Navigating The Enrollment Bottleneck In Early Oncology Trials

Slow and incomplete enrollment remains one of the most persistent barriers in oncology drug development. Across therapeutic areas, clinical trial recruitment is challenging, but in the therapeutic area of oncology this is even more pronounced. Reviews of publicly funded and academic oncology clinical trials consistently show that only about one-third of cancer studies meet their original patient enrollment targets, and up to 25% fail outright due to insufficient accrual. Even when trials remain open, many close after years of recruitment with fewer than half of the planned participants enrolled. At the same time, only 2-5% of adult cancer patients ultimately participate in clinical trials, despite evidence that many patients are willing when given a clear opportunity.

Furthermore, between 2005 and 2011, roughly one in five cancer trials failed to complete, involving tens of thousands of patients whose participation did not translate into actionable outcomes. Earlier analyses from the U.S. National Cancer Institute suggested that as many as 40% of sponsored cancer trials were never completed. For early-phase oncology trials, where timelines are already long and attrition high, and the prospects of the novel drug candidates is not yet clear, recruitment delays can stall important decisions regarding continuation of the drug development program, and significantly increase development costs.

The reasons for poor accrual are well documented and extend beyond patient willingness alone. Patient-level barriers include fear of experimental treatments, mistrust, language discordance, insurance coverage, immigration concerns, and the practical burden of travel. At the provider level, limited awareness of available trials, time pressure in short clinical encounters, and reluctance to disrupt existing care relationships reduce patient referrals to clinical trials. Even motivated clinicians often lack the time and institutional support needed to screen patients thoroughly and explain complex protocols. Clinical trial design necessitates stringent eligibility criteria and complex visit schedules, which exclude many patients who meet the disease criteria but fail on operational or logistical grounds.

Addressing this challenge requires a multifactorial recruitment strategy. One increasingly important tool is AI-enabled patient prescreening, which can help sites find eligible patients earlier by matching real-world records to protocol criteria and prompting clinicians when a trial is relevant, rather than relying on memory or manual review. Patient engagement strategies can also be redesigned so that consent discussions are clearer and supported by specific staff who can solve day-to-day problematic (transport, scheduling, translation), not just provide information.

There is also an important complementary solution that is often missed in oncology: not every early-phase pharmacology question has to be answered in patients. For selected targeted immunotherapies, immunomodulators and certain kinase inhibitors, early clinical pharmacology can be studied in healthy participants to generate clean pharmacokinetic and pharmacodynamic (PK/PD) data, establish target engagement, and support rational dose selection before exposing vulnerable patients to non-therapeutic doses. Immune modulators with reversible, mechanism-driven effects can often be studied at low doses or short exposures in healthy participants. This approach also aligns with a broader shift in oncology drug development away from determining a maximum tolerated dose and toward identifying a pharmacologically active dose guided by mechanistic biomarkers. Recruiting healthy participants is typically faster and less expensive, with lower drop-out and better compliance, which improves data quality.

Ultimately, overcoming the enrollment bottleneck in early oncology trials requires coordinated action. Researchers, clinicians, patient advocacy groups, technology providers, and sponsors must align on trial designs that respect patient realities while preserving scientific rigor of the clinical trial protocols. Thoughtful

integration of healthy participants to investigate novel drug candidates is one such strategy, which can accelerate early development, improve dose selection, and help ensure that patient participation is reserved for studies with the greatest potential to deliver meaningful benefit.

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