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EMA Real-World Data Quality Framework: Fitness for Use

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In this article

1. Executive Summary
 2. Introduction and Background
 3. Key Changes
 4. From Research Question to Data Requirements
 5. Foundational Governance and Source Characterization
 6. Intrinsic Quality and Question-Specific Fitness
 7. Implementation Considerations and Process Changes
 8. Data Analysis and Evidence
 9. Case Studies and Real-World Examples
 10. Implications and Future Directions
 11. Frequently Asked Questions (FAQs)
 12. Conclusion
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Executive Summary

The **EMA real-world data quality framework** is a contextual method for deciding whether a particular dataset can support a particular regulatory research question. The European Medicines Agency (EMA) published its final real-world data chapter on **27 March 2026**, under reference **EMA/503781/2024**. (www.ema.europa.eu) Its central distinction is between **foundational**, **intrinsic**, and **question-specific determinants**. (www.ema.europa.eu) It does not establish a universal quality certificate, numerical pass mark, or preferred metric. Its acceptance criteria must be interpreted in the context of the intended question. (www.ema.europa.eu)

For sponsors, epidemiologists, health economics and outcomes research (HEOR) teams, and data-product owners, the practical consequence is to demand a reproducible evidence pack rather than a provider's aggregate quality score. Research-question dependence also appears in the National Institute for Health and Care Excellence (NICE) framework, which sets no minimum completeness or accuracy thresholds. (www.nice.org.uk) The National Patient-Centered Clinical Research Network (PCORnet) separates general data curation from study-specific assessment. (pcornet.org) Health Data Research UK (HDR UK) similarly emphasizes suitability for specific purposes. (www.hdruk.ac.uk) These complementary approaches support a procurement sequence: specify the question, screen metadata, investigate the relevant study subset, resolve consequential issues, and record a justified decision.

The proposed evidence pack combines source characterization, variable definitions, executable checks, lineage, an issue register, and an approval record. Patient-Centered Outcomes Research Institute (PCORI) standards address transformations, harmonization, linkage, and quality assessment, while requiring ongoing monitoring. (www.pcori.org) (www.pcori.org) Provenance standards provide a vocabulary for the entities, activities, and people that produced data. (www.w3.org) Automated checks can help: Observational Health Data Sciences and Informatics (OHDSI) documents **over 20 parameterized check types** generating thousands of individual checks. (ohdsi.github.io) Automation does not establish that a clinically important endpoint is captured adequately.

Evidence from actual research infrastructure makes the scale and limitations concrete. The Data Analysis and Real World Interrogation Network (DARWIN EU) (www.ema.europa.eu) reports **40 data partners**, with quality and technical checks during onboarding. (www.darwin-eu.org) The European Health Data and Evidence Network (EHDEN) reports **187 partners in 29 countries**. (www.ehden.eu) Those network counts describe infrastructure, not approval of every dataset for every study. The European Health Data Space (EHDS) is also phased: most secondary-use categories are scheduled for **March 2029**, (health.ec.europa.eu) with remaining categories including genomic data in **March 2031**. (health.ec.europa.eu) A defensible decision today therefore remains specific to the source, version, study population, critical variables, access conditions, and intended analysis.

Introduction and Background

Real-world data (RWD) become real-world evidence (RWE) through analysis directed at a clinical or regulatory question. Selecting the underlying data and evaluating the design are related tasks, but they require separate reasoning. The International Council for Harmonisation of Technical Requirements for Pharmaceuticals for Human Use (ICH) M14 guideline explicitly distinguishes research design and methodology from the relevance and reliability of the underlying data. (database.ich.org)

The final EMA chapter is a **50-page** application of the broader medicines-regulation data quality framework. (www.ema.europa.eu) The Committee for Medicinal Products for Human Use (CHMP) adopted it on **16 March 2026**, and the document is dated **27 March 2026**. (www.ema.europa.eu) Its consultation report records **25 unique respondents** and more than **600 comments and suggestions**, illustrating the breadth of stakeholder input rather than proving any dataset's quality. (www.ema.europa.eu) This report examines the final chapter as available on **13 October 2026**; older draft summaries should be checked against that final document.

The intended operational audience includes those who create, manage, procure, transform, and assess electronic health records (EHRs), claims, registries, and linked data. The European Network of Centres for Pharmacoepidemiology and Pharmacovigilance (ENCePP) treats quality management as a risk-based activity. (encepp.europa.eu) The United States Food and Drug Administration (FDA) likewise describes assessment as an ongoing lifecycle process. (www.fda.gov) These principles support an assessment that continues beyond purchase and initial delivery.

IntuitionLabs' adjacent implementation perspective reflects its described work on data pipelines, integration, warehousing, and business intelligence. (intuitionlabs.ai) Here that perspective informs the proposed evidence workflow. The framework remains EMA's guidance; the procurement artifacts and decision gates below are this report's implementation recommendations. They should be adapted to the protocol and data-access model. A distributed network may return answers while retaining data locally, as PCORnet describes, so adequate evidence need not require transferring every patient-level record to the sponsor. (pcornet.org)

Key Changes

Make the determinant hierarchy operational

EMA organizes data quality around **foundational**, **intrinsic**, and **question-specific** determinants. Foundational determinants describe the systems and processes behind the source. Intrinsic determinants describe observable dataset properties. Question-specific determinants assess suitability for the intended use. (www.ema.europa.eu) The resulting workflow should maintain distinct evidence for how data were produced, what the delivered data contain, and whether those properties meet the research requirements.

This distinction avoids treating a technically coherent extract as automatically clinically adequate. Kahn and colleagues' harmonized framework groups checks into **conformance**, **completeness**, and **plausibility**. (pubmed.ncbi.nlm.nih.gov) OHDSI further distinguishes internal verification from validation against external benchmarks. (ohdsi.github.io) A record can conform to a schema and still need validation of its clinical meaning. Conversely, a useful clinical source can require substantial mapping before it is technically usable.

EMA's **relevance** dimension should retain its narrower meaning: whether the right kinds of information are present. Question-specific fitness extends across the quality dimensions rather than moving every quality problem into relevance. (www.ema.europa.eu) In practice, document relevance, missingness, measurement accuracy, and temporal suitability separately. This preserves the reason a source meets, partly meets, or fails the question.

Replace universal scores with justified conditions

The final chapter provides neither fixed quality thresholds nor universal acceptance criteria. (www.ema.europa.eu) NICE independently makes the same point for minimum completeness and accuracy. (www.nice.org.uk) This convergence supports explicit local decision rules, not the claim that any threshold is acceptable merely because a project team selected it.

The assessor should explain the clinical and analytical consequence of each requirement. ENCePP's study-specific quality principle provides the appropriate context. (encepp.europa.eu) A missing optional descriptive field and a missing variable needed to identify the endpoint should therefore receive different attention. The UK government's data quality guidance similarly prioritizes fields according to intended use. (www.gov.uk) The proposed criticality categories below turn that principle into a reviewable decision.

Treat maturity and documentation as evidence

EMA's maturity levels, **Documented**, **Formalised**, and **Implemented and automated**, guide information provision rather than classify datasets. (www.ema.europa.eu) A mature process is valuable evidence about repeatability; it does not substitute for measurements on the actual study data.

Documentation also needs to survive transformations and refreshes. PCORI calls for documenting changes in transformation and management. (www.pcori.org) The World Wide Web Consortium (W3C) PROV framework supports provenance exchange. (www.w3.org) Health Level Seven International (HL7) Fast Healthcare Interoperability Resources (FHIR) Provenance records activities associated with resource versions. (hl7.org) These standards offer useful implementation vocabulary, without making either standard a universal EMA requirement.

From Research Question to Data Requirements

Start with a written **research question and intended estimand**, meaning the treatment effect or other quantity the study seeks to estimate. Translate that question into the population, exposure, comparator, endpoint, confounders, follow-up, and relevant calendar period. EMA's method begins with minimum data requirements, followed by high-level relevance screening and detailed fitness-for-use assessment.

(www.ema.europa.eu) PCORnet's separate general and study-specific stages provide a useful operational analogue. (pcornet.org)

Metadata screening should eliminate clearly unsuitable options before detailed extraction. HDR UK's work emphasizes advance assessment of suitability. (www.hdr.uk.ac.uk) EHDEn offers a catalogue and feasibility dashboards for mapped partners. (www.ehden.eu) Such discovery tools support a shortlist; they cannot demonstrate the performance of a phenotype or the completeness of a specific treatment subgroup.

Use a requirements specification containing:

- **Population:** eligibility logic, geography, care setting, disease definition, and the observation needed to establish baseline status.
- **Exposure:** prescription, dispensing, administration, or another justified measure, with dates and provenance.
- **Comparator:** the treatment or strategy, ascertainment pathway, and evidence needed to distinguish genuine absence from unrecorded care.
- **Endpoint:** operational definition, capture setting, event timing, adjudication or validation evidence, and possible linkage.
- **Confounders:** clinically necessary baseline characteristics, measurement windows, and missingness mechanisms.
- **Observation:** eligibility for follow-up, censoring information, refresh date, and source coverage.

These categories follow the EMA worksheet structure. (www.ema.europa.eu) Pre-specify criticality in the protocol where possible. (www.ema.europa.eu) **Critical** means the intended inference depends on the element and no justified alternative exists. **Important** means an issue could materially affect interpretation but an evaluated mitigation may exist. **Supportive** means the element adds context without determining the principal inference. These are proposed working categories, not EMA-assigned grades.

Table 1 translates the study-specific worksheet into an evidence-request matrix. Its example checks are recommendations; the reference structure is EMA's detailed assessment template. (www.ema.europa.eu)

Design element	Required data and question	Proposed criticality	Check and evidence to request
Population	Can eligibility and baseline disease status be reconstructed?	Critical when needed to define the target cohort	Versioned phenotype, counts before and after exclusions, clinical validation evidence. PCORI addresses validated definitions. (www.pcori.org)
Exposure	What event does the medication record represent?	Critical when exposure defines treatment groups	Source-field meaning, mapping, dates, and transformation history. FDA addresses traceability. (www.fda.gov)

Design element	Required data and question	Proposed criticality	Check and evidence to request
Comparator	Is its ascertainment comparable to that of the intervention?	Critical for the specified comparison	Group-specific missingness and measurement evidence. NICE recommends between-group assessment. (www.nice.org.uk)
Endpoint	Can the outcome and its date be measured in the required setting?	Critical for the primary endpoint	Validation against suitable reference information, not schema checks alone. (pubmed.ncbi.nlm.nih.gov)
Confounders and follow-up	Are baseline covariates and observation periods adequate?	Protocol-defined	Missingness reasons, coverage continuity, and sensitivity-analysis requirements. (www.pcori.org) (www.fda.gov)

The matrix prevents counts from becoming a proxy for fitness. Plenty of eligible records cannot repair an endpoint that is unavailable in the relevant care setting. DARWIN EU's onboarding checks are expressly about readiness, which supports keeping infrastructure qualification distinct from the question-specific decision. (www.darwin-eu.org) ICH's E23 concept paper also identifies a core metadata list as important to characterization; it should be read as a concept paper, not proof of a completed final guideline. (database.ich.org) (database.ich.org)

Foundational Governance and Source Characterization

Characterize collection, coding, source selection, transformation, linkage, and refresh processes. PCORI expressly addresses transformations, harmonization, and linkages. (www.pcori.org) NICE calls for reporting the common data model, its version, and mapping information. (www.nice.org.uk) Connect provider answers to supporting records.

Table 2 covers the **12 system and process characterization areas** in EMA's Table 3. The short labels below normalize the official topics for procurement; the requested artifacts are this report's operational translation. (www.ema.europa.eu)

Area	Procurement question	Reviewable evidence
I. Creation rationale and scope	Why was this source created, and what activity does it represent?	Purpose statement, source publications, original inclusion rationale.
II. Source representation	What are the raw structure, model, terminology, and data granularity?	Versioned dictionary, schema, vocabulary releases, model description.
III. Collection or recording	Who records information, where, and under which workflow?	Collection procedures, mandatory and optional fields, coverage plans.
IV. Selection and onboarding	How are contributing sources selected and qualified?	Inclusion rules, onboarding checks, source assessment and version records.
V. Management infrastructure	What systems preserve, process, and recover the data?	System inventory, testing evidence, backup and recovery controls.

Area	Procurement question	Reviewable evidence
VI. Management and governance	Who owns quality decisions and how are controls maintained?	Roles, procedures, monitoring, metadata practices, escalation responsibilities.
VII. Manipulation	What cleaning, mapping, transformation, or derivation occurred?	Executable logic, tests, transformation history, precision-loss assessment.
VIII. Augmentation	What linkage, imputation, or enrichment was added?	Methods, assumptions, performance evidence, algorithm versions, value provenance.
IX. Known issues and independent assessment	What is already known, and what separate assessment exists?	Issue inventory, causes, validation publications, independent assessment evidence.
X. Service-level agreements	Which update, response, support, and documentation commitments apply?	Contracted refresh arrangements, response commitments, support procedures.
XI. Licensing and restrictions	Which permissions and access or retention limits constrain use?	License, permitted uses, access controls, retention and accessibility provisions.
XII. Feedback	How are questions and detected issues communicated and followed up?	Quality contact, tracked tickets, notifications, closure and follow-up records.

Build a connected evidence index: dictionary, mapping code, and results should identify the same model version. W3C provenance concepts can express those relationships. (www.w3.org) FHIR's version-aware references likewise illustrate why an unspecified resource identifier can be insufficient when versions matter. (hl7.org)

Independent assessment deserves precise treatment. EMA describes a separate assessment from another entity as additional quality evidence; it explicitly does not request an audit through that term. (www.ema.europa.eu) Record assessor, scope, version, and applicability separately from contractual audit rights.

The following artifact requirements make provider responses actionable:

- **Source inventory:** identify every contributing source and the applicable delivery or snapshot.
- **Data dictionary:** distinguish raw, mapped, derived, linked, and imputed values.
- **Lineage graph:** connect input versions, transformations, responsible actors, and outputs.
- **Quality report:** include executable check identifiers, denominators, stratification, and results.
- **Issue register:** connect findings to variables, owners, mitigations, and dispositions.
- **Access record:** establish permitted use and the route to supporting information.

These proposed controls accommodate source-owner control in federated research, as the Innovative Health Initiative (IHI) describes for EHDEN. (www.ih.europa.eu) EHDEN's common-model approach also shows that harmonization can occur within a federated network. (www.ehden.eu) Specify evidence-access arrangements under the source architecture.

Intrinsic Quality and Question-Specific Fitness

Map dimensions to measurable checks

EMA's intrinsic metric structure covers **reliability**, **extensiveness**, **coherence**, and **timeliness**. Reliability includes accuracy, precision, and traceability; extensiveness includes completeness and coverage; coherence includes format, relational and semantic conformance, and uniqueness; the timeliness table addresses currency. (www.ema.europa.eu) These dimensions are a vocabulary for organizing evidence, not interchangeable scores.

Operational checks should specify their unit and denominator. OHDSI checks may operate at table, field, or concept level. (ohdsi.github.io) Its results viewer supports inspecting failing rows. (ohdsi.github.io) A project therefore needs more than a percentage: it needs enough information to reproduce the result and understand the affected records.

Define each metric with:

- **Target:** source, study subset, variable, and release being measured.
- **Rule:** the exact predicate or reference comparison, with code version.
- **Numerator:** records, people, events, or values meeting or failing that rule.
- **Denominator:** the eligible unit set, including exclusions and non-applicability.
- **Strata:** treatment group, site, time period, or clinically relevant subgroup.
- **Interpretation:** what the finding means for the research question.
- **Owner:** who resolves the finding and who approves its disposition.

The UK government's framework recommends automating defined checks and documenting successive assessment results. (www.gov.uk) (www.gov.uk) PCORI's monitoring standard extends this discipline across the study. (www.pcori.org) Keep the specification stable enough to detect drift, while recording justified changes.

Separate missingness, coverage, and truth

NICE defines completeness as the percentage of records without missing data at a specified time point. (www.nice.org.uk) It recommends calculation before exclusions or imputation. (www.nice.org.uk) Report original completeness alongside any later augmented measure. A populated imputed value is useful for some analyses, but it does not establish that the original observation existed.

Coverage asks a different question: which relevant people, settings, events, or periods are represented? HDR UK identifies pathway coverage and documentation as important user priorities. (www.hdruk.ac.uk) FDA's characterization recommendations include continuity of coverage and data years. (www.fda.gov) Specify whether the dataset can observe the full clinical pathway necessary for the intended endpoint.

Absence also requires interpretation. EMA notes that absence of a record may mean either absence of the event or failure to record it. (www.ema.europa.eu) Compare this with clinical validation against a suitable reference standard, as distinguished by Kahn and colleagues. (pubmed.ncbi.nlm.nih.gov) The data dictionary should state the meaning of nulls, explicit negatives, suppressed values, and unobserved care.

Assess the final study subset

Global quality can conceal a poor-performing treatment group or study period. NICE recommends checking differences in missingness or inaccuracy between intervention groups. (www.nice.org.uk) FDA includes completeness trends over time. (www.fda.gov) OHDSI's study-specific guidance also calls for critical evaluation of mappings in the actual study context. (ohdsi.github.io)

Apply checks after cohort construction and material transformations. PCORnet's study-specific curation stage addresses that purpose. (pcornet.org) The final EMA assessment likewise concerns the actual study subset or data cut, whose quality can differ from the broader source. (www.ema.europa.eu) Freeze the version being accepted, and specify which changes trigger reassessment.

Implementation Considerations and Process Changes

Build the evidence pack around reproducibility

An **EMA real-world data quality evidence pack** should reconstruct the selection decision. EMA expects submission characterization to cover the lineage, including source-level and user-processing information. (www.ema.europa.eu) FDA also recommends specifying traceability, curation, and transformations in the protocol and analysis plan. (www.fda.gov)

Include:

- **Question specification:** intended use, population, period, design, and critical variables.
- **Source characterization:** responses, supporting documents, and non-applicability explanations.
- **Variable specification:** definitions, mappings, windows, and validation.
- **Metric catalogue:** rules, denominators, references, and strata.
- **Result bundle:** snapshots, cohort flow, queries, and outputs.
- **Issue log:** impact, owners, deadlines, evidence, and uncertainty.
- **Decision memorandum:** disposition, rationale, conditions, and sign-off.
- **Change plan:** monitoring, reassessment, and communication triggers.

PCORI calls for change documentation. (www.pcori.org) W3C PROV supports representing and exchanging provenance, while FHIR distinguishes resource provenance from event-audit information. (www.w3.org) (hl7.org) Preserve both derivation and access history.

Connect protocol transparency. The International Society for Pharmacoeconomics and Outcomes Research (ISPOR) emphasizes prespecified analytic protocols and reporting deviations. (www.ispor.org) (www.ispor.org) Preregistration supports that record. (www.ispor.org) Retain source-quality evidence alongside registration.

Use explicit issue dispositions

Table 3 proposes project severity categories. Published PCORnet practice separates required from investigative checks. (www.cambridge.org)

Issue and proposed severity	Evidence to retain	Owner and disposition
Critical endpoint capture cannot be established	Validation scope, observed gaps, affected population, absence of a justified alternative	Clinical and epidemiology leads decide whether to reject for this question.
Important baseline field is incomplete	Pre-imputation results, subgroup patterns, missingness reasons, mitigation evaluation	Data provider and analyst resolve, or document conditional acceptance with limits.
Transformation yields a schema or relational exception	Failing rows, code version, source-to-target mapping, corrected rerun	Engineering owner corrects and demonstrates closure before release.
Refresh changes counts or observation coverage	Previous and current snapshots, persistence checks, explanation and impact assessment	Source owner explains; study lead determines whether reassessment is required.

Interpret severity by study impact. PCORI documents missingness reasons. (www.pcori.org) OHDSI supports examining failing records, and PCORnet checks persistence between refreshes. (ohdsi.github.io) (pcornet.org) Assign accountable owners.

Preserve original findings after remediation. ENCePP addresses process improvement. (encepp.europa.eu) UK guidance recommends retaining assessment results over time. (www.gov.uk) Link corrected reruns to original findings.

Establish acceptance gates before scoring

Use the following proposed sequence:

- **Screen:** confirm relevance and feasible, permitted access.
- **Assess:** check critical variables in the study subset.
- **Resolve:** evaluate exceptions and mitigations.
- **Decide:** record acceptance, conditions, or rejection.
- **Freeze:** bind approval to version and scope.
- **Monitor:** reassess material changes.

DARWIN EU distinguishes completed onboarding from initial contact, including the agreement with its coordination centre. (www.darwin-eu.org) Distinguish candidate from qualified source. PCORnet separates general from study-specific assessment. (pcornet.org) (pcornet.org)

Conditional acceptance needs an owner, closure evidence, and usage limits; critical limitations require explicit disposition. PCORnet describes design-dependent expectations. (www.cambridge.org) ENCePP emphasizes study context. (encepp.europa.eu)

EMA does not prescribe a standard feasibility-assessment presentation format. (www.ema.europa.eu) Its Q&A asks that uncertainties and potential impacts be identified and discussed with regulators. (www.ema.europa.eu) Explain residual uncertainty for regulatory discussion.

Data Analysis and Evidence

The quantitative evidence describes methods and infrastructure, not a validated universal acceptance score. OHDSI documents **over 20 parameterized check types**, generating thousands of checks when applied to a common data model (CDM). (ohdsi.github.io) A published PCORnet report found **36 checks and 1,487 measures** in **October 2019**, (www.cambridge.org) increasing to **46 checks and 1,551 measures** in **October 2024**. (www.cambridge.org) More checks increase the breadth of measurement; their relevance still depends on the intended study.

That report describes partner DataMart refreshes every **three months** and curation outputs containing missing, non-missing, and distinct counts. (www.cambridge.org) (www.cambridge.org) These are examples of operational practice, not EMA-mandated refresh intervals. The relevant cadence should reflect source behavior and the research timeline.

Network scale is another distinct measure. DARWIN EU reports **40 partners** and checks for readiness during onboarding. (www.darwin-eu.org) (www.darwin-eu.org) EHden reports **187 partners across 29 countries**, with a catalogue and feasibility dashboards. (www.ehden.eu) (www.ehden.eu) Neither number measures endpoint validity, linkage performance, or suitability for a proposed comparator.

HDR UK's framework was tested on **more than 40 datasets**. (www.hdruk.ac.uk) Its purpose-specific assessment and user feedback emphasize suitability, pathway coverage, and documentation. (www.hdruk.ac.uk) (www.hdruk.ac.uk) These observations support careful metadata review; they do not establish representative acceptance probabilities.

Reproducible calculations using the reader's data

The following calculations are proposed worksheet definitions. Each requires an explicit unit, eligibility rule, snapshot, and treatment of missing or inapplicable observations. NICE's pre-imputation completeness recommendation supports preserving the raw measure. (www.nice.org.uk) Published PCORnet practice also distinguishes missing, non-missing, and distinct counts. (www.cambridge.org)

- **Completeness percentage:** non-missing eligible observations divided by all eligible observations, multiplied by one hundred.
- **Coverage proportion:** observed members of a defined target population divided by the independently justified target denominator.
- **Freshness lag:** extract availability date minus the latest source observation date, using consistent time units.
- **Rule-failure proportion:** eligible units failing a specified check divided by units to which the check applies.
- **Linkage performance:** report the selected validation measure, reference set, and uncertainty; a successful-link proportion alone does not measure linkage correctness.

Coverage cannot be calculated against an unspecified target, and lag based on the latest record alone can conceal stale sites. HDR UK's focus on pathway coverage and FDA's time-related characterization recommendations support examining those distinctions. (www.hdruk.ac.uk) (www.fda.gov) NICE additionally

asks for linkage performance characteristics. (www.nice.org.uk) Retain subgroup results alongside the aggregate so the decision can be reproduced.

For an optional **weighted decision worksheet**, let each criterion have a documented weight and a defined assessment score. Calculate the weighted sum divided by the sum of weights. Set weights, scoring rules, and decision boundaries before comparison; retain the individual findings. EMA offers weighted scoring or hierarchical prioritization as possible structured approaches without supplying universal values.

(www.ema.europa.eu) UK guidance supports prioritization by intended use. (www.gov.uk) A composite result should remain secondary to justified critical-element gates.

Case Studies and Real-World Examples

External comparator assessment (Hypothetical Example)

EMA's Table 9 is an **illustrative chronic lymphocytic leukaemia external-comparator assessment** using multi-site EHR data. It is not an observed clinical study or an acceptance benchmark. (www.ema.europa.eu) The example is useful because adequate overall scale coexists with question-specific limitations.

In its population assessment, **6,000 eligible patients** are available against an example target of **5,000**.

(www.ema.europa.eu) For the comparator, **270 patients** are available against a target of **300**.

(www.ema.europa.eu) Explicit negation of treatment is present for only **20%**, while a **three-year lag** exceeds the example's **two-year maximum**. (www.ema.europa.eu) All these numbers are inputs or findings in EMA's illustrative worksheet, not general regulatory thresholds. The population ratio is therefore **120%** of the stated target and comparator availability **90%**, calculated from those illustrative inputs. (www.ema.europa.eu)

The decision cannot follow from the favorable overall population ratio alone. Comparator size, ascertainment of no treatment, and temporal suitability concern different requirements. The example suggests this review sequence:

- **Population review:** retain cohort logic and counts showing how eligibility was established.
- **Comparator review:** assess whether the available group supports the intended precision and comparison.
- **Ascertainment review:** separate explicit negative evidence from absence of a medication record.
- **Time review:** explain the consequence of the available lag for the intended care context.
- **Disposition:** assess whether a revised question, additional source, or justified mitigation is feasible.

These proposed actions should include assessing between-group differences in missingness ([NICE data-suitability guidance](#)) and validating phenotype definitions ([PCORI methodology standards](#)). Continue monitoring provenance ([PCORI monitoring standard](#)) and assessing data quality for the study purpose ([PCORnet data curation](#)).

Keep the **design-and-bias assessment** alongside this quality record. ICH M14 distinguishes methodological considerations from underlying data relevance and reliability. (database.ich.org) The FDA external-control document recommends early protocol finalization; FDA lists it as **draft guidance, not for implementation**. (www.fda.gov) (www.fda.gov) Its audit-trail recommendation is likewise draft guidance. (www.fda.gov) These US materials offer complementary context and should not be represented as final EU requirements.

A study may need different design choices even after acceptable data are identified. ISPOR's protocol and deviation-reporting recommendations support making those choices transparent. (www.ispor.org) (www.ispor.org) The final evidence record should show which problems were data limitations, which were design limitations, and how each affected the decision.

Implications and Future Directions

The framework's enduring value is a common assessment structure that remains usable across different source architectures. EHDEN describes mapping to the Observational Medical Outcomes Partnership (OMOP) common data model within a federated network. (www.ehden.eu) IHI describes data remaining under source-owner control and specialist organizations performing transformations. (www.ih.europa.eu) (www.ih.europa.eu) Harmonization improves the conditions for consistent checks; the selection decision still requires evidence about the particular study.

The **EHDS** should be considered as an access and governance context, with its own implementation timeline. It entered into force on **26 March 2025**. (health.ec.europa.eu) The European Commission describes most secondary-use rules applying from **March 2029**, (health.ec.europa.eu) with remaining categories including genomic data from **March 2031**. (health.ec.europa.eu) It also describes secondary use based on permits from health data access bodies. (health.ec.europa.eu) This is distinct from establishing fitness for an individual medicines-regulation question.

Implementation guidance published at tehdas.eu organizes implementation around discovery, access, preparation, use, and finalisation; its documents are described as non-binding. (tehdas.eu) (tehdas.eu) Those stages reinforce the need to keep permissions, preparation history, and quality evidence connected. A future access mechanism will not eliminate the need to interpret missing outcomes or assess a comparator.

ICH M14 is final, adopted on **4 September 2025**, and principally addresses RWD-based post-marketing safety assessment. (database.ich.org) (database.ich.org) The cited ICH E23 document is a concept paper proposing a new guideline; its metadata emphasis is relevant, but a concept paper is not a final guideline. (database.ich.org) (database.ich.org) Track document status explicitly in regulatory strategy records.

For implementation teams, the opportunity is to make evidence portable and version-aware. IntuitionLabs describes implementation, integration, and support for Veeva commercial and development applications. (intuitionlabs.ai) That adjacent capability is relevant to connecting evidence records and workflows. It does not confer dataset certification. W3C provenance exchange and HL7 version-aware references offer complementary technical patterns for maintaining traceable evidence across systems. (www.w3.org) (hl7.org)

Frequently Asked Questions (FAQs)

Does the framework certify a dataset?

It provides contextual assessment methods rather than a universal numerical certificate. The current EMA Q&A emphasizes the importance of all determinant categories. (www.ema.europa.eu) A quality conclusion should identify the question and accepted data version.

Is an automated dashboard sufficient?

It supports reproducible checks, but study-specific assessment remains necessary. OHDSI explicitly calls for critical evaluation in the context of the study, and PCORnet separately assesses study-purpose quality. (ohdsi.github.io) (pcornet.org) Endpoint validity and comparator suitability require appropriate clinical and methodological evidence.

What should a provider supply before purchase?

Request the characterization responses, dictionary and versions, validation scope, lineage, stratified metric results, known issues, and access conditions described above. PCORI supports documented transformations and linkage; HDR UK emphasizes pathway coverage and documentation. (www.pcori.org) (www.hdruk.ac.uk) Make sample-delivery conditions and supporting-evidence access reviewable.

How should fitness for use be documented for submission?

Connect the requirements, source characterization, processing lineage, actual study-subset results, issues, and decision rationale. FDA's complementary guidance addresses protocol and analysis-plan traceability. (www.fda.gov) ISPOR addresses protocol transparency. (www.ispor.org) State residual limitations clearly and maintain the evidence necessary to evaluate them.

Conclusion

A useful EMA real-world data quality assessment ends with a reasoned decision about a defined question and a defined dataset version. The evidence pack should show what the source represents, how the data were collected and transformed, what critical variables contain, and which limitations remain. The procurement matrices in this report turn that logic into artifacts a sponsor and provider can review together.

The recommended sequence is straightforward: specify requirements, screen plausible relevance, inspect foundational evidence, measure intrinsic quality, assess the study-specific subset, resolve consequential findings, and document acceptance conditions. Keep the underlying outputs available so another assessor can reconstruct the decision. A summary score may help organize trade-offs, but it should preserve the individual findings and critical-element gates.

Several distinctions matter throughout. A source's scale is different from its coverage of the target population. A common data model is different from a validated clinical definition. A populated value is different from an observed value. Network onboarding is different from fitness for a particular comparator or endpoint. Data quality is also different from the validity of the study design.

The strongest assessment makes uncertainty explicit rather than burying it in an overall percentage. It binds the conclusion to the intended use, explains the consequences of unresolved issues, and identifies the changes that require reassessment. That record gives procurement, engineering, epidemiology, and regulatory teams a shared basis for deciding whether to proceed, proceed under stated conditions, or select another source.

Source links

Links cited in this article, in order of first appearance. Full addresses are provided for readers using extracted text.

1. <https://www.ema.europa.eu/en/about-us/how-we-work/data-regulation-big-data-other-sources/data-quality-framework-medicines-regulation>
2. https://www.ema.europa.eu/system/files/documents/other/data-quality-framework-eu-medicines-regulation-application-real-world-data_en_0.pdf
3. <https://www.nice.org.uk/corporate/ecd9/chapter/assessing-data-suitability>
4. <https://pcornet.org/data/>
5. <https://www.hdruk.ac.uk/helping-with-health-data/data-utility-evaluation/>
6. <https://www.pcori.org/research-related-projects/about-our-research/research-methodology/pcori-methodology-standards>
7. <https://www.w3.org/TR/prov-overview/>
8. <https://ohdsi.github.io/DataQualityDashboard/articles/checkIndex.html>
9. <https://www.ema.europa.eu/en/about-us/how-we-work/data-regulation-big-data-other-sources/real-world-evidence>
10. <https://www.darwin-eu.org/index.php/faqs/open-call>
11. <https://www.ehden.eu/datapartners/>
12. https://health.ec.europa.eu/ehealth-digital-health-and-care/european-health-data-space-regulation-ehds_en
13. https://database.ich.org/sites/default/files/ICH_M14_Step4_Final_Guideline_2025_0905.pdf
14. https://www.ema.europa.eu/system/files/documents/smop/outcome-public-consultation-data-quality-framework-eu-medicines-regulation-app_en.pdf
15. https://encepp.europa.eu/encepp-toolkit/methodological-guide/chapter-13-quality-management_en
16. <https://www.fda.gov/media/152503/download?attachment=>
17. <https://intuitionlabs.ai>
18. <https://pubmed.ncbi.nlm.nih.gov/27713905/?dopt=Abstract>
19. <https://ohdsi.github.io/TheBookOfOhdsi/DataQuality.html>
20. <https://www.gov.uk/government/publications/the-government-data-quality-framework/the-government-data-quality-framework-guidance>
21. <https://hl7.org/fhir/provenance.html>
22. https://database.ich.org/sites/default/files/ICH_E23_EWG_Concept_Paper_MCEndorsed_2025_1112.pdf
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26. <https://www.fda.gov/media/164960/download>
27. <https://www.fda.gov/regulatory-information/search-fda-guidance-documents/considerations-design-and-conduct-externally-controlled-trials-drug-and-biological-products>
28. <https://tehdas.eu/results/>

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