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SUMMARY OF THEMES

PROs in early-phase oncology trials: An analysis of stakeholder insights

August 2025

While there are indicators that implementing patient-reported outcomes (PROs) in early phases of oncology drug development may yield meaningful information on tolerability and dosing decisions, industry has yet to adopt such approaches on a large-scale basis. To better understand this lack of uptake, Tapestry Networks engaged in a series of confidential interviews to assess stakeholder perspectives on barriers to early-phase PRO implementation and inform potential opportunities for investment and action by philanthropic actors and others in the community.

This *Summary of Themes* synthesizes insights from stakeholder interviews and relevant research, including the role of incentives, regulatory policy, implementation challenges and risks, and broader strategic considerations. It also outlines potential opportunity areas for the community to consider in progressing the possible use of PROs in early-phase oncology drug development.

This *Summary of Themes*[1] is organized around the following:

Background

> *"I strongly believe that early, thoughtful use of PROs—and I know it costs resources—means you will be so well set up for success, especially if you want that label claim of a PRO or some language in the label, versus scrambling in phase 3."*

In early-phase oncology drug development, trial sponsors have traditionally focused on identifying drug safety and maximum tolerated doses through investigator-reported adverse events (AEs). Direct input from patients on symptomatic AEs is limited: current research signals that about 5% of early-phase oncology trials incorporate PROs, and PROs in this context are primarily considered exploratory endpoints.[2] To date, PROs have primarily been incorporated into late-phase oncology trials and postmarket evaluations of patient quality of life.

A handful of recent studies and thought leadership efforts have suggested that early-phase PROs can yield meaningful information on cancer drug tolerability, symptomatic AEs, and patient adherence.[3] The primary impetus behind such research stems from observed variability between provider and patient perspectives on AEs across clinical trials.[4] Capturing the patient perspective on AEs earlier in development might enable more informed decision-making on dosing, support planning for subsequent trials, and help produce an improved tolerability profile for oncology drugs.[5] In parallel, regulatory efforts in the US on dose optimization—namely, the US Food and Drug Administration's (FDA) Project Optimus—have sparked interest in improving dose-finding methods. Optimus encourages use of PROs in a short reference within a much larger guidance document on improving dosing.[6]

Despite recent momentum on this issue, the percentage of oncology trials incorporating early-phase PROs remains low, and published data on the topic is limited. Tapestry Networks conducted an analysis to gather stakeholder insights on early-phase PRO implementation to inform potential investment opportunities for philanthropy, industry actors, and the broader community to progress learning and evidence generation on this topic. *Relevant definitions for the terms* early phase *and* PRO *for this research can be found in Appendix 1, on page 7.*

This *Summary of Themes* provides a high-level synthesis on perspectives shared on these issues by stakeholders from industry, trial sites, nonprofits, and others in confidential interviews from December 2024 to May 2025. *For more details on the methodology used, see Appendix 2, on page 8.*

> *"We collect all the PRO data, but no one has the skill set or the time to analyze that data set, unless it's for registration."*
>
> —Site investigator

Key findings from this effort

- **Although PROs and broader patient experience data (PED) are being collected in early-phase trials today, they are not being used meaningfully or systematically to inform decisions on dosing and tolerability.** In line with current literature, stakeholders affirmed that initiatives to use PRO-generated data on symptomatic AEs in early-phase trials are limited.
- **Except for a small group of champions, general enthusiasm for such methods is mixed.** A small group of "champions" from academia, clinical trial sites, patient advocacy groups, and industry continue to advocate for early-phase PRO use in oncology drug development to help inform dosing decisions. However, most stakeholders either have more measured views about PRO use in this context (e.g., PROs should be used on a case-by-case basis) or limited knowledge of efforts to advance such methods. Some, including those from clinical research organizations, former regulators, and industry leaders, signaled skepticism about PRO use in early-phase development to help inform dosing, underscoring the many gaps that need to be addressed first, as noted below.
- **A number of gaps influence the limited uptake of these approaches and concomitant skepticism.** Interviews revealed several stakeholder-identified gaps inhibiting the use of PROs in early-phase oncology drug development:

Open methodological questions

- Size and heterogeneity of patient cohorts, which may prevent the capture of meaningful data
- Perceived lack of awareness of relevant AEs for novel therapies
- Lack of randomization in the earliest phases of development
- Lack of well-established approaches to capture, analyze, and report PRO data in early-phase trials

Organizational and cultural gaps

- Early-phase industry teams' lack of comfort with PRO data
- Need for senior executive support, given that early-phase trials are time- and budget-constrained
- Mixed investigator appetite, although interviews show that support does exist at senior levels in some institutions

Limited business case for industry investment

- Challenges in showing how PROs have meaningfully changed or improved dosing decisions
- Issues modeling and publishing benefits or success stories due to complex risk-benefit analysis and competitive considerations

- Lack of relevant vendor offerings that align with an early-phase context
- Perceived risks in collecting the data, which may make dosing look inherently worse
- Broader market trends, such as competition for trial sites and reluctance to add operational burdens on them, and a current paradigm (e.g., approval, reimbursement) supporting efficacy-focused incentives

Mixed regulatory support

- Historical regulatory skepticism on the quality of PRO data, with some exceptions
- Lack of clarity, guidance, and safe harbors from regulators for developers on use of PROs in an early-phase context in oncology beyond high-level encouragement

Broadly, stakeholders signaled more openness and comfort in using such methods in phase 2 and, in some cases, even phase 1b/dose expansion stages; however, many were less comfortable with integrating such approaches in phase 1a/dose escalation.

The way forward

> *"There's no relevant control arm for a phase 1 population. That makes it really challenging to interpret the data to ensure it will be representative of all phase 1 populations. Once we get a drug to a phase that's more settled, that's where we start thinking about PRO data."*
>
> —Industry leader

Because the business case for industry and the relevant evidence base for PRO inclusion in early development are not yet robust, resources from philanthropy and/or other community leaders may be needed to generate new incentives, evidence, and information-sharing on the feasibility and value of such approaches.

Identified opportunity areas include the following:

- **Incentivize industry and site investigator engagement through regulatory leadership.** A more robust FDA position on PROs to assess tolerability in early development—whether through supplemental guidance linked to Optimus or, perhaps, Project Patient Voice—would change the landscape. Indeed, direct guidance in the form of more prescriptive methodological direction, description of acceptable thresholds, and how the FDA would integrate PRO data with traditional pharmacokinetic and pharmacodynamic data would drive standardization and adoption.

> *"On the industry side, there is a fear that drugs will look more toxic if we [use PROs]. That's legitimate: If drug A has PROs versus drug B, where you don't have PROs, it makes the one without them look less toxic because we miss them. So there needs to be assurance by the FDA that it will not be held against [developers]. We've been more persuasive in phase 3 that it won't be held against them."*
>
> —Site investigator

- **Generate new evidence for a better business case.** Discussions identified multiple potential approaches:
  - **Unearth real-world industry experiences.** Identify and share case studies that illustrate real-world successes in using an early-phase PRO, given that there is limited published data from industry players who have invested in such methods. Such examples may best be shared in a closed forum with safe harbors.
  - **Focus on improving early-phase methodology,** particularly in these areas: optimal frequency of PRO collection; whether data should go to investigators to inform their grading of symptomatic AEs or to the trial sponsor; how such data should be weighed when informing dosing decisions and general sensitivity of the data; and which PRO-Common Terminology Criteria for Adverse Events symptoms to select for certain types of cancers or drugs.
  - **Create a solutions-oriented design forum on electronic (e)-PRO implementation.** Bring together a multistakeholder design forum with e-PRO vendors, industry, site investigator leaders, and other experts to co-shape what cost-effective, scalable e-PRO solutions for early-phase oncology drug development might look like.
  - **Implement a practical industry pilot.** Create and deliver a practical pilot that prospectively uses a PRO instrument and/or library of relevant symptomatic AEs in an early-phase trial for an industry sponsor and publish the results. Confidentiality agreements, safe harbors, and independent oversight bodies could potentially be constructed to enable rapid multistakeholder learning of results and enable publication, as has been done in pilot programs in the diagnostics space.[7]
- **Enable robust education and awareness programs.** Given the novelty of such approaches for early-phase development teams, resources will be needed to drive awareness about any

new evidence on these methods that may be generated through forums, workshops, and convenings. Such activities should engage in broad external outreach to understand the questions and concerns of a wide range of stakeholders. Importantly, based on stakeholder feedback, doing more education or awareness alone will not suffice. A two-pronged approach, whereby any future investment in advocacy, pilot projects, or research is coupled with robust support for convenings and good practice-sharing, is advisable.

Novel concepts can be difficult to embrace in drug development. The use of PROs in the earliest phases of drug development to inform dosing considerations is met today with questions from many stakeholders across industry, sites, and others. Champions of these methods may consider that any future investment and activities will likely require commitment for the long term as the evidence base for such approaches matures. Overall, however, many stakeholders remain open to engaging in dialogue regarding any new data, practical pilots, or case studies that emerge, given the community's collective interests to better serve cancer patients.

About Tapestry Networks

Since 2004, Tapestry has been the premier firm for building collaboration platforms with leaders of the world's foremost organizations. Tapestry Networks brings senior leaders together to learn and to shape solutions to today's most pressing challenges. We are a trusted convener of board directors, executives, policymakers, and other stakeholders, connecting them with information, insight, and each other. Top experts join our discussions to learn from the leaders we convene and to share their knowledge. Our platforms help educate the market, identify good practices, and develop shared solutions. We call this the power of connected thinking.

Tapestry's healthcare team fosters candid insights, research, operational models, and pilot programs, all aimed at progress in healthcare. In forming agile and disruptive research initiatives, multistakeholder networks, and working groups, our team brings deep sector expertise and problem-solving capabilities to the sector's most pressing issues. Learn more at tapestrynetworks.com/focus-area/healthcare/.

The views expressed in this document represent those of stakeholders participating in off-the-record interviews for this exploratory effort.

Appendix 1: Definitions and terminology

In the initial conception of this analysis, Tapestry aimed to focus specifically on *PROs*—defined as validated instruments for capturing patient experiences—within the context of *phase 1* trials. However, in interviews with stakeholders and in academic literature, varying conceptions for both terms were offered.

For example, some participants defined the term *PROs* solely as *"specific instruments, validated in a disease state, to measure a specific outcome."* Others believed that all forms of PED, including qualitative interviews and surveys, may be informative for drug tolerability and fall within a broad-based definition of PROs.

In a similar vein, some considered the term *phase 1* to reflect the dose-escalation stage of development, where single or combination agents are first used in humans; however, many trials now include a dose-expansion stage, where toxicity is evaluated in disease-specific cohorts. To distinguish these stages, researchers label dose escalation as phase 1a and dose expansion as phase 1b. Additionally, dose finding can be a part of early phase 2 work, with some publications now reporting dose-related results from combined phase 1b/2 studies. Several stakeholders noted that patient input can help to inform decisions in phase 1b/2 and flagged that using *phase 1* as a descriptor for this work may unnecessarily limit considerations around refining tolerability.

For the purposes of clarity in this document, *PROs* refers to validated cancer-specific measures or symptom libraries (e.g., the International Prostate Symptom Score or the National Cancer Institute's Patient-Reported Outcomes Version of the Common Terminology Criteria for Adverse Events). When interviewees refer to broader PED, it has been delineated clearly as *PED*. The term *early phase* encompasses phase 1/2 trials, given that this broader definition reflects the context in which some stakeholders conceptualized and discussed PROs; however, specific references to dose escalation/phase 1a and dose expansion/phase 1b are noted in accordance with specific references by interviewees.

Appendix 2: Methodology

Interviews were conducted from December 2024 to May 2025. Interview questions under this effort largely focused on knowledge and decision-making related to the value and feasibility of using PROs in early-phase development to inform tolerability and dosing decisions.

The more than 30 interview participants included industry leaders from small- to midsize biotechnology firms; large biopharma oncology-focused developers; senior subject matter experts at clinical research organizations, trial sites, and academic institutions; and individuals from notable government research agencies and/or with regulatory experience in oncology and PROs.

As per agreement with this exploratory effort's philanthropic sponsor, Tapestry did not identify the effort's sponsor to interviewees and did not identify any interviewees or their organizations to the sponsor to protect mutual confidentiality and ensure candor on this complex topic.

Endnotes

[1] This *Summary of Themes* reflects the use of a modified version of the Chatham House Rule whereby comments are not attributed to individuals or organizations. Quotations in italics are drawn from conversations with participants during interviews for this effort.

[2] Julia Lai-Kwon, Zhulin Yin, Anna Minchom, Christina Ya, "Trends in Patient-Reported Outcome Use in Early Phase Dose-Finding Oncology Trials—An Analysis of ClinicalTrials.gov," *Cancer Medicine* 10, no. 22 (2021): 7943-7957.

[3] *Supporting a Patient-Centric Approach to Dose Optimization in Oncology: The Essential Role of Patient-Reported Outcomes (PROs)* (Friends of Cancer Research, 2022).

[4] Carolyn Mead-Harvey, Brie N Noble, Claire Yee, et al., "Incorporating Patient-Reported Outcomes Version of the Common Terminology Criteria for Adverse Events (PRO-CTCAE) into Dose Review in a Phase I Clinical Trial," *Blood* 144, Supplement 1 (2024): 2299; Paul Kluetz, Vishal Bhatnagar, Jeanne Fourie Zirkelbach, "Incorporating PRO Data to Optimize Dose in Anti-Cancer Therapies," webinar, International Society of Quality of Life Research, November 10, 2021; and *Supporting a Patient-Centric Approach to Dose Optimization in Oncology* (Friends of Cancer Research).

[5] Christina Yap, et al., "Advancing Patient-Centric Care: Integrating Patient Reported Outcomes for Tolerability Assessment in Early Phase Clinical Trials—Insights from an Expert Virtual Roundtable," *EClinicalMedicine* 76 (2024); Laura A. Levit, et al., "Totality of the Evidence: Optimizing Dosage Selection Strategies in Oncology," *Journal of Clinical Oncology* ASCO Special Articles (2025).

[6] US Food and Drug Administration, *Optimizing the Dosage of Human Prescription Drugs and Biological Products for the Treatment of Oncologic Diseases: Guidance for Industry* (US Department of Health and Human Services, August 2024).

[7] Tapestry Networks, *Addressing Lessons from the Diagnostic Quality Assurance Pilot*, Summary of Themes (Waltham, MA: Tapestry Networks, 2021).