

Structured Evaluation of Oncology Real-World Data Quality for Practical Applications

Vivek Verma, BDS, PhD¹, Pegah Farrokhi, PharmD², Marcus Lawrance, MS³, Ping Sun, PhD⁴, Danielle Bargo, PhD⁵.

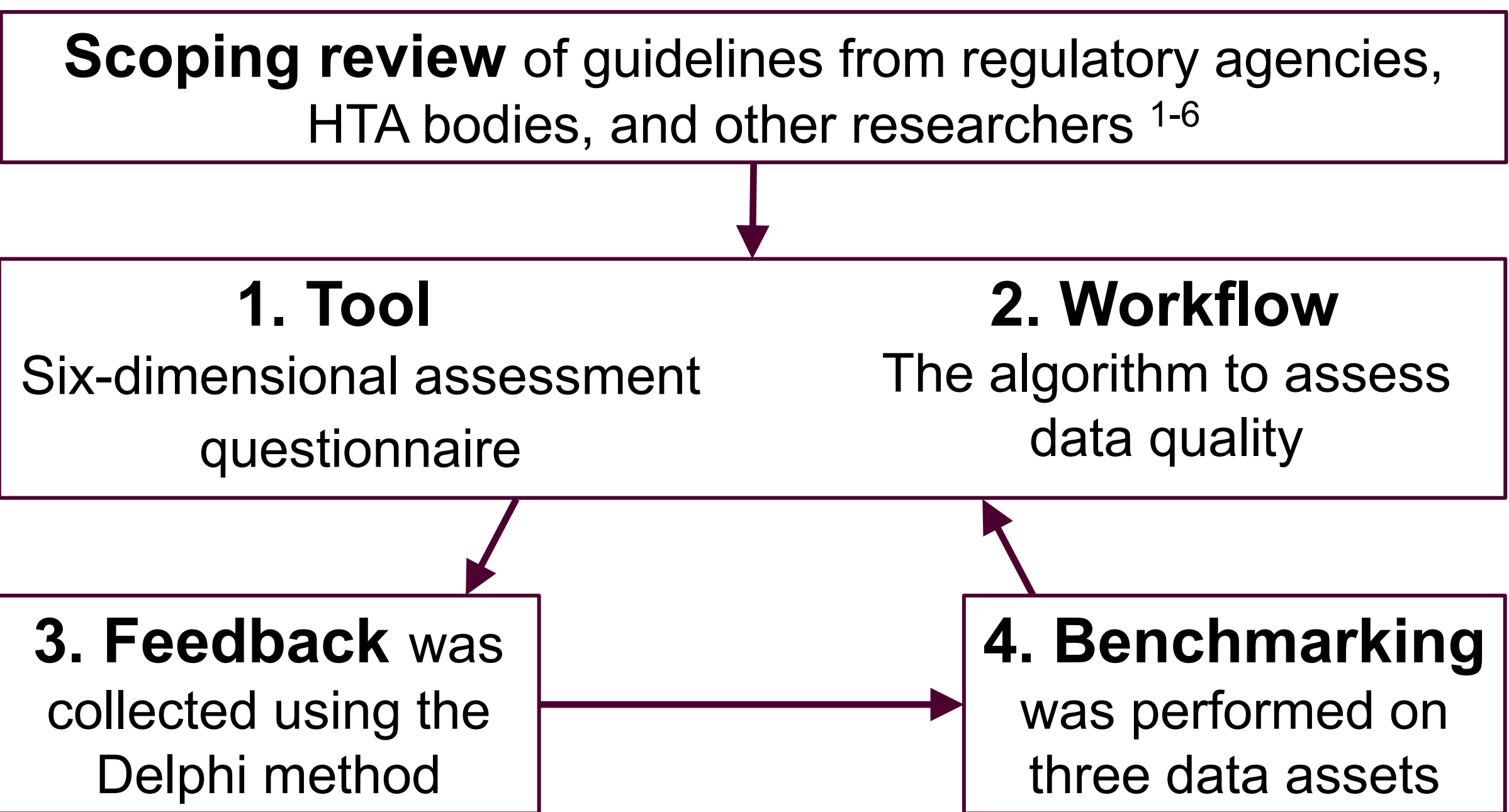
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¹AstraZeneca Canada, Mississauga, ON, Canada, ²University of Minnesota, Minneapolis, MN, USA, ³AstraZeneca Farmacéutica Spain S.A., Madrid, Spain, ⁴AstraZeneca PLC, Cambridge, United Kingdom, ⁵AstraZeneca Pharmaceuticals LP, Gaithersburg, MD, USA.

Background


- Real-world data (RWD) are increasingly utilized in oncology research and regulatory submissions. However, the evidentiary value of RWD is contingent upon its quality and ease of use.
- Oncology RWD is inherently complex due to disease heterogeneity, rapidly evolving treatments, multi-modal data integration, varied data collection practices, and diverse follow-up intervals.
- This complexity necessitates a tailored quality assessment framework to ensure robust, reliable real-world evidence that accurately informs clinical decisions and regulatory outcomes.


Methods





Results


1. Tool: The RWD quality assessment employs a structured tool, with 50 assessment items, that evaluates data based on:


**Relevance** *The extent to which a data asset presents data elements useful to the use case.*

**Reliability** *How closely the data asset reflect what they are designed to measure, i.e., data accuracy, completeness, provenance, and generalizability.*

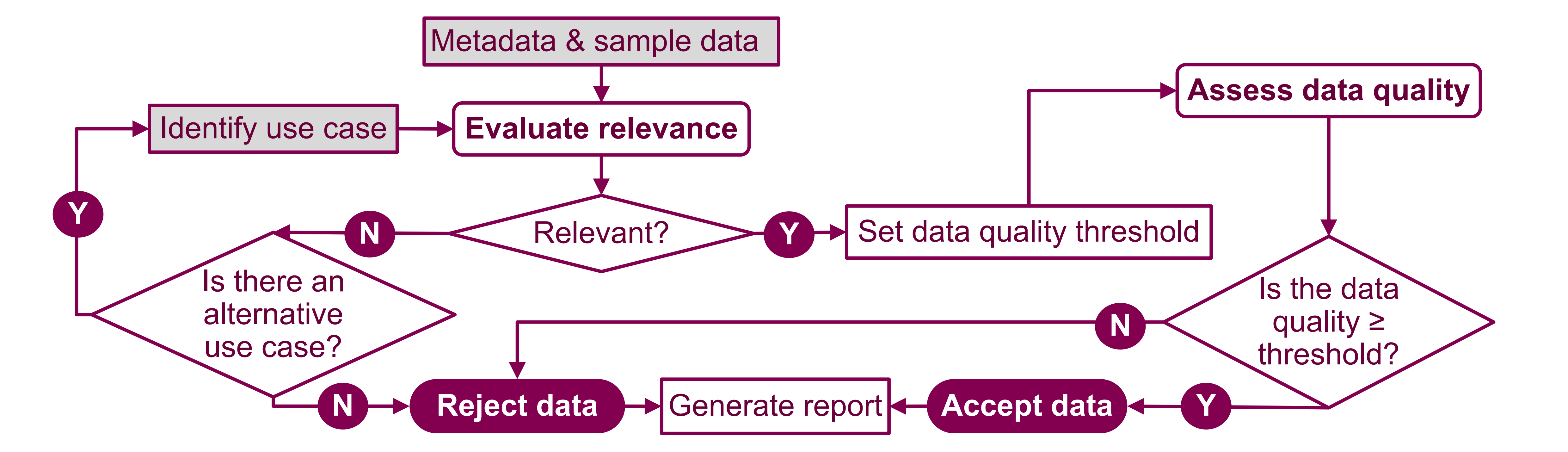
**Extensiveness** *Depth of information & potential for utilization of the data asset beyond the use-case.*

**Timeliness** *Data are collected and curated with acceptable recency and frequency.*

**Coherence** *Different parts of an overall data asset are consistent in their representation and meaning.*

**Convenience** *The ease with which a data asset can be accessed, processed, and utilized.*

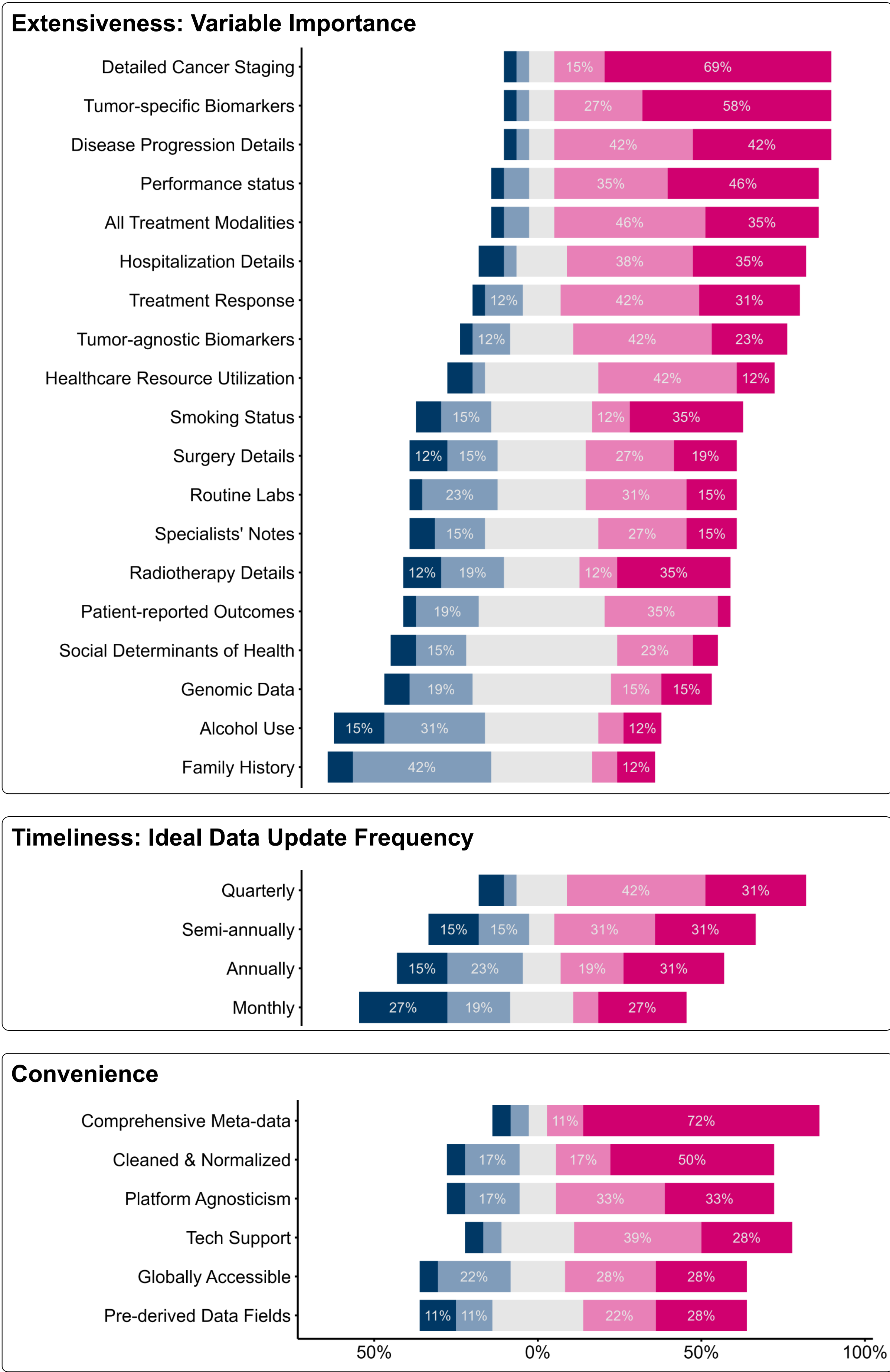
2. Workflow



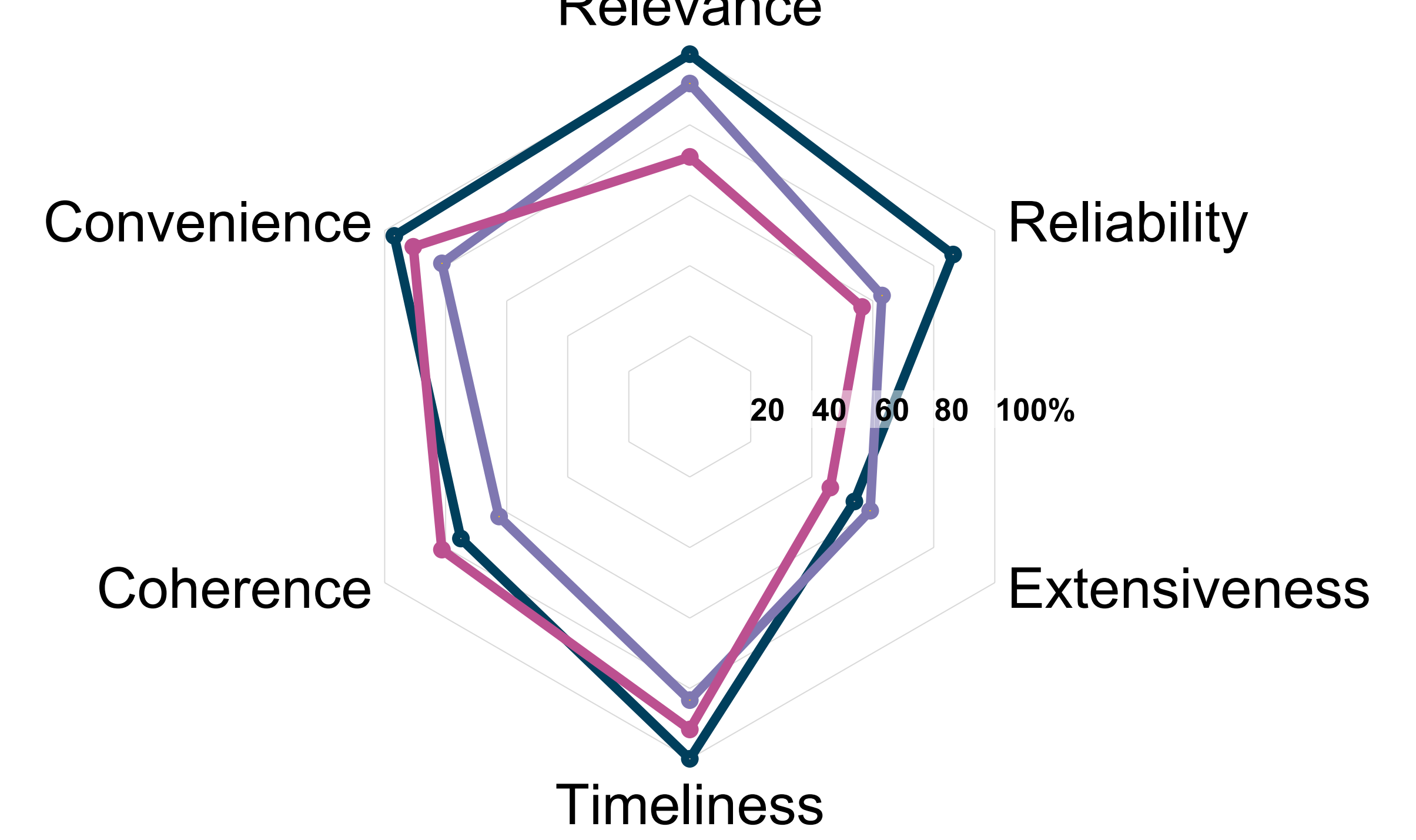
3. Feedback

To understand stakeholder perspectives on RWD quality, we conducted a targeted survey within AstraZeneca Global Medical Affairs. The following results reflect the importance rankings of various data attributes for RWD quality, as assessed by data scientists and epidemiologists within this global function.

Importance: ■ None ■ Low ■ Medium ■ High ■ Extreme



4. Benchmarking



Dimension	Flatiron	Tempus	Optum
Relevance	100.0%	91.6%	70.8%
Reliability	86.3%	63.0%	56.5%
Extensiveness	53.9%	59.2%	46.0%
Timeliness	100.0%	83.3%	91.6%
Coherence	75.0%	56.2%	81.2%
Convenience	96.8%	81.2%	90.6%

Note: The presented quality scores reflect use case-specific assessments and should not be interpreted as absolute measures of inherent data asset quality.

Conclusion

The developed framework provides a structured and quantifiable approach to assess oncology RWD quality. Benchmarking demonstrated its utility in differentiating RWD sources based on specific quality dimensions. This framework facilitates informed selection of RWD assets for oncology research.

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Acknowledgments

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