Characterizing Exploratory Endpoints in Early Oncology Trials: Insights from Trial Registry Audit

SA19

Shaurya Deep Bajwa*, Vatsal Chhaya, Kapil Khambholja
Catalyst Clinical Research, Wilmington, NC, USA

Presented at ISPOR Europe 2025: November 9-12, 2025; Glasgow, Scotland

INTRODUCTION

- Early-phase oncology trials provide critical safety data and early insights that guide drug development decisions.
- Exploratory endpoints can reveal early efficacy signals, biomarker dynamics, and patient outcomes—helping biotech/sponsor companies make informed go/no-go decisions.
- Consistent design, collection, and reporting of these endpoints can accelerate development and optimize resource use for smaller biotechs.
- Current use and reporting of exploratory endpoints remain inconsistent, limiting actionable insights for decision-making.

OBJECTIVE

This study assessed U.S.-registered early-phase oncology trials to identify trends, gaps, and opportunities for enhanced CRO-supported integration of exploratory endpoints.

METHODS

- **Data Source:** ClinicalTrials.gov registry was queried for Phase I/II oncology trials completed between April 1, 2020, and April 30, 2025.
- **Inclusion Criteria:** Trials explicitly reporting exploratory outcomes with the term “exploratory” in the outcomes section.
- **Exclusion Criteria:** Trials without clearly defined endpoints or missing outcome details in the registry.
- **Endpoint Classification:** Exploratory outcomes categorized into pharmacodynamic/biomarker endpoints, patient-reported outcomes, and early efficacy signals; measurement scales standardized where possible.
- **Analysis:** Descriptive statistics performed by tumor/cancer type, study design (single-arm, randomized, adaptive), endpoint category, trial size, and measurement scale.

RESULTS

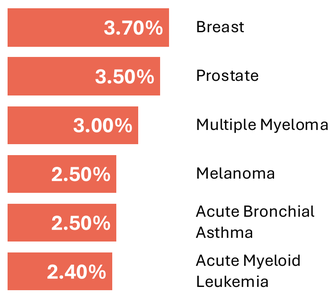
Study Design Characteristics

Less than 1% report exploratory endpoints

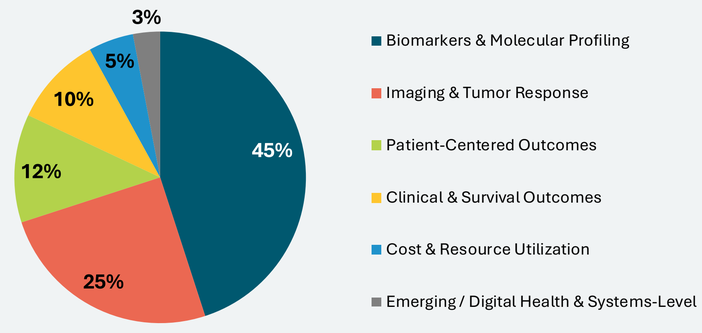
1,729
Phase I/II Oncology Trials Analyzed

15 (0.9%)
Exploratory Endpoints Reported

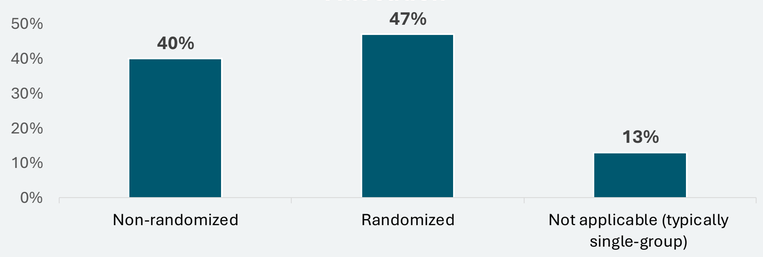
Cancer Focus



Distribution of Exploratory Endpoints in Early-Phase Oncology Trials (2020–2025)

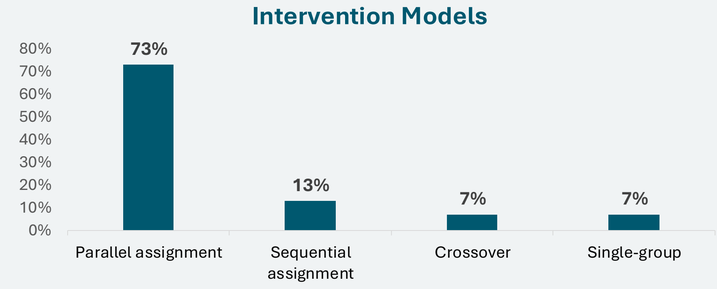


Allocation



Non-randomized designs drive rapid biomarker signals

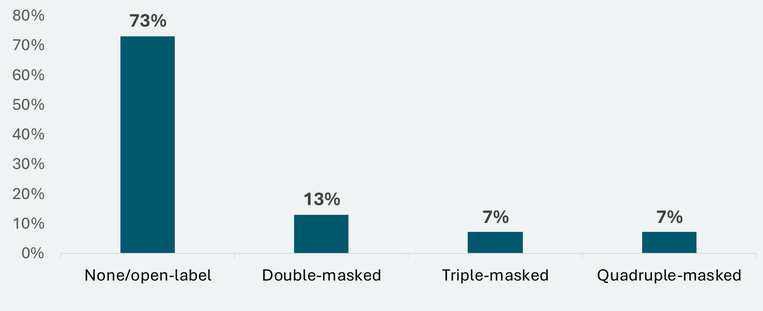
Intervention Models



Parallel-group designs dominated for outcome comparisons.

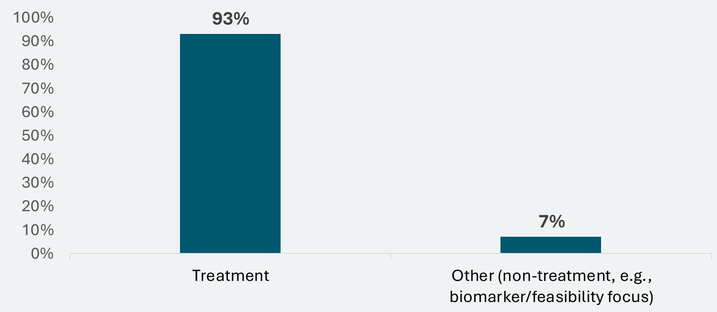
Complex designs (Sequential/crossover/masked) underutilized in early oncology.

Masking Approaches



Open-label designs prevailed, impacting reported exploratory measures.

Primary Purpose



Treatment primary, with exploratory biomarker extensions

- **Trial sizes varied widely**, ranging from 11 to 111 participants, with a median of 38 and an average of 49 per trial.
- **Time-based measures dominated**, with limited use of quantitative or patient-centered formats—percent/rate (9.8%), score/scale (1.2%), and change from baseline (0.06%).
- **Thresholds for meaningful change were rarely defined.**
- **Three trials (20%) were terminated early**, citing interpretation challenges and safety concerns.

Biomarker and imaging measures dominated exploratory outcomes, while patient-centered and digital endpoints remained limited—reflecting current design focus and highlighting opportunities for broader endpoint integration.

DISCUSSION

- **Early Oncology Context**

Most studies relied on non-randomized, open-label designs for speed and feasibility.

These approaches enable early biomarker readouts but may weaken the interpretability of patient-centered outcomes.

- **Patient-Centricity**

Limited use of masking and randomization affects the reliability of patient-reported outcomes (PROs) and symptom measures.

Designs emphasizing parallel cohorts and sequential models could better capture patient heterogeneity and longitudinal changes.

- **Exploratory Endpoints as Decision Tools**

Serve as early efficacy and biomarker signals, helping refine go/no-go decisions.

Provide insights into patient experience, safety, and functional outcomes, which are increasingly valued in regulatory and HTA reviews.

- **Strategic Role in Development & Access**

Well-integrated exploratory endpoints bridge early trial findings to pivotal studies, ensuring endpoints remain relevant for market access, reimbursement, and real-world adoption.

Gaps in consistency and reporting reduce the potential of these measures to influence value demonstration and patient-centered evidence packages.

LIMITATIONS

- Registry-reported data may be incomplete or inconsistent; potential misclassification due to variable endpoint labeling; restricted to U.S.-registered trials, limiting generalizability.

CONCLUSION AND RECOMMENDATIONS

- Early oncology trials rely on open-label, non-randomized designs; exploratory endpoints provide early efficacy and biomarker signals.
- Integrating exploratory endpoints enhances decision-making, patient insights, and regulatory/market access strategies.
- Standardized reporting and consistent endpoint definitions are needed to improve their utility in future trials.

REFERENCES

1. https://www.precisionformedicine.com/blog/fda-draft-guidance-on-overall-survival-in-oncology-trials-what-sponsors-need-to-know
2. https://www.fda.gov/media/71195/download
3. https://www.lambda-cro.com/endpoint-selection-oncology-clinical-trials/
4. https://pmc.ncbi.nlm.nih.gov/articles/PMC8085844/
5. https://www.efpia.eu/media/t2nlhr0k/improving-the-understanding-acceptance-and-use-of-oncology-relevant-endpoints.pdf

CONTACT INFORMATION

Shaurya Deep Bajwa
Sr. Medical Writer - RWE Analyst II
Catalyst Clinical Research
Email: shaurya.bajwa@catalystcr.com
www.CatalystCR.com

SCAN HERE
TO LEARN MORE