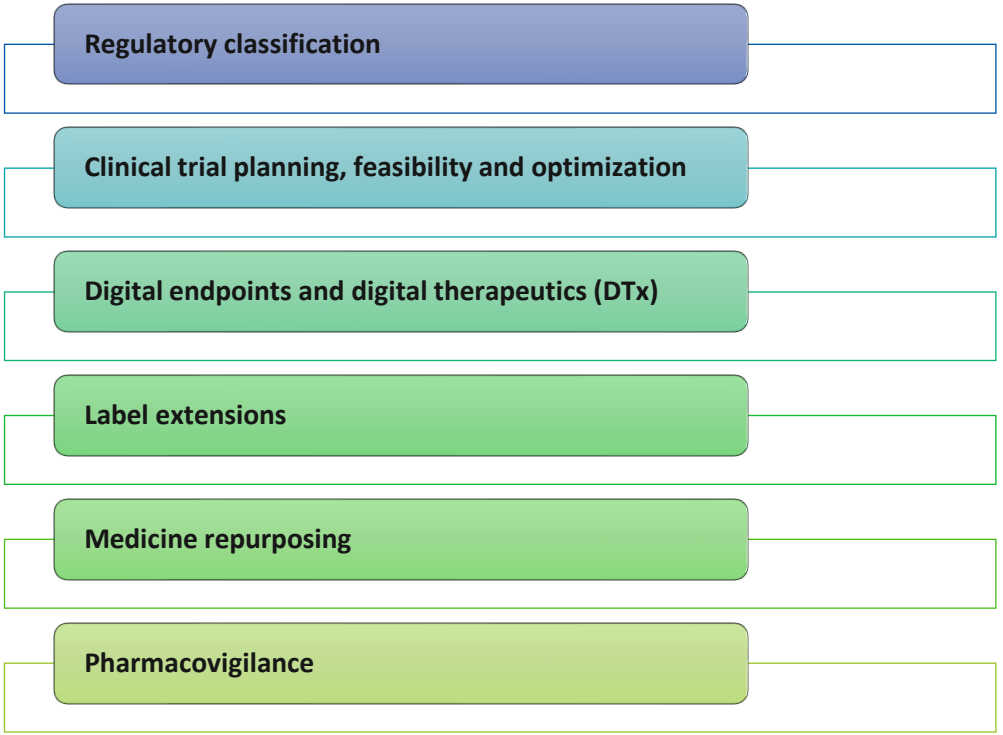
26-27 June 2023

Outline

1. Regulatory Uses of RWE
2. Data Quality (DQ) for Regulatory Decisions
3. DQ Evaluation Processes
4. Summary and Recommendations
5. Key References

1. Regulatory Uses of RWE

- RWD can be used throughout the lifecycle for a variety of use cases, including orphan designations, clinical trial planning or pharmacovigilance
- Within marketing approval decisions, RWE can be particularly relevant for label extensions, as well as for repurposed medicines



https://www.ema.europa.eu/en/documents/presentation/presentation-session-2-stakeholder-perspective-use-cases-pharmaceutical-industry-medicines-europe-k_en.pdf

2. Data Quality (DQ) for Regulatory Decisions

- **Regulatory decisions based on the DQ framework (DQF) are geared towards the assessments of RWD for this purpose**
- **High quality data would enable data access, quality control, and common data models, along with use cases and user interface**
- **Assess the evidence adequately on products to better understand data used and analyses conducted, leading to the accurate and reliable results and conclusions**
- **Develop the algorithms for disease burden, medicinal product uses, medication adherence, healthcare resource utilization, and artificial intelligence (AI)**

https://www.ema.europa.eu/en/documents/presentation/presentation-session-2-stakeholder-perspective-use-cases-pharmaceutical-industry-medicines-europe-k_en.pdf

3. DQ Evaluation Processes

Dimensions of EMA's Draft DQF

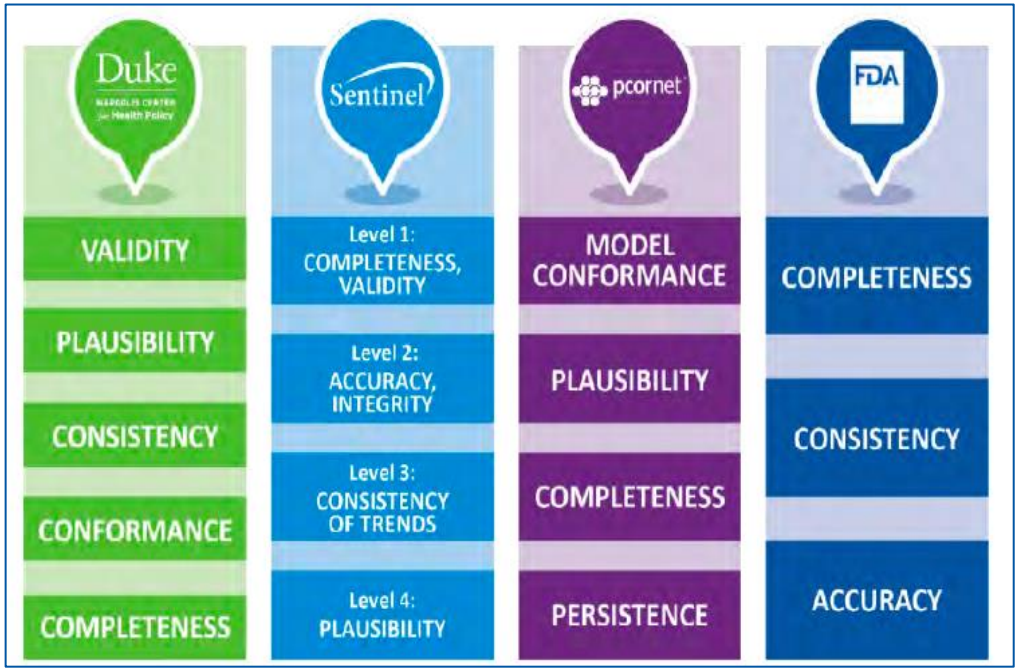
Section	DQ Dimensions and Metrics	Sub-Dimensions
6.1	Reliability	• Precision • Accuracy • Plausibility
6.2	Extensiveness	• Comprehensiveness • Coverage
6.3	Coherence	• Format Coherence • Structural Coherence • Semantic Coherence • Uniqueness • Conformance
6.4	Timeliness	• Currency
6.5	Relevance	• Relevance for a domain

https://www.ema.europa.eu/en/documents/regulatory-procedural-guideline/data-quality-framework-eu-medicines-regulation_en.pdf

3. DQ Evaluation Processes (Continued)

Dimensions of existing DQFs

- Much of the research has focused on data integrity through the use of quality checks for:
  - ✓ Completeness (missingness)
  - ✓ Plausibility
  - ✓ Conformance to Data Model
- Significant variability in definitions and terminologies
  - ✓ Efforts at harmonization
- Less attention on larger context of what makes RWD suitable for supporting creation of RWE for regulatory
- No discussion of how experience with using RWD sources can inform judgements about whether a source is fit-for-purpose



https://healthpolicy.duke.edu/sites/default/files/2019-11/rwd_reliability.pdf

3. DQ Evaluation Processes (Continued)

Types

- EHRs
- Claims
- EHRs-Claims Linked
- Registry
- Survey
- Biobank
- Other

Periods

- Database Dates
- Index Date or Period
- Pre-Index Period
- Post-Index Period

Purposes/Criteria

- Primary
- Secondary
- Exploratory
- Inclusion Criteria
- Exclusion Criteria

Feasibility

- Patient count with diagnoses
- Patient count under therapy/therapies
- Prevalence/incidence
- Types of healthcare providers
- Data generation details
- Missing data mechanism
- GDPR protection
- Past uses of data holders' examples

Identify Fit-for-Purpose High-Quality Data for Regulatory Decision-Making

3. DQ Evaluation Processes (Continued) – Tools and Approaches

Several data quality assessment tools exist, but their utility for different data sources and alignment with the EMA DQF needs to be explored/discussed further by industry and stakeholders. A non-exhaustive list includes:

- **Observational Health Data Sciences and Informatics (ODHSI) tools e.g., ACHILLES and DQ Dashboard [DQD], used by DARWIN**
- **REQueST (Registry Evaluation and Quality Standard Tool)**
- ***SPIFD – Structured Process to Identify Fit-for-Purpose Data**
- **ATRAcTR (Authentic Transparent Relevant Accurate Track-Record) (Submitted for peer review)**
- **TransCelerateRWD Audit Readiness Considerations Document (*Under development)***

*Gatto NM, Campbell UB, Rubinstein E, Jaksa A, Mattox P, Mo J, Reynolds RF.
The Structured Process to Identify Fit-For-Purpose Data: A Data Feasibility Assessment Framework.
Clin Pharmacol Ther. 2022 Jan;111(1):122-134.

4. Summary and Recommendations

- DQ assessments can be highly complex and time-consuming due to multiple dimensions and sub-dimensions, therefore we would encourage clear definitions and striving for alignment in terminology between regulatory authorities
- EMA's DQF can be theoretical for hands-on applications; thus, an inventory of DQ screening tools and experiences implementing them are useful to identify both use cases and gaps
- Any DQ screening tools should be fit-for-purpose for use with EMA's DQF
- Need to validate algorithms for assessing DQ across a variety of datasets as part of the DQF
- Efficient processes and best practices rely on sponsors' and data holders' willingness to participate across the data generation ecosystem
- The interoperability across various siloed data sources (EHRs-claims; registries-claims; RCTs-RWD, etc.) for regulatory purposes poses complexities in DQ assessments based on cross-sectional and longitudinal RWD
- EMA/HMA and international regulatory agencies' steps for validating data generation mechanisms, e.g., system certifications, data catalogues, DQFs, etc., can help educate and elevate industry's capabilities in DQ for regulatory purposes

5. Key References

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Thank You

for Your Attention!