



## FROM RETENTION TO RESULTS

A Guide to Patient  
Engagement, Compliance,  
and Data Quality  
in Clinical Trials



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# The Current State of Clinical Trials

Clinical trials today face numerous challenges, including rising costs, extended timelines, and ongoing struggles with participant recruitment and retention.

These difficulties are particularly pronounced in complex studies, where engaging and retaining patients becomes even more critical.

Multiple factors contribute to patient dropout, such as logistical barriers like travel distances to trial sites and the significant time commitment required. Addressing these challenges is essential for

ensuring successful trial outcomes, reducing costs, and accelerating the availability of new treatments to patients in need.

Tools like gamification and ePRO systems are strengthening patient connections and helping participants understand their roles—improvements that directly support retention and data quality.

Understanding these challenges is the first step toward effective solutions. Next, we'll explore the specific reasons behind low patient engagement and retention in clinical trials.

**“Technology is playing a growing role in addressing these challenges, with innovations such as AI and digital platforms helping create more personalized and data-driven strategies for engagement.”**

Lauren Alani  
Director Digital Innovation  
Seuss+  
Trail Blazers Podcast  
Ep 25

CLICK OR SCAN  
TO LISTEN



A close-up photograph of a man with short brown hair and a light beard, wearing a light blue button-down shirt. He is looking directly at the camera with a neutral expression. He is holding a black smartphone in his right hand, which is positioned in the lower half of the frame. The background is a warm orange and white.

Clinical trials face challenges like high costs, patient retention issues, compliance hurdles, and logistical barriers, but tools like gamification and ePRO are improving engagement, compliance, and data quality.

# Reasons Behind Low Patient Engagement and Retention

Patient engagement and retention in clinical trials are influenced by a variety of challenges, including logistical, economic, psychological, and physical burdens. Each of these factors affects not only a patient's initial willingness to enroll in a trial but, more critically, their commitment to remain engaged once the protocol-required activities are underway.

**“Convenience is increasingly critical to patient enrollment and retention in clinical trials.”**

**McKinsey & Company**

## LOGISTICS

Traveling to trial sites can be a significant barrier for participants. [According to a study](#) by McKinsey & Company, around 70% of potential trial participants live more than two hours from the nearest study center. Limited transportation options and uncovered travel expenses add to the challenge, making frequent site visits inconvenient and impacting long-term engagement.

## ECONOMIC

Financial burdens, such as out-of-pocket costs for travel, meals, and lodging, deter participation. [According to a report](#) by the Assistant Secretary for Planning and Evaluation (ASPE), these expenses are a significant barrier for many participants, with up to 30% citing them as reasons for dropout, particularly in longer studies where costs become unsustainable.

## COMMITMENT

Sustaining engagement over time can be difficult. Trials that are lengthy or demanding may cause participants to lose motivation, particularly when the benefits of their involvement aren't immediately apparent. This gradual disengagement often results in dropout.

## PARTICIPANT BURDEN

The demands of clinical trials—frequent visits, assessments, and continuous data collection—can interfere with personal life, causing participants to feel overwhelmed. This cumulative burden is a common reason for dropout, especially in more intensive studies.

# Impact of These Challenges on Clinical Trial Outcomes

Patient recruitment, engagement, and retention challenges in clinical trials have significant financial and operational consequences that can jeopardize a trial's success. With an average dropout rate of around 20-30%—and even higher rates for complex studies like oncology—the effects of patient attrition can be substantial.

## EXTENDED TIMELINES & INCREASED COST

High dropout rates often lead to extended timelines and increased costs. Delays in recruitment and retention can cost sponsors \$500,000 in lost revenue and around \$40,000 in direct trial costs per day, according to a [recent analysis](#) by the Tufts Center for the Study of Drug Development. Failing to recruit or retain the right participants prolongs trial timelines, delaying the delivery of new treatments to patients. Longer trials also drive up operational costs, including infrastructure maintenance, site fees, and staff support.

## HIGHER EXPENSES FOR REPLACING DROPOUTS

Each participant dropout costs an estimated \$19,500 to replace, with costs potentially exceeding \$50,000 in more complex trials, [according to mdgroup](#). These expenses accumulate quickly, significantly impacting trial budgets, especially in studies with high dropout rates.

**“Like trial protocols themselves, many clinical trial technologies have been designed from the perspective of sponsors and investigators—and not participants. This approach tends to push the key stakeholders in a clinical trial apart—resulting in a negative impact on participant engagement and trial outcomes.”**

## Applied Clinical Trials

### COMPROMISED DATA INTEGRITY

Incomplete data from participant dropouts compromises data integrity, which affects the reliability of study results. When data is insufficient, trials may need to be extended or repeated to meet regulatory standards, further escalating costs and delaying approvals. Reliable data collection is essential for proving efficacy and safety, and poor data quality can undermine the validity of the study.

# Impact of These Challenges on Clinical Trial Outcomes

## RISKS TO PATIENT SAFETY

Non-compliance with protocol requirements—such as missed appointments, skipped medication, or incomplete Quality of Life (QoL) questionnaires—can compromise patient safety. Clinical trial protocols are meticulously designed not only to ensure reliable data collection but also to protect participants' well-being. When participants fail to adhere to these protocols, their health can be at risk, and the investigational treatment's safety profile may be compromised.

## COMPETITIVE DISADVANTAGE

In a highly competitive industry, the race to be the first to market is critical. Trials delayed by patient engagement issues risk giving competitors a head start, which can lead to competing products reaching the market sooner and capturing market share. This reduces the potential market share and revenue for sponsors and impacts the commercial success of a new treatment.

**In a highly competitive industry, the race to be the first to market is critical.**

## OVERALL FINANCIAL BURDEN

Data quality issues due to non-compliance or incomplete data can increase trial costs by 20-30%, as sponsors may need to add participants or repeat parts of the study to meet regulatory standards.



**Recruitment, engagement, retention and compliance challenges in clinical trials create significant financial and operational burdens.**

Proactively addressing these issues is vital to reduce costs, ensure protocol adherence, improve data quality, and protect patient safety.

When patients are engaged and supported, they are more likely to comply with trial protocols, reducing the risk of dropout and ensuring reliable data collection.

Focusing on patient engagement, retention, and compliance early helps sponsors safeguard investments, accelerate timelines, and achieve successful trial outcomes.

# Three Main Aspects to Consider at Study Design

Addressing patient retention and engagement challenges from the outset of a clinical trial—during the protocol design phase—can significantly improve trial outcomes. By prioritizing patient engagement strategies early on, sponsors can enhance participant retention and reduce the likelihood of dropouts, potentially saving substantial costs over the study's lifecycle.

**Focusing on key areas such as patient engagement, compliance, and data quality during this phase is essential for maximizing trial success and ensuring the reliability of collected data.**

## ENGAGEMENT & RETENTION

To engage and retain participants, it's vital to design strategies that build involvement and commitment. Gamification enhances clinical trial engagement by incorporating game design elements—such as progress tracking, reminders, and rewards—to motivate participants, improve adherence to protocols, and reduce dropout rates



**Consider:** What techniques can we incorporate to prevent disengagement and maintain consistent participant activity?

## COMPLIANCE

Reducing participant burden improves compliance. Streamlining processes, like reducing site visits or focusing on key endpoints, eases stress and encourages commitment. Flexible options, such as virtual visits or at-home data collection, also boost compliance by fitting participants' needs. Clear communication and educational resources help participants understand their role, making them more likely to adhere and enhancing the trial experience.



**Consider:** How are we minimizing the burden on participants to make compliance easier?

## DATA QUALITY

High-quality data is crucial for a successful clinical trial. Ensuring user-friendly and streamlined data collection processes helps maintain accuracy and completeness, essential for meeting outcome measures. Simplified methods that fit participants' routines enhance data quality by reducing errors and missing data points.



**Consider:** What strategies can we use to ensure smooth and efficient data collection for primary and secondary endpoints?

# Embracing the Digital Age

While the digital revolution has transformed many areas of our lives, the clinical trial industry has been slower to adopt innovative technologies.

This caution, often due to a risk-averse culture and the complexity of vetting technology vendors, has created a gap between the digital experiences people are used to in their daily lives and the outdated, burdensome processes they encounter in clinical trials.

This digital gap can frustrate participants and contribute to higher dropout rates, which, in turn, compromises data quality. However, technology-driven solutions are within reach. Wearables, sensors, and mobile apps can make trial participation more enjoyable and relevant, fostering a stronger sense of connection providing continuous, objective, and real-time measurements of health metrics in a non-invasive manner. Personalization allows for tailored communication that directly addresses each patient's needs, building engagement and trust in the process.

A black man with short, curly hair is seated at a desk in an office, looking down at a tablet device. He is wearing a light-colored, long-sleeved plaid shirt. The background is a blurred office environment with a window showing a cityscape at night. The right side of the image features a large orange diagonal shape containing the text.

Technology-  
driven  
solutions  
are within  
reach.

## Pillars of Success: Replior's Approach

Patient retention and engagement are key priorities in clinical trials. While many technology vendors provide tools for compliance and retention, Replior takes a distinctive, patient-centred approach that truly makes a difference. Our technology not only gathers data but enhances the entire patient experience, fostering greater enjoyment and improving data quality.

Our solutions focus on three essential pillars for clinical trial success: **Patient Engagement**, **Patient Compliance**, and **Data Quality**. This targeted approach keeps patients connected and engaged while ensuring the data collected is both reliable and actionable. Replior is not just improving trials; we're transforming them.

# Pillar 1: Patient Engagement

To address the challenge of patient retention in clinical trials, Replior developed an electronic Patient Reported Outcomes (ePRO) that incorporates gamification features specifically designed to boost engagement and compliance throughout the trial.

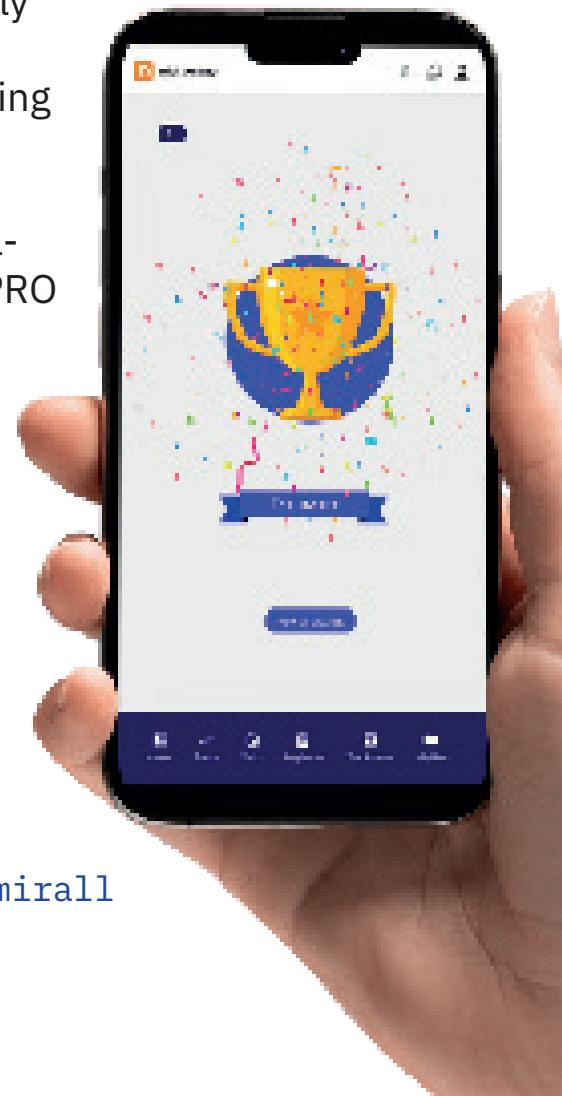
Our Trial Online® ePRO includes features such as trophies and badges for task completion, which give patients a sense of achievement and progress. These rewards serve as positive reinforcement, encouraging participants to remain

actively engaged. Additionally, the app includes progress and compliance status bars, providing patients with a visual overview of their journey through the study. This transparency not only keeps patients informed but also motivates them to maintain their commitment by making their progress visible and tangible.

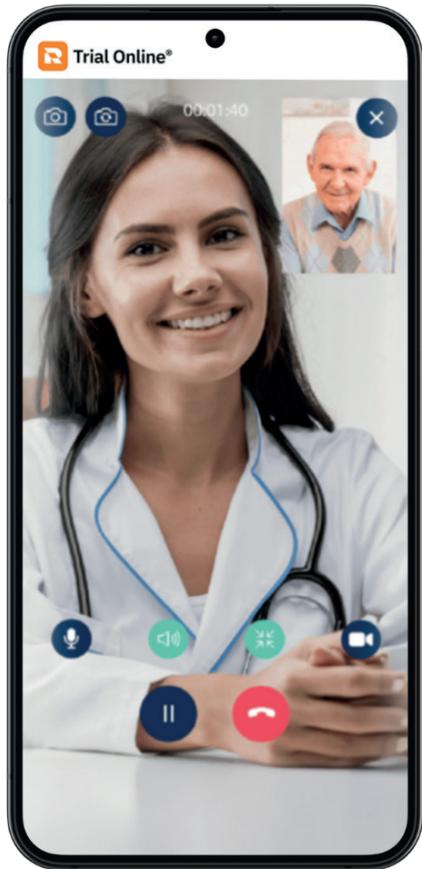
By blending gamification elements with real-time updates on their progress, Replior's ePRO system ensures that patients feel engaged and appreciated, creating a smoother and more rewarding experience that ultimately supports retention and data quality.

**"The integration of motivational techniques into mobile study applications is well-adopted by different patient populations to stay in the study, increase patient satisfaction, and obtain more robust statistical results in controlled clinical trials."**

Diego Herrera Egea, Director of Clinical Data & Digital Innovation, Almirall



## Pillar 2: Patient Compliance



An effective way to reduce patient dropout is by making clinical digital systems as patient centric as possible. Replior's approach focuses on creating convenient, accessible systems that minimize logistical burdens on participants.

Our ePRO and Virtual Visits apps enable patients to report protocol-required outcomes from the comfort of their own homes, eliminating the need for frequent travel and cumbersome paper forms. This flexibility is especially beneficial for patients with mobility challenges or those living in remote areas, making it easier for them to remain engaged in the study.

Our Trial Online® Virtual Visits facilitates direct, real-time communication between patients and site staff, supporting the exchange of images, videos, and voice recordings. This open communication channel helps patients feel connected to the trial, while also enhancing data accuracy by allowing real-time clarification and guidance.

By reducing logistical barriers and creating convenient, accessible systems, Replior's patient-centric design ensures higher compliance and reduces dropout risk, ultimately enhancing the quality and consistency of trial data.

**“Listening to this recording helps the participant accurately remember their baseline, increasing the accuracy of the assessment.”**

Amine Tahiri, VP Clinical Development Adult Programs, Noema Pharma

## Pillar 3: Data Quality

Clinical trial data quality includes not only accuracy and precision but also completeness. At Replior, we view achieving near 100% data quality as a responsibility, and we take participant burden into account, particularly for the most vulnerable groups. Reducing the effort required for data collection helps improve both compliance and data integrity, which are critical for successful trial outcomes.

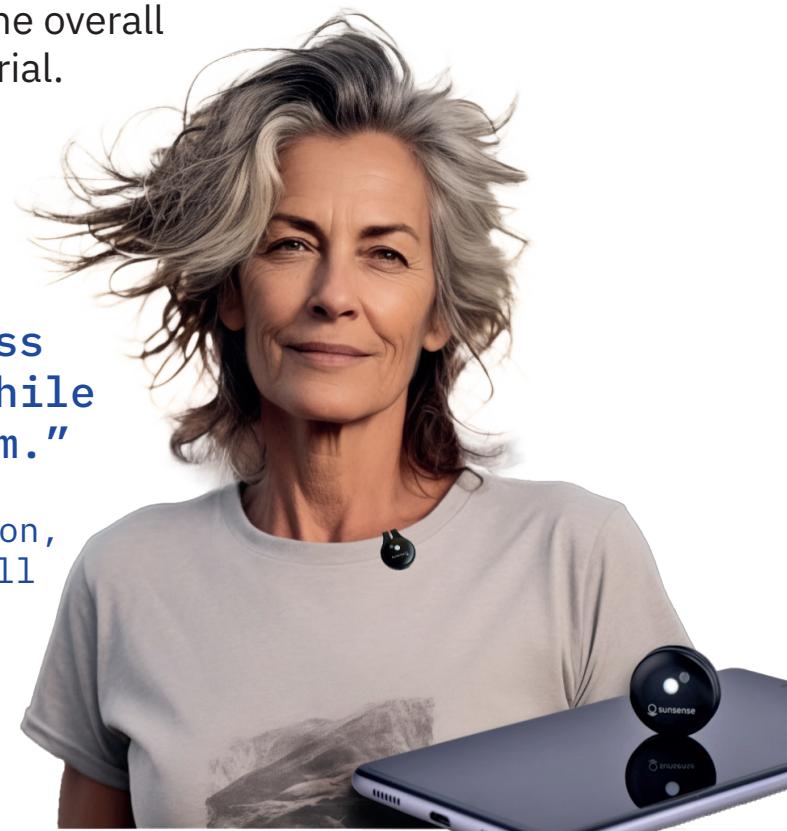
A prime example of Replior's commitment to ease of use is our UV sensor, a digital solution that passively collects data on participants' UV exposure. This non-intrusive sensor requires minimal effort from patients beyond simply wearing it, reducing participant burden while

**"We selected the Replior solution because integrating the UV sensor with the study ePRO app simplified access and supported participant retention and engagement, while streamlining UV exposure monitoring for our study team."**

Diego Herrera Egea, Director of Clinical Data & Digital Innovation,  
Almirall

maintaining consistent, reliable data collection. By integrating this sensor with our ePRO app, we provide automated data capture, supporting compliance and improving data quality.

Replior's approach to data quality leverages patient-friendly technology to ensure high-quality, complete data while making the process as effortless as possible for participants. This not only enhances data integrity but also encourages continued engagement, strengthening the overall success of the trial.



# Conclusion

The high costs of patient dropout and trial delays underscore the critical need for proactive patient engagement strategies. The time to reimagine patient engagement isn't after problems arise; it's at the beginning, during protocol design.

When trials face participant dropout and lack of engagement, the consequences extend far beyond logistical challenges. Patient dropout impacts data quality, compromises study validity, and often necessitates extended recruitment periods or even restarts. These delays can add years to trial timelines and prevent much-needed treatments from reaching patients sooner.

Investing in the three core pillars—patient retention, compliance, and data quality—may seem significant initially, but when measured against the high costs of dropout, prolonged timelines, and compromised data, these investments yield substantial returns. By prioritizing these pillars, sponsors and clinical trial leaders can secure reliable data, reduce timelines, and maximize both patient and trial success.

With the right approach and tools, clinical trials can transform from burdensome processes into engaging journeys that benefit all stakeholders. Replior is committed to reshaping the clinical trial experience, making trials more efficient, patient-centered, and successful from the outset.

**Replior's approach, centered on patient retention, compliance, and data quality, offers a solution that not only benefits patients but also increases trial efficiency.**



# Replior

Ready to strengthen your clinical trials with patient-first strategies?

**Get started with Replior today.**  
Schedule a meeting with our experts to discuss how you can reduce dropout rates, improve patient compliance, and collect high-quality data for your clinical trials.

