Assessing the Suitability of Real-World Data for Indirect Treatment Comparison Using NICE'S Data Suitability Assessment Tool (DATASAT)

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Background[1]

- With the increasing use of real-world evidence (RWE) in health technology assessments (HTAs), robust reporting tools for RWE data are crucial. Assessing data suitability in RWE studies is essential to:
  - ensure the quality, reliability, and validity of the findings
  - avoid biases, ensure generalizability, and comply with regulatory standards
- National Institute for Health and Care Excellence (NICE) has developed the Data Suitability Assessment Tool (DataSAT) to help the consistent and structured presentation of data suitability at the point of assessment
- DataSAT provides clear guidance to evidence developers on expectations for transparent reporting of data and its fitness for purpose, while also enabling evidence reviewers and committees to understand data trustworthiness and suitability when critically appraising studies or making recommendations

Objective

- To analyze the suitability and transparency of RWE for indirect treatment comparison in recent NICE oncology appraisals to inform the need for optimizing the provenance, quality, and relevance of the RWE for future HTA submissions

Methods

- A search was performed to identify NICE health technology appraisals conducted in 2023 for oncology drugs. The initial search yielded 18 appraisals, of these three appraisals were excluded due to termination of the appraisal process
- The remaining 15 appraisals were examined for the use of RWE studies involving direct or indirect comparisons in their assessments
- Four oncology drugs were found to include RWE studies in their assessments and were reviewed for their alignment with the DataSAT tool

The key components of the NICE DataSAT are central to NICE's framework for generating RWE that can reliably inform healthcare decisions and include three elements:

- **Data provenance:** Involves understanding the sources of data, which allows NICE to ensure that data is originating from reliable and traceable sources
- **Data quality:** Refers to the accuracy, completeness and consistency of data that directly affect the robustness and credibility of NICE's recommendations and potentially limit the biases
- **Data relevance:** Relates to data relevancy which helps ensure that findings are applicable to the population and the clinical condition

Results

- The assessment included four oncology medications for different therapeutic areas:
  - Regorafenib for metastatic colorectal cancer
  - Olaparib for hormone relapsed metastatic prostate cancer
  - Dabrafenib + Trametinib for mutation-positive (BRAF-V600) advanced non-small-cell lung cancer
  - Pembrolizumab + Lenvatinib for previously treated advanced or recurrent endometrial cancer

Data provenance

- Across the four included HTAs, the research questions and the purpose of data collection are consistently well-defined
- However, there is limited evidence of data linkage, data pooling and data specification or other documents, as these components are not covered in any of the included studies
- Several key elements related to data provenance are inconsistently available in the referenced studies varying in different studies (33% to 80%)
- The RWE studies used for the Olaparib and Pembrolizumab + Lenvatinib combination met 80% and 73% of the data provenance criteria, respectively, while the Dabrafenib + Trametinib combination achieved 50-60%, and Regorafenib reached 30-40%

Data quality

- All appraisals sufficiently defined the data quality aspects, except the studies included in the assessment of Dabrafenib + Trametinib
- The RWE studies used for Olaparib, Regorafenib, and the Pembrolizumab + Lenvatinib combination met all the data quality criteria, whereas the Dabrafenib + Trametinib studies did not meet the NICE requirements

Data relevance

- Most studies adequately defined the relevant population, sample size, treatment pathway, and the study period. While the timing of measurements, care settings and key study elements are inconsistently reported in the included studies
- Thus, some key elements of the DataSAT were inconsistently applied across different studies (Table 1)
- The RWE studies for the Olaparib and Dabrafenib + Trametinib combinations met 75% of the data relevance criteria, while Regorafenib achieved 50%, and Pembrolizumab + Lenvatinib ranged between 60% and 75%

NICE feedback on the referenced RWE studies

NICE recommended interpreting the findings of most of these studies with caution due to perceived uncertainties that may be resulting from several factors For example:

- Imbalances in baseline characteristics, lack of adequate confounding adjustments, resulting in uncertainties regarding the actual treatment effect[6,7,8]
- Small sample size, wide confidence intervals, resulting in uncertainty in overall survival (OS)[10,11]
- Limited methodological and study details, short extrapolation period, and use of investigational therapies not available in UK, likely leading to uncertainties surrounding OS extrapolation[12]

Table 1: Assessment of DataSAT key components in HTAs for various products

Drug/ NICE assessment	Regorafenib TA866[2]			Olaparib TA886[3]	Dabrafenib + Trametinib TA898[4]		Pembrolizumab + Lenvatinib TA904[5]
Study Name	*Tanaka 2018[6]*	*Sueda 2016[7]*	*Huemer 2020[8]*	*Collins 2021[9]*	*Melosky 2021[10]*	*Kanakamedala 2020[11]*	*Corman 2021[12]*
Data provenance							
Research question	✓	✓	✓	✓	✓	✓	✓
Data sources	×	✓	✓	✓	✓	✓	✓
Data linkage and data pooling	×	×	×	×	×	×	×
Type of data source	×	×	✓	✓	✓	✓	✓
Purpose of data collection	✓	✓	✓	✓	✓	✓	✓
Data collection	×	×	×	✓	✓	✓	✓
Care setting	✓	✓	✓	✓	✓	✓	×
Geographical setting	✓	×	×	✓	✓	✓	✓
Population coverage	×	×	×	✓	✓	✓	✓
Time period of data	×	×	×	✓	✓	×	✓
Data preparation	×	×	×	✓	×	×	✓
Data governance	✓	✓	✓	✓	×	×	✓
Data specification	×	×	×	×	×	×	×
Data management plan & quality assurance methods	×	×	×	✓	×	×	✓
Other documents	×	×	×	×	×	×	×
% of inclusion	33%	33%	40%	80%	60%	53%	73%
Data quality							
What type of variable (for example, population eligibility, outcome)	✓	✓	✓	✓	×	×	✓
% of inclusion	100%	100%	100%	100%	0%	0%	100%
Data relevance							
Population	✓	✓	✓	✓	✓	✓	✓
Care setting	×	×	✓	✓	×	×	×
Treatment pathway	✓	✓	×	✓	✓	✓	✓
Availability of key study elements	×	×	×	×	✓	✓	✓
Study period	✓	✓	✓	✓	✓	×	✓
Timing of measurements	×	×	×	×	✓	×	×
Follow up	×	×	×	✓	×	✓	✓
Sample size	✓	✓	✓	✓	✓	✓	✓
% of inclusion	50%	50%	50%	75%	75%	63%	75%

Legend: 0-39% 40-69% 70-100%

Key results

- The RWE sources identified in the appraisal documents satisfied the quality requirement by 71.4%, relevance requirement by 50-75%, and provenance requirement by 33.3-80%
- Overall, the usage of DataSAT identified some uncertainties in the inclusion of several data elements in the selected studies. Similarly, NICE's feedback on the referenced studies, highlighted several uncertainties that require cautious interpretation. However, the results of our assessment were not exactly aligned with the feedback from NICE in the appraisals regarding these RWE studies. The use of a very granular quality assessment grid in a general context with respect to a standard health technology appraisal process may explain these discrepancies
- Thus, the assessment of RWE studies using DataSAT serves the purpose of providing consistent and structured information on data suitability and reliability, but it may not fully address all uncertainties related to NICE's specific assessment needs

Conclusion

- When integrating RWE into the clinical evidence base, it is important to assess the suitability of the evidence using quality assessment tools aligned with the NICE RWE framework to enhance the trust and acceptance of this evidence
- Additionally, further efforts are needed to improve the acceptability in health technology assessment (HTA) by enhancing the quality, provenance, relevance, and accessibility of RWE data
- By leveraging DataSAT, organizations can improve the quality, speed, and compliance of their submissions to NICE, enhancing their chances of approval for new health technologies

References

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