2025 Clinical Trial Trends & Insights

Intelligently connecting data and insights to navigate the clinical research trends of tomorrow

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Foreword

As the clinical research landscape advances, the 2025 WCG Trends and Insights Report highlights the most critical trends and innovations transforming when and how therapies are delivered to patients. Drawing from WCG's deep expertise, this year's report focuses on five pivotal areas, offering actionable insights to navigate the future of clinical trials.

Diversity in Clinical Trials remains a cornerstone of equitable research. Increasing representation in trials is essential for delivering therapies that benefit all populations. This year's report explores strategies for breaking down barriers, from community outreach to novel recruitment models.

The rise of **Artificial Intelligence and Machine Learning** is redefining operational efficiency. By optimizing trial design, participant recruitment, and site performance, these technologies are helping to accelerate timelines while enhancing trial precision.

Regulatory Innovation and the role of single IRB models reflects a significant shift toward streamlining review processes.

Single IRBs are improving consistency, reducing redundancy, and shortening study start-up times, especially in multi-site trials, paving the way for greater collaboration and efficiency in trial governance.

The focus on **Site Preparedness for Future Clinical Trials** emphasizes the elements that drive, and enable, success. Infrastructure and training, and fostering trust, collaboration, and team cohesion are all emerging as differentiators in site performance and participant engagement.

Finally, **Precision Oncology and Biomarker-Driven Trials** are ushering in a new era of tailored therapies. With biomarker-based approaches at the forefront, oncology research is delivering more targeted, effective treatments for patients, setting a new gold standard in personalized medicine.

These trends underline the innovation, inclusivity, and efficiency shaping clinical research in 2025.

This year's report equips stakeholders across the ecosystem with the knowledge to adapt, excel, and contribute to advancing clinical trials and improving patient health.

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Diversity in Clinical Trials

Diversity in Clinical Trials

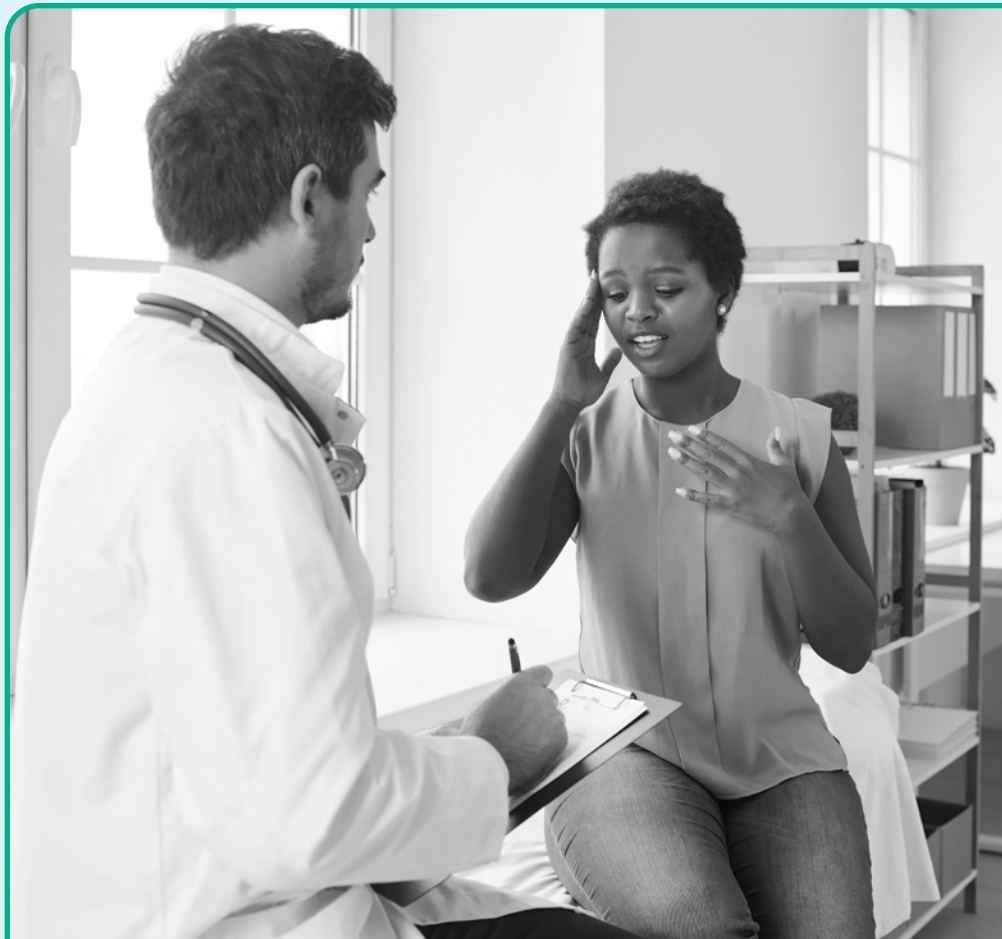
In recent years, diversity, equity, and inclusion (DEI) have become essential focus areas in clinical trials, with a primary goal of increasing participant diversity. However, the push for inclusivity extends far beyond enrollment numbers.

According to WCG data, participant diversity has improved significantly, with minority representation in trials increasing by 25% from 2018 to 2022. Gender representation has also seen a positive shift, with women now constituting 52% of trial participants, a notable increase from 45% in 2018. Additionally, our data indicates that the geographical reach of our clinical sites has expanded, with principal investigator (PI) locations now covering more diverse regions, enabling greater participation from varied demographic groups.

To address the evolving DEI practices, clinical trials are now designed to account for genetic, lifestyle, and environmental factors unique to different demographic groups. This approach aims to build a foundation for treatment decisions that better serve all patients, reducing healthcare disparities and fostering broader public trust.

Data from WCG shows that trials incorporating these inclusive designs report a 30% higher retention rate among diverse populations. As we progress, focusing on equitable data representation is critical to producing results that truly represent the global patient population, helping sponsors, regulators, and clinicians make informed, inclusive healthcare decisions.

Discover WCG's expert perspectives on advancing DEI in data for the next generation of clinical trials.



Amy Thue
Associate Director, Project Management

Diversity in Clinical Research: Every Participant Counts

The FDA's draft guidance on Diversity Action Plans brings a renewed focus and attention to initiatives that will assist in recruiting more diverse populations in clinical research studies. Its final guidance is anticipated to be released this year. Including populations in research who are most likely to use the study drug or device once it's on the market can lead to more effective treatments and a better understanding of potential adverse events. This guidance will increase the confidence of those healthcare providers prescribing the newly approved products.

The draft guidance may prompt stakeholders to implement solutions from various angles, but they could overlook the most crucial aspect.

> *"A concerted effort is required within communities to **raise awareness** of clinical research."*

Focusing solely on numerical targets for diversity action plans rather than addressing the human element involved in recruiting diverse populations misses the broader objective.

A concerted effort is required within communities to raise awareness of clinical research, the sites conducting that research, and the sponsors involved. This effort can increase trust in the clinical research process in more communities, thereby recruiting more participants from more diverse backgrounds. It is also crucial to treat every potential participant with respect and dignity. This includes fully informing them about the studies for which they are eligible and emphasizing the benefits for the participants, not just for the sponsor or site.

On-site study interactions are also critical. According to the Tufts Center for Drug Development Impact Report issued in November/December 2024, discriminatory behaviors from study staff harm trust and patient enrollment diversity. Tufts reported that potential participants of color who cite that study staff devalue their pain or medical symptoms or display impatience when asked about medical procedures are less trusting of study outcomes and less willing to participate in future trials.

A recent Research America National Survey on Clinical Trials found that while 49% of those surveyed were willing to participate in a clinical trial, only 26% reported that they or someone in their family has actually participated. Additionally, the top reasons for not wanting to participate included distrust, adverse side effects, and lack of awareness or information. If the clinical research industry can come together to alleviate the distrust and inform potential participants about the clinical research process, it can increase the number and diversity of study participants globally.

While the trust-building phase allows a minimal margin for error, the effort yields significant rewards: improved treatments for everyone.

Cristin MacDonald, PhD
Vice President, Client Delivery

The Importance of Diversity in Clinical Trials and the Impact of FDA Guidance

Diversity in clinical trials is not just a matter of fairness—it is a scientific imperative. Historically, clinical studies have underrepresented certain populations, which has led to gaps in our understanding of how different groups respond to medical treatments. A 2020 FDA report showed that 75% of participants in clinical trials for new molecular entities were white, while only 11% were Hispanic or Latino, 8% were Black or African American, and 6% were Asian. But the disparities can often go beyond race, traced to gender, age, socio-economic representation, and even sexual orientation. This lack of diversity can result in disparities in health outcomes, as treatments may not be as effective or safe for all population segments.

FDA Guidance on Diversity Action Plans to Improve Enrollment of Participants from Underrepresented Populations in Clinical Studies is expected to be released this year and represents a significant step forward in addressing these disparities. This guidance emphasizes the necessity of incorporating Diversity Action Plans (DAPs) in the planning and execution of clinical trials. By mandating that researchers proactively include participants from diverse backgrounds, the FDA aims to ensure that clinical trial results are more generalizable and applicable to the broader public.

Moreover, participant engagement is expected to see significant improvements. With a focus on diversity, trial designs can be more inclusive, addressing potential barriers such as language, cultural sensitivities, and logistical challenges. Engaging community leaders and leveraging local resources can also enhance participation rates and retention.

Diversity in Clinical Trials

As sponsors look to understand the impacts their trials have on all types of diversity, there are dual-sided benefits, in that sponsor companies are educated on the public's perception of clinical trials, specifically from diverse participants, and the public is educated more on the actual clinical trial process. By prioritizing the inclusion of diverse populations, educational initiatives can be tailored to raise awareness and understanding about the importance of clinical trial participation among underrepresented groups. This can lead to better engagement and trust in the medical research process.

Site identification is another critical area where the FDA's guidance will play a pivotal role. Identifying trial sites in areas that serve underrepresented populations will be imperative to enrolling more representative trial populations. This strategic approach can enhance the study findings' relevance and foster equity in clinical research.

The benefits of this guidance are profound. For the scientific community, it means more robust and reliable data, leading to better-informed decisions about the efficacy and safety of treatments across diverse populations.

For public health, it translates to more personalized and effective healthcare interventions, ultimately contributing to reduced health disparities and improved outcomes for all. The upcoming finalization of the FDA Guidance on Diversity Action Plans is a crucial development that promises to enhance the inclusiveness and relevance of clinical trials. By fostering diversity, we move a tiny step closer to achieving equitable healthcare and advancing public health for everyone.

> *"[Diversity in trials] contributes to **reduced health disparities** and **improved outcomes** for all."*

Scott J. Hunter, PhD
Senior Scientific Expert

Challenges and Innovations in Rare Disease in 2025

When considering what stands as a powerful need within the rare pediatric disease clinical trial community in 2025, it is a recognition that one of the most significant factors at play is genetic variability and how that is addressed regarding clinical trials. It is definitional in rare disease research that we consider conditions that impact a small number of individuals in comparison with many other diseases under investigation.

Simultaneously, because these diseases are most frequently genetic in their development and expression, it becomes necessary for teams working to understand the diagnosis and screening of these conditions and in the development of potential treatments that can ameliorate their impact, that the variation of the disease is an important focus. As discussed recently by Baynam and colleagues (2024), "rare disease genetic variation tends to cluster within different populations, geographic locations, and ancestry groups" (p. 261),[1] leading to a need to prepare to address both inclusivity and accessibility when engaging in clinical trials of new potential treatments.

As an example, with a rare lysosomal storage disease like Gaucher, prevalence worldwide is between 1/40,000 and 1/60,000 births, depending on the type, with specific genetic pools and regions affected (i.e., with Gaucher type 1, which affects 90% of patients with Gaucher disease, the majority of individuals are from Europe and North America).

Notably, the incidence of Gaucher type 1 among Ashkenazi Jewish families is 1/450 births, highlighting a particularly vulnerable genetically related population. To address this specific concern, it has become important within pediatric rare disease networks to push treatment researchers toward developing and implementing global clinical trials. Global trials where patient populations who are at most risk can be engaged and recruited for potential new interventions. To facilitate this approach to addressing health disparities that impact treatment access in particular, the identification of clinicians and study sites has become focused on maximizing inclusion opportunities and increasing accessibility to trials.

Given the current geopolitical context, this also means that clinical trial support networks must engage in greater outreach and recruitment of new potential researchers internationally. One of the outcomes of this need is the attention to accessibility of appropriate outcome measurements and meaningful endpoints that support understanding a broader potential for improvement and change given the treatments being evaluated.

This means improved approaches in assessment both at appropriate medical sites and clinics, as well as within the field, at homes, and at local sites, that can foster greater participation of individuals affected and their caregivers. Similarly, improving approaches to ensure linguistic and cultural considerations with such endpoint measures have been pushed to the forefront.

The focus on diverse participation and access to the populations needed for assessing clinical trial efficacy and outcome has led directly to a need to think outside our typical approaches taken and to reframe what the best option is for ensuring effective trial development and participation. This move forward has fostered increased success, without a doubt, within the neurodevelopmental and rare disease domains when thinking about treatments for pediatric populations. It remains the key consideration, in tandem with caregiver outreach and feedback, as we progress through 2025.

Reference: 1. Baynam, G., Baker, S., Steward, C., Summar, M, Halley, M. & Pariser, A. (2025). Increasing diversity, equity, inclusion, and accessibility in rare disease clinical trials. Pharmaceutical Medicine, 38, 261-276. DOI: 10.1007/s40290-024-00529-8

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Diverse Recruitment Strategies and the Future of Inclusive Clinical Trials

The upcoming year presents an incredible opportunity for advancing diversity and inclusion in clinical trials, reflecting a broader movement toward equitable healthcare solutions. The need for diversity in recruitment strategies is no longer just hopeful; it is quickly becoming an essential framework for ensuring that clinical trial results can be generalized to a global population.

As the industry evolves, there is a combined focus on flexible study designs, enhanced representation in clinical staff, and participant engagement strategies adapted to meet the needs of a wider range of participants.

> *"[Decentralization] **creates opportunities** for individuals who may otherwise be excluded from clinical trials."*

The central goals of reforming the research process should be building trust among underserved communities and treating potential participants fairly[1]

Decentralization is transforming how clinical trials are conducted, breaking down traditional barriers to participation and enabling greater reach across geographic and socio-economic divides. The use of decentralized or hybrid clinical trials has grown significantly, with estimates suggesting that as of 2024, roughly 40% of new clinical trials incorporate decentralized elements. This reflects a clear shift from traditional, site-based trials, particularly in the wake of the COVID-19 pandemic.[2]

By moving beyond centralized trial sites, opportunities can be provided for individuals who might otherwise be excluded.

Diversity in Clinical Trials

Intentionally seeking participants from different backgrounds through decentralization can help clinical trials achieve results that better reflect treatment effectiveness. Inclusivity benefits underrepresented populations, often overlooked in traditional trials, and advances personalized medicine, where treatments are tailored based on genetic, environmental, and lifestyle factors. With decentralized models, supported by emerging technology and communication, trials can meet participants where they are, making participation accessible to all populations.

The importance of age-appropriate approaches in trials involving children and teenagers is another critical focus that can be addressed by decentralization. Developing communication methods suitable for younger participants, involving parents appropriately, and creating adequate environments ensure that young participants feel included. For patients with disabilities, some steps are essential to improve accessibility, including physical accessibility at trial sites, adaptive communication tools like screen readers that read aloud digital text for participants with visual impairments, and support services. Inclusivity in clinical trials through specialized consent processes and adaptive communication sets a new standard for equity in clinical research. The operational advantages of decentralization improves patient convenience while reducing costs and enhancing data collection efficiency.[3]

As we look toward 2025, one of the most significant trends anticipated is the expansion of decentralized, inclusive clinical trials. Even in the face of potential shifts, the year ahead promises not only innovative treatments but also a reimagining of clinical trials that prioritize the needs of all participants, paving the way for a future where research is as diverse and accessible as the populations it serves.

References:

1. Alsan, M., Schpero, W. L., Hochman, M., et al. (2023). Building trustworthy clinical trials through diversity: A policy imperative. The New England Journal of Medicine, 383(874-882). https://doi.org/10.1056/NEJMp2215609

2. Applied Clinical Trials, FDA Finalizes Decentralized Clinical Trial Guidance, https://www.appliedclinicaltrialsonline.com/view/fda-decentralized-clinical-trial-guidance

3. Hanley, D. F. Jr, Bernard, G. R., Wilkins, C. H., Selker, H. P., Dwyer, J. P., Dean, J. M., Benjamin, D. K. Jr, Dunsmore, S. E., Waddy, S. P., Wiley, K. L. Jr, Palm, M. E., Mould, W. A., Ford, D. F., Burr, J. S., Huvane, J., Lane, K., Poole, L., Edwards, T. L., Kennedy, N., ... Harris, P. A. (2023). Decentralized clinical trials in the trial innovation network: Value, strategies, and lessons learned. Journal of Clinical and Translational Science, 7(e170). https://doi.org/10.1017/cts.2023.597

Jessica Thurmond
Program Director

The Intersection of Diversity and Technology in Clinical Trials

Even if you don't consider yourself a "techie," you've probably heard the phrase "generative AI" over the last few years. While the use of technology has enormous promise across many areas of the clinical trial industry, there are a host of ethical and operational considerations.

> *"I'd take it a step further and ask, '**How does this data help the patient?**'"*

Since 2020, we've seen a significant surge in the investment and adoption of devices and technology within clinical trials, many focusing heavily on remote monitoring capabilities.

Remote patient monitoring (RPM) and remote therapeutic management (RTM) billing codes across the industry are sparsely used. They're challenging for providers and require numerous touchpoints and effort spent for a relatively small reimbursement. In my conversations with many physicians, the question often arises, "How valuable is this data to me as a clinician?" I think that's a question technology developers should consider. I'd take it a step further and ask, "How does this data help the patient?"

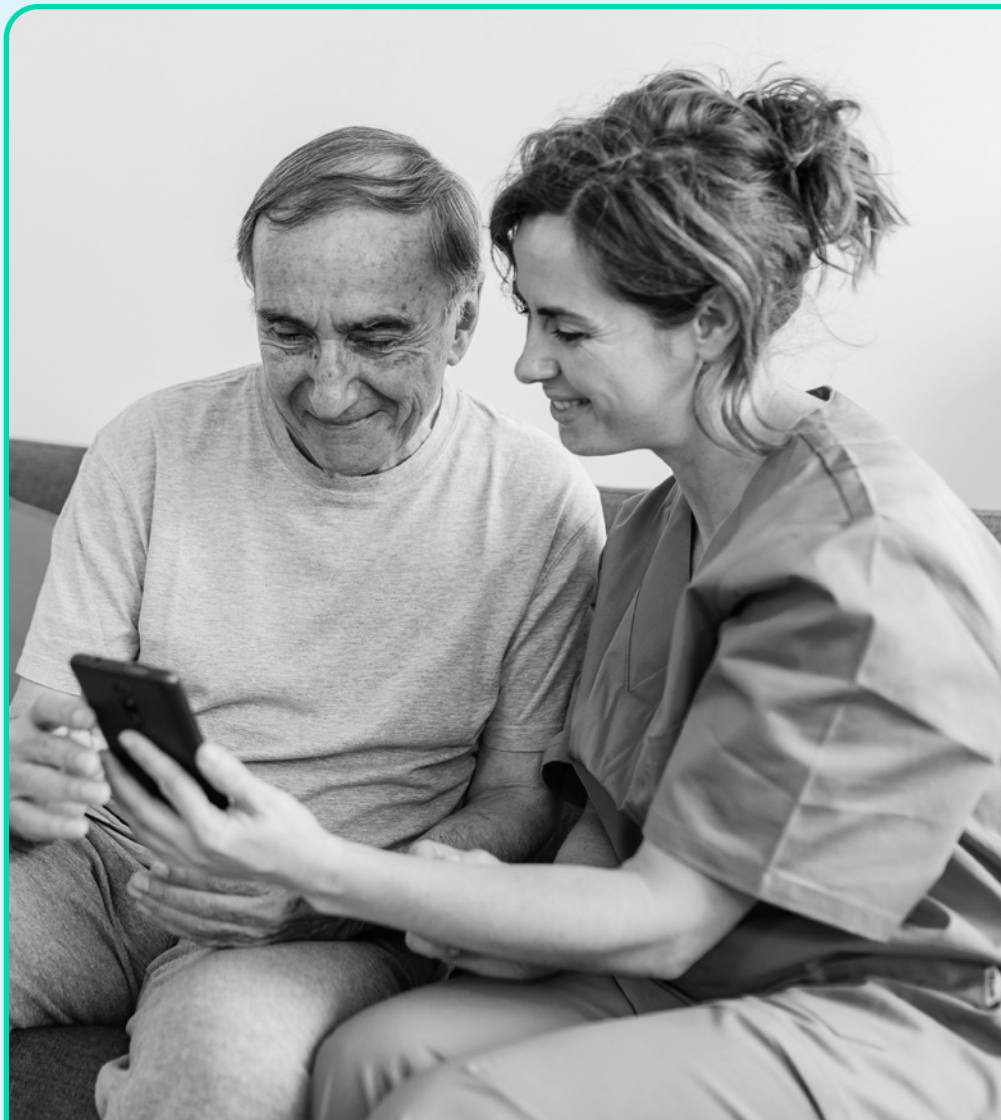
Without wider adoption of remote patient monitoring in the broader healthcare industry, we will continue to see clinical trials struggle to push the needle forward in adopting technology in a real-world research setting. For example, so many new solutions bank on participant adoption of technology such as trial matching platforms or ePROs – but if they are built for endpoint collection, what is the value to that particular end user?

Diversity in Clinical Trials

If the goal is to expand access to clinical trials, there are a variety of obstacles and ethical considerations when implementing technology. For example, within underserved communities the app you built to monitor their progress in a study is likely the first app they will delete. This isn't because they're a "bad research participant," but rather because many people from lower socio-economic demographics have limited data storage on their phones, leading them to swap out apps when it gets full.

Pew Research highlights that nearly one-quarter (26%) of adults with lower incomes rely exclusively on smartphones for internet access, meaning these devices serve as their primary or sole connection to the digital world. This reliance often results in storage and performance limitations, as they frequently use budget or older devices with restricted capacity. Additionally, affordability issues lead many to prioritize essential apps, uninstalling others when space runs out. Similarly, whether the sponsor has allocated adequate participant stipend funds for internet or cell phone service will heavily impact the success and adoption of your tool.

Regarding technology and access to trials, the answer will always be, "it's complicated," but perhaps it doesn't need to be. My hope for the industry moving into 2025 is that we make better use of our combined goal of expediting drug development by conscientiously developing technology that better supports the people and patients for which they are designed.



Pat Harrington, PhD
SVP, Clinical Solutions and Strategic Partnering

Diversity in Clinical Trials: A Scientific Imperative for 2025

Diversity in clinical trials isn't about fulfilling a mandate or aligning with a social agenda—it's about ensuring good science and better patient outcomes. With the FDA's diversity action plan requirements for Phase III clinical trials set to take effect in mid-2025, there is no better time to prioritize inclusive trial designs across all phases of drug development.

Scientific evidence underscores the critical importance of diversity. Differences in medical product safety and effectiveness can emerge based on factors such as age, ethnicity, sex, and race. Without adequately representing the populations most affected by a disease, clinical trial data risks being biased, potentially resulting in treatments that are less effective—or even harmful—for underrepresented groups. Including diverse participants early in the research process produces more robust efficacy and safety data, paving the way for advancements in precision medicine.

Looking ahead, this scientific rigor demands a proactive approach. To improve the generalizability of trial results, researchers must align trial demographics with the real-world populations affected by the disease under study. By doing so, clinical research can better inform public health strategies and reduce disparities in both treatment access and outcomes.

Diversity in Clinical Trials

Historical data shows underrepresentation of minority groups in clinical trials, with Black and Hispanic populations frequently accounting for less than 10% of participants, despite their higher disease burdens for conditions like diabetes and certain cancers. Addressing this disparity is crucial for ensuring trial outcomes are applicable to the populations most affected by these diseases.[1]

Moreover, fostering diversity in trials offers an opportunity to rebuild public trust. Medical research has a complicated history with marginalized communities, often perpetuating bias or exclusion. Intentional engagement and relationship-building within these communities are essential to restoring confidence in the clinical trial process and demonstrating that medical progress truly serves everyone.

The FDA's upcoming diversity requirements provide a baseline, but science calls us to go further.

By examining broader biological and social determinants of health, researchers can create trials that contribute not just to innovation but also to equity in healthcare. In 2025, the focus on inclusive trial design will not only meet regulatory expectations but will also help ensure that medical breakthroughs have a global and equitable impact.

References:

1. National Institute on Minority Health and Health Disparities, https://www.nimhd.nih.gov/resources/understanding-health-disparities/diversity-and-inclusion-in-clinical-trials.html

RELATED INSIGHTS

FDA's Path Toward Diversity in Clinical Trials: The DEPICT Act and Sponsor Responsibility

The DEI Mandate: What's on the Horizon and What's Needed for IRB and Recruitment Processes

The DEI Mandate: How to Accelerate Diversity Initiatives with Data Analytics and Planning

Site Preparedness for Future Clinical Trials

Site Preparedness for Future Clinical Trials

The ability of clinical trial sites to operate efficiently and adapt quickly to sponsor needs is crucial for successful trial execution. According to WCG's 2024 Clinical Research Site Challenges Report, a common hurdle is the need for improved communication and streamlined collaboration between sponsors and sites.

Addressing these challenges requires building a framework that supports better site readiness, including enhanced training, real-time data access, and clear communication pathways.

The report highlights that 78% of sites experience delays due to poor communication, and 65% of sites identify the lack of real-time data access as a significant barrier. Additionally, 72% of sponsors believe that enhanced training would substantially improve site performance.

When sponsors work closely with sites to align on protocols, timelines, and resources, the likelihood of avoiding delays and mitigating site-level challenges increases significantly. As we look to future trials, empowering sites with the necessary tools and support is key to ensuring streamlined operations, timely participant recruitment, and high-quality data collection, ultimately setting a strong foundation for trial success. Learn more from WCG's experts on advancing site readiness for future clinical trials.

78%

*of sites reported **trial delays** due to **poor communication***

65%

*of sites are hindered by **lack of real-time data.***

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Elevating Site Preparedness: Trends and Strategies for 2025

As we enter 2025, clinical research sites face an increasingly dynamic and complex environment. In the recently released WCG 2024 Clinical Research Site Challenges Report, we collected data from a variety of sites on the headwinds and obstacles they faced in 2024.

Notably, the operational challenges sites face due to the increasing complexity of studies and the obstacles in the study start-up process, resulting in lengthy timelines, emerged among the top five trends.

The operational and strategic choices sites make this year will define their ability to thrive in an era of adaptive trial designs, cutting-edge therapies, and heightened expectations for efficiency.

Site Preparedness for Future Clinical Trials

Study Activation: Breaking the Barriers

For many sites, the gold standard to study activation is the National Cancer Institute's recommended 90-day "time to activation," which is defined a bit differently by each institution. Even for sites not conducting a large volume of oncology studies, most sites target 90-120 days for their end-to-end start-up timeline.

Often, looking at the median time to activation can be most helpful when understanding where a site currently stands but may lead to further investigation into outliers in the upper range, dragging down the overall average. So, how does a site prepare for a high degree of accountability in this ever-changing landscape?

When it comes to complexity within the start-up process, few trials set the bar higher for sites than cell and gene therapy (CGT) studies. In the coming year, clinical trials involving CGT products are expected to play an important role in the development of new therapies in an expanding range of therapeutic areas.

For example, some CD19-directed therapeutic approaches developed for hematology/oncology indications are being repurposed for the treatment of autoimmune diseases, such as lupus, and many of these clinical trials will begin in 2025. Sites wishing to prepare for CGT research can take a variety of approaches.

Any sites looking to become involved in CGT clinical trials should have an Institutional Biosafety Committee (IBC) registered with the NIH. Although approaches involving the manufacture of autologous cellular products can require a large investment in facilities, staffing, and training, many other CGT approaches can be undertaken with relatively small changes to equipment and procedures.

For trials involving complex manufacturing and clinical management, new sites may wish to partner with larger, more experienced sites to enroll subjects in a "hub-and-spoke" model.

Site Preparedness for Future Clinical Trials

Aside from the regulatory consequences, we have repeatedly seen the impact these challenging trial designs, like cell and gene therapies, can have on study start-up. A seemingly straightforward schedule of events can cascade into a web of extensive start-up tasks that impact the overall activation timeline. The operational complexity of CGT trials, for instance, often requires large, multi-disciplinary teams with expertise in areas like advanced storage solutions, patient-specific customization, and specialized clinical protocols.

This complexity can lead to longer trial start-up times as every step builds on prior activities, impacting the activation timeline and trial readiness. And in advanced therapeutic trials, start-up challenges are compounded by regulatory hurdles and site selection requirements. CGT trials in particular are known for their lower throughput compared to traditional trials due to the bespoke nature of the therapies.

For example, a single line item in the schedule of events, such as “patient assessment,” can expand into numerous detailed entries in a Medicare Coverage Analysis (MCA). When closely examined, this single procedure can encompass a wide array of specific tasks and requirements.

*“In advanced therapeutic trials, start-up challenges are compounded by **regulatory hurdles** and **site selection requirements.**”*

For instance, a “patient assessment” could be parsed into distinct components like physical examinations, laboratory tests, imaging studies, and specialist consultations.

Each of these components then needs to be analyzed in terms of cost, frequency, whether it qualifies as routine clinical care or a research-specific expense, specific billing codes, compliance with Medicare regulations, and which entity — sponsor or payer — bears the financial responsibility.

Often, however, the sponsor-provided budget aligns differently from this detailed breakdown, as sponsors typically base budgets on overarching categories, overlooking the specifics uncovered during the MCA process.

This budgetary misalignment can necessitate additional financial negotiations and adjustments, complicating the initial planning phase and extending activation timelines by weeks or even months. Integrating the MCA and final approved budget/Clinical Trial Agreement (CTA) into a Clinical Trial Management System (CTMS) presents another layer of complexity. Harmonizing the study calendar with the financials becomes a meticulous task, requiring an accurate reflection of every line item to ensure clinical and financial schedules match.

Any discrepancies in the system can lead to budget inaccuracies, compliance risks, and logistical challenges. Consequently, this rigorous process underscores the necessity for meticulous coordination and continuous communication among all stakeholders to achieve a seamless start without significantly impacting study activation timelines.

Budget Negotiations: The Hidden Bottleneck

One specific piece of the process we've identified as typically having some of the greatest flexibility — for better or worse when it comes to the overall timeline — is budget negotiations. They are often the rate limiting step that extends start-up timelines beyond intended targets. Given the total dollar figures represented in many clinical trial budgets, this isn't a surprising fact on its own.

The "white space," which we define as the unproductive time spent between active review, is a significant factor in extending the budget timelines. This is the time spent with any party waiting for approval, sitting in someone's queue for review, or waiting to schedule a follow-up call.

We see that negotiations take 5-10 hours of active effort for a site negotiator. Allowing for a similar amount on the sponsor's side, that is 10-20 hours of total effort for a process that can often extend 9+ weeks. In that scenario, the budget is actively being worked on for less than 6% of the time over those 9 weeks. For organizations looking to reduce start-up timelines, the goal becomes clear: focus on reducing the white space. Each party can control a portion of this by limiting their own response timelines. Beyond that, you can influence white space on the other end by making it as easy as possible for the other party to review. Providing upfront justification, using standard editing practices like color coding, and employing a clean-as-you-go approach can all help eliminate confusion and prioritize your budget in what is often a large queue.

Most importantly, know your limits and communicate that early. It's common to see parties prolong negotiations but then agree to a budget on day 100 that isn't materially different from the budget offer on day 50. The intricate network of activities involved in clinical trial start-up highlights the importance of meticulous planning, detailed analysis, and ongoing coordination among all stakeholders.

Successfully navigating these complexities is essential for timely study activation and overall trial success. Through continued process reviews, stakeholder collaboration, and effective communication, the potential delays in study activation can be mitigated, paving the way for a seamless and efficient trial.

*"For organizations looking to reduce start-up timelines, the goal becomes clear: **focus on reducing the white space.**"*

The Human Side of Research: Supporting Teams

Though we focus heavily on the metrics and data of what we do as an industry, we'd be remiss not to acknowledge the softer side of research. While serving participants and prioritizing their health is the north star of our work, so must be the wellness and health of our colleagues. While the impact of the Great Resignation has diminished, the risk of site staff burnout is real so supporting and equipping a high-performing team for success is critical to site excellence and individual motivation.

Developing team camaraderie requires taking the time to develop an environment of trust where members feel valued and connected to each other and the goals of clinical research. This is the "secret sauce" that can propel a site from being adequate to high performing. All too often it is expected that as professionals we will naturally come together as a team and foster motivation in each other.

Yes, sometimes that occurs organically and with a little extra work, but attention is generally required. This means having meetings with explicit discussions about building mutual trust – based on open and honest communication.

The leaders at the site need to share challenges and mistakes and be willing to seek help and ideas from staff. This type of vulnerability demonstrates from the top down that team members are valuable. This type of safe environment will empower your team to act decisively and collaborate. Making sure there are some enjoyable "outside work" activities for team members to enjoy will also help to create a strong team. These activities do not have to be grand in nature.

Site Preparedness for Future Clinical Trials

More casual outings can accomplish the goals of increased social interaction and recognition of team member accomplishments. The very nature of our work in helping to develop medicines, devices, and other treatments for diseases is compelling and should be reinforced as a part of your team's development plan.

High-functioning teams deliver better results and enhance a site's reputation, making it more attractive to sponsors and top talent. Ultimately, this balance between operational excellence and human connection will define the most successful sites in the evolving clinical research landscape.

RELATED INSIGHTS

Decoding the Top Site Challenges of 2024:
The Complexity of Clinical Trials

Decoding the Top Site Challenges of 2024:
Recruitment & Retention

Decoding the Top Site Challenges of 2024:
Study Start-Up

*"High-functioning teams deliver **better results** and **enhance** a site's **reputation**."*

Artificial Intelligence and Machine Learning in Clinical Trials

Artificial Intelligence and Machine Learning in Clinical Trials

According to recent data from the Tufts Center for the Study of Drug Development and the Drug Information Association (DIA), the integration of artificial intelligence and machine learning in clinical trials can reduce study timelines by up to 30% and cut costs by as much as 20%. Predictive models powered by AI can analyze vast datasets, identifying potential delays and risks before they arise. This proactive approach allows sponsors and CROs to allocate resources effectively, cut down on trial duration, and reduce costs.

In addition to operational efficiency, AI-driven analytics are enhancing the precision of patient recruitment and retention, and endpoint tracking, ensuring that trials stay on course to meet their objectives. By leveraging these technologies, clinical research is becoming more adaptive, agile, and cost-effective, opening the door to an era of more dynamic and efficient clinical trials.

Read on to explore how WCG's thought leaders are driving AI innovation in clinical trial operations.

Melissa Hutchens
Vice President, Research and Benchmarking

Harnessing AI and Machine Learning in Clinical Development

The integration of artificial intelligence (AI) and machine learning (ML) into clinical research is rooted in the exponential growth of data availability. In recent years, clinical trials have been bolstered by the collection of vast and diverse data sets, encompassing electronic health records, genomic sequences, real-world evidence, and patient-reported outcomes.

For example, the volume of healthcare data is expected to reach 10k exabytes by 2025,[1] providing an unprecedented reservoir of information for AI and ML applications.

Indeed, AI algorithms have already demonstrated their ability to analyze this data with remarkable speed and accuracy, identifying patterns and insights that were previously unattainable.

Moreover, robust datasets are now enabling researchers to leverage AI and ML for predictive modeling with higher precision. For instance, a study published in *Nature* highlighted how AI models, trained on extensive genomic and clinical data, significantly improved the prediction of treatment responses in oncology patients. This leap in predictive capabilities underscores the transformative impact of high-quality data and advanced analytics in clinical research.

Artificial Intelligence and Machine Learning in Clinical Trials

In discovery, ML models — both traditional and deep learning — are being employed to identify drug targets and predict molecular interactions that alter disease mechanisms. On the development side, ML applications are expanding rapidly. These include predicting trial success rates, optimizing protocols, selecting countries and sites, and even forecasting costs. Achieving these outcomes demands a structured data framework, defined modeling approaches, and cross-functional collaboration to interpret and implement model insights effectively.

Data-related challenges remain a significant hurdle. High-quality, structured, and accessible data is essential for reliable ML models. Companies must address issues like data governance, literacy, and security while fostering collaboration between business and technology teams. The expertise of business professionals is particularly critical to guide model design, select input variables, and interpret results, ensuring AI applications meet real-world needs.

WCG has been at the forefront of tackling these challenges, leveraging central benchmarking databases to enhance ML applications. By curating anonymized, high-quality data from client contributions and WCG's proprietary resources, these centralized databases create an optimal environment for training and applying ML models.

For example, WCG KMR's benchmarking data serves as a unique peer resource, supporting companies as they build data-driven solutions to improve trial outcomes. This collaborative model demonstrates how shared data can elevate the reliability and effectiveness of ML in clinical research.

> *"High-quality, structured, and accessible data is essential for* ***reliable machine learning models.****"*

Artificial Intelligence and Machine Learning in Clinical Trials

In a recent WCG webinar on DEI analytics, gradient boosting ML models were showcased to predict a site's likelihood of enrolling diverse populations. By aligning data sources such as site enrollment figures, location demographics, social determinants of health, and disease prevalence, the models revealed actionable trends.

For example, sites in areas with higher proportions of specific populations, like Asian and Hispanic communities, showed increased probabilities of enrolling those demographics.

Site type (institutional vs. community) was a key factor for enrolling Black participants in oncology studies. Additionally, social determinants like frequent doctor visits and higher use of preventive screenings were associated with greater diversity in enrollment. These insights help refine site selection and enhance DEI in clinical trials.

In 2025, the integration of AI and ML in clinical development represents not just an emerging trend but a pivotal shift. By focusing on high-quality data, fostering collaboration, and addressing data challenges, organizations can unlock the full potential of these tools. Strategic implementation of ML can accelerate trial efficiency, support inclusive research, and position the industry for a more innovative and equitable future.

References

1. LEK Consulting. "Tapping New Potential: Realising Value from Data in the Healthcare Sector." https://www.lek.com/insights/hea/eu/ei/tapping-new-potential-realising-value-data-healthcare-sector.

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The Role of AI in Predictive Biomarker Patient Matching

In precision medicine, particularly in oncology, artificial intelligence (AI) is transforming patient care through predictive biomarker matching, which enables personalized treatment approaches that surpass traditional one-size-fits-all methodologies.

Biomarkers, which are signature molecules that reflect biological states, have long been used to guide treatment decisions by predicting disease progression, patient response, and potential therapeutic efficacy. Biomarker-informed therapies have demonstrated success, with treatment response rates increasing from 20% to approximately 42% when biomarkers are used, according to data from the Personalized Medicine Coalition. However, challenges in data integration and the complexities of disease heterogeneity limit the widespread clinical adoption of biomarker-driven approaches.

AI, specifically machine learning (ML), is proving to be pivotal in addressing these challenges. Unlike traditional biomarker methods that focus on individual traits, AI enables researchers to interpret intricate patterns across thousands of biological data points, creating a more holistic understanding of disease biology.

For example, sophisticated ML algorithms can integrate diverse datasets, including genomic information, proteomics, and clinical trial data, allowing clinicians to develop dynamic, personalized treatment strategies. This data harmonization provides a comprehensive view of patient biological profiles, enhancing the precision of treatment selection.

Artificial Intelligence and Machine Learning in Clinical Trials

In practice, AI aids in multiple key areas of biomarker matching: data integration and management, predictive modeling, and dynamic biomarker tracking. Integrating data from various sources, such as electronic health records (EHRs), specialty labs and genomic databases, is crucial for effective biomarker discovery. Predictive analytics then enable clinicians to identify patients most likely to benefit from specific therapies, minimizing the trial-and-error approach that can characterize traditional treatments.

Moreover, as biomarkers can evolve over time, AI's continuous tracking capabilities allow for real-time adjustments, ensuring ongoing treatment relevancy. However, as AI-driven biomarker matching advances, ethical considerations regarding patient data privacy and algorithmic accuracy and transparency remain essential. Promoting ethical standards and transparency in AI applications fosters trust and ensures that technology translates into meaningful patient benefits.

As AI continues to redefine biomarker matching in 2025 and beyond, it holds the potential to revolutionize clinical trial success rates, improve patient outcomes, and ultimately reduce healthcare costs across therapeutic areas.

Silvio Galea
Chief Data & Analytics Officer

Generative AI: The Path to Unlocking Value

The adoption of Generative AI (GenAI) by consumers and enterprises has easily exceeded that of the internet, PCs, or mobile devices. In the United States, 40% of adults use GenAI,[1] 65% of organizations provide employees with access to GenAI services,[2] and 70% of teens are engaging with this technology.[3]

While these metrics are impressive, true success lies in seamlessly integrating GenAI into daily workflows to unlock its potential and deliver tangible value. The complexity of clinical trials continues to grow, and GenAI offers promising solutions to address these challenges. From streamlining protocol design to automating patient recruitment, GenAI is already reshaping how trials are conducted.

By summarizing large datasets, structuring unstructured content, generating documentation, and personalizing communications, it enables researchers to focus on advancing therapies. At WCG, we're leveraging GenAI to enhance operational efficiency while maintaining compliance, ensuring that innovation goes hand-in-hand with ethical practices. The real power of GenAI lies in embedding it into workflows in a way that reduces manual burdens and accelerates decision-making.

Just because we can, doesn't always mean we should — this principle is especially true for GenAI given its ubiquity and relative availability. To identify the optimal uses for GenAI at WCG, we expanded our intake funnels, interviewed key stakeholders from across our enterprise, and conducted rapid pilots to hone in on the opportunities best suited to benefit from this technology. Through this process, we uncovered patterns that allowed us to shift from asking, "Can we use AI for...?" to asking, "How can we scale this to streamline processes, allowing us to focus on higher-value work?" Most of our use cases were classified into one of three areas: document assistants, language assistants, and tools for automating formulaic or repetitive tasks. This also allowed us to reuse and accelerate both implementation and adoption, maximizing the value of GenAI for our teams.

Artificial Intelligence and Machine Learning in Clinical Trials

"Build it, and they will come" — right? Wrong. Despite the recently popular saying, "AI won't replace your job, but someone using AI will",[4] adopting change is challenging, particularly in regulated operational environments. Even with strong leadership buy-in, comprehensive training (a critical yet often underrated component with GenAI), and robust change management support, hidden hurdles often emerge. These include loss aversion, lack of trust, and apprehension about new tools and methods — challenges compounded by the uncertainties surrounding GenAI's capabilities and limitations.

We've found that the more invisible the integration is, the more effective GenAI becomes in our workflows. It smooths adoption by removing barriers to use and also gathers telemetry data to quantify value creation. Whether it's a plugin to Microsoft Office, a background operation that transforms document information into structured data, or an automated language-processing function within a pre-existing tool, the more native and integrated it is, the easier it is to use.

A good example is the simplicity of ChatGPT's input box interface, which was instrumental in bringing GenAI to the masses. GenAI serves as an assistant, not a replacement, emphasizing the need for thoughtful review and oversight of its output. Responsibility ultimately lies with the individual who triggers the operation and is provided with the opportunity to update the output – a practice referred to as "human in the loop." Looking ahead to 2025, ethical and responsible use of AI will be a prominent theme in the headlines, as well as AI governance, which will outline practices the industry needs to operationalize to ensure adherence to data training privacy, regional regulations, transparency in training data, and guardrails for its use. A topic for another day, but in the meantime, let's not fall asleep at the wheel.

References

1. Pew Research Center, 2024
2. Gartner, AI Adoption Trends Report 2024
3. Common Sense Media Study, 2024
4. Andrew Ng, AI in Practice, 2023

RELATED INSIGHT

Ethical Review & AI in Clinical Trials

Precision Oncology and Biomarker-Driven Trials

Precision Oncology and Biomarker-Driven Trials

The global market for precision oncology is on track to reach $98 billion this year highlighting the growing investment and interest in this field. This surge in personalized medicine is underscored by the rise of basket and umbrella trials, which enable the concurrent testing of multiple targeted therapies across various cancer types or genetic mutations.

Precision oncology is swiftly revolutionizing cancer treatment by emphasizing biomarker-driven trials that target specific genetic and molecular profiles. Biomarkers, which are measurable indicators of biological processes, pathogenic processes, or responses to an exposure or intervention, are not limited to oncology but play a pivotal role across a range of medical fields. These markers help guide researchers in identifying which patients are most likely to benefit from specific therapies, thereby personalizing treatment approaches.

As our comprehension of cancer genomics expands, clinical trials are increasingly tailored to individual patients, often based on the unique biology of their tumors. Biomarkers play a crucial role, guiding researchers in identifying which patients are most likely to benefit from specific therapies.

This targeted methodology not only enhances the effectiveness of treatments but also reduces unnecessary exposure to ineffective therapies, thereby improving patient safety. The shift towards biomarker-driven trials in oncology and other therapeutic areas like CNS signifies a move toward a more personalized, data-driven approach to treatment, which holds great promise for improving patient outcomes. Discover WCG's expert perspectives on the future of precision oncology and the design of biomarker-driven trials.

$98 billion

*is the **projected global market reach** for precision oncology by 2025.*

Sharad Adekar, MD, PhD, CIP
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Currien MacDonald, MD, CIP
Medical Chair Director

Advancing Precision Medicine in Oncology: From One-Size-Fits-All to Biomarker-Driven Treatments

Former U.S. President Obama called precision medicine, "Health care tailored to you."[1] Nowhere is precision medicine more critical than in oncology, where life and death clinical decisions are based on an individual's genetic or biomarker results. In the last decade, precision medicine approaches made a paradigm shift in the understanding and treatment of cancer.[2]

From "one-size-fits-all" to an individual, biomarker-driven treatment, precision medicine improved treatment outcomes and patient survival rates, while reducing toxicity.[3]

Despite tremendous progress, much is left to do. The number of biomarkers is vast and complex. A disease biomarker may be a combination of factors, such as multiple genes and proteins barely detectable. Research study designs have been evolving to meet these needs, with the classic basket and umbrella master trial designs requiring biomarker validating components. Similarly, increased complexity with changing master trial designs may move science forward more efficiently. For example, NCI-MATCH has evolved into ComboMATCH to address the issues of tumors having more than one gene driver and cancers developing resistance to treatment.[4]

Furthermore, biomarkers and precision medicine approaches will evolve as disease treatments evolve. Next-generation, multi-gene DNA sequencing will grow into multi-RNA sequencing and multi-modal panels, including nucleic acid and other omics-based target testing. Precision medicine requires biomarker-driven targeted treatment, and with cancer's heterogeneous nature, further profiling of patient tumor tissues will be required.

Precision Oncology and Biomarker-Driven Trials

The standard collection of tissue and blood samples for DNA will commonly add RNA sequencing, gene expression, mutation and deletion profiles, protein expressions, immune repertoires, tumor microenvironment, and metabolic changes to drive cancer treatment's increased rate of success. The precision medicine approach works hand in glove with drug development. The biomarkers found in tyrosine kinases, EGFR, ALK, KRAS mutations, immune checkpoints, and T-cell targets resulted in the approval of products targeting those biomarkers. That trend will continue and mature.

Ensuring biomarkers achieve their potential requires the assays to detect them are high quality, accurate and safe and effective. When used to identify patients who are most likely to benefit, be at increased risk, or need monitoring from a particular product, the assay to detect the biomarker is a companion diagnostic device (CDx). These CDx provide information essential for the safe and effective use of a corresponding drug or biological product. As of October 31, 2024, there are 168 FDA-cleared or approved CDx (In Vitro and Imaging Tools).[5]

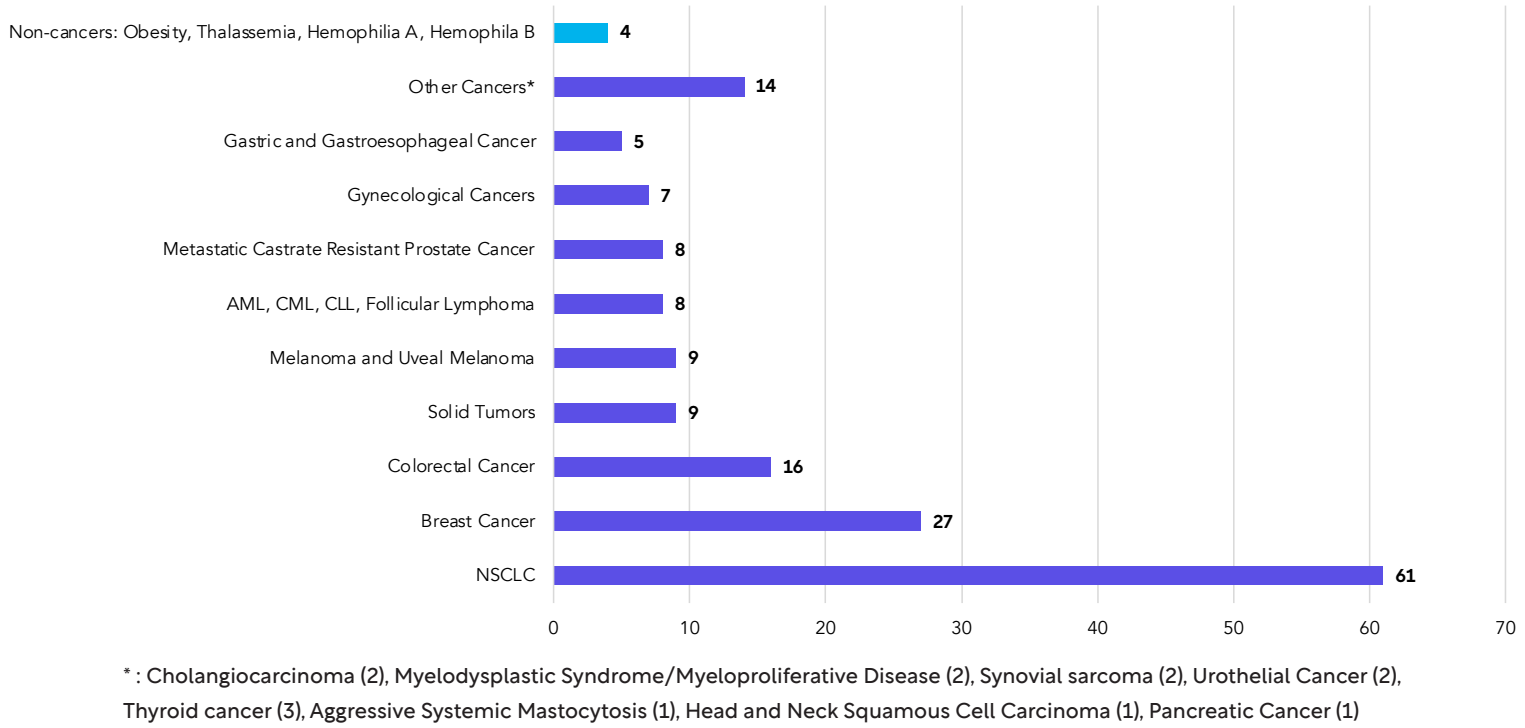
*"Ensuring biomarkers achieve their potential requires the assays to detect them are **high quality, safe,** and **effective.**"*

Out of the 168 FDA-cleared or approved CDx, 164 (97.7%) are for oncology indications and only four (2.3%) are for non-oncology indications (see Figure 1 on next page).

The FDA, as always, will be advancing with the technology. This started with the 21st Century Cures Act detailing the Oncology Center of Excellence.[6] Bringing together the expertise across drug and device realms for the trials testing companion diagnostics and platform treatment approaches will require exemplary coordination. For example, developing the next decade of gene therapy products will mean testing off-the-shelf CAR-T products with biomarker-directed targets. Institutional Review Boards (IRBs) will also need to keep pace and realize last year's exploratory objectives are next year's companion diagnostics, staying current on the technology and regulatory components. Only in this way can we all support the true value of precision medicine.

Precision Oncology and Biomarker-Driven Trials

Figure 1



* : Cholangiocarcinoma (2), Myelodysplastic Syndrome/Myeloproliferative Disease (2), Synovial sarcoma (2), Urothelial Cancer (2), Thyroid cancer (3), Aggressive Systemic Mastocytosis (1), Head and Neck Squamous Cell Carcinoma (1), Pancreatic Cancer (1)

References

1. The White House. "Precision Medicine." The White House, https://obamawhitehouse.archives.gov/precision-medicine.
2. Rulten, S.L.; Grose, R.P.; Gatz, S.A.; Jones, J.L.; Cameron, A.J.M. The Future of Precision Oncology. Int. J. Mol. Sci. 2023, 24, 12613. https://doi.org/10.3390/ijms241612613
3. Nature. “Milestones in Cancer.” https://www.nature.com/immersive/d42859-020-00083-8/index.html
4. National Cancer Institute. "New NCI Precision Medicine Trials." Cancer Currents Blog, https://www.cancer.gov/news-events/cancer-currents-blog/2023/new-nci-precision-medicine-trials.
5. U.S. Food and Drug Administration. "List of Cleared or Approved Companion Diagnostic Devices (In Vitro and Imaging Tools)." https://www.fda.gov/medical-devices/in-vitro-diagnostics/list-cleared-or-approved-companion-diagnostic-devices-in-vitro-and-imaging-tools.
6. U.S. Food and Drug Administration. "Oncology Center of Excellence." https://www.fda.gov/about-fda/fda-organization/oncology-center-excellence.

Precision Oncology and Biomarker-Driven Trials

Daniel Kavanagh, PhD, RAC
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Advancing Precision Medicine: Harnessing Molecular Biomarkers for Oncology Clinical Trials

Precision medicine research relies on genetic and molecular data to identify eligible participants for a clinical trial, or to tailor the investigational treatment to the individual participant. This means that genetic and molecular markers may play a role both in subject recruitment/eligibility and in clinical endpoint determination, depending on protocol design.

One expected trend in molecular biomarkers for oncology is the increasing use of a more diverse array of biological samples, such as blood, urine, or saliva, to gather more information about a person's disease state.

Tumors release biological information, in the form of free DNA, circulating tumor cells (CTCs), and as extracellular vesicles (EVs). CTCs are cancer cells that exit a tumor and enter circulation spontaneously or in response to therapeutic interventions. EVs are nanoscale particles that are naturally released by healthy cells and tumor cells and contain a broad range of bioactive compounds and genetic information.

New forms of microfluidics technology are being deployed to efficiently capture these circulating tumor cells and EVs, and to distinguish and sort tumor-derived material for molecular analysis.

*"Precision medicine research relies on **genetic** and **molecular data** to identify eligible participants for a clinical trial."*

Precision Oncology and Biomarker-Driven Trials

Recent proof of concept studies show that information encoded by DNA and RNA found in EVs isolated from the blood of cancer patients can accurately reflect the genetic content of paired tumor biopsies from the same subjects. As modular and portable sample collection technologies are developed, we will see increasing opportunities for samples to be collected at home, allowing for less burdensome and less invasive procedures in recruitment and follow-up.

These technologies will also enable gathering of more precise and more complete longitudinal information regarding subject response to investigational treatment over time. Robust longitudinal response data have the potential to greatly enhance the prognostic power of specific biomarkers and are likely to play a role in validation of biomarker endpoints in support of FDA approval via the accelerated pathway, for example.

Precision Oncology and Biomarker-Driven Trials

Mark Opler, PhD, MPH
Chief Research Officer

The Next Wave of Innovation: Silence Speaks Volumes in Clinical Research

In 2018, at a National Academy workshop, Stroud and colleagues presented a compelling case that digital biomarkers and the field of mobile assessment were at risk of "overpromising."[1] They warned researchers and technology developers to avoid hype in favor of rigorous methods if they hoped to bring meaningful innovation to clinical research.

In the six years that have followed, while some interesting and intriguing developments have surfaced in the use of AI-based methods and complex, multimodal measures of behavior, for the most part, these have been peripheral to drug development. It is fair to say that the fervor around digital approaches has not yet brought substantive change to measurement in neuroscience clinical trials, particularly in psychiatry.

In 2024, however, several developments with the potential to alter the landscape have begun to surface, notably in mood disorders and psychosis. First, groundbreaking work published by Cohen et al. on the development and validation of vocal biomarkers as tools for enrichment in depression demonstrated a significant potential for the selection and characterization of patients.[2] The post-hoc analysis of a bipolar depression trial showed that speech latency, a simple, generalizable feature, can be reliably calculated across countries, languages, and cultures. Their measure of pauses in speech, specifically the delay in speech generation, was shown to improve signal detection by 50 to 100% when applied at screening.[3]

Precision Oncology and Biomarker-Driven Trials

A follow-up study by Cohen, Kirkpatrick, and colleagues used data from Reviva Pharmaceuticals' Phase III trial of brilaroxazine, a novel antipsychotic treatment.[4] In that study, they demonstrated similar results using a modification of the same speech latency measure, showing dramatic results not only on total pathology, but also on negative symptoms and functioning as well. The story of the last six years in digital biomarkers has been one of machine learning models and "black box" proprietary technologies.

We submit that this approach has not yielded significant solutions to the enduring problems of neuroscience drug development. Simplicity, transparency, a return to the fundamentals of psychometrics, and old-fashioned methodological rigor will do what complexity and AI have not yet been able to do. Look out for novel, but low-burden approaches to the assessment of clinically relevant features of speech, motor function, and human behavior. In 2025, we predict that the wearables will come off, the apps will be uninstalled, and the fanfare will fade.

The next wave of innovation in this space might be focused on things as simple and understated as silence, but the impact will be deafening.

References

1. Stroud C, Onnela JP, Manji H. "Harnessing digital technology to predict, diagnose, monitor, and develop treatments for brain disorders." NPJ Digit Med. https://pmc.ncbi.nlm.nih.gov/articles/PMC6550158/.

2. Siegel, J., Cohen, A., Szabo, S., Tomioka, S., Opler, M., Kirkpatrick, B., Hopkins, S. "Enrichment using speech latencies improves treatment effect size in a clinical trial of bipolar depression." Journal of Psychiatry Research, Volume 340, 116105, ISSN 0165-1781. https://doi.org/10.1016/j.psychres.2024.116105.

3. Cohen, A., Rodriguez, Z., Opler, M., Kirkpatrick, B., Milanovic, S., Piacentino, D., Szabo, S., Tomioka, S., Ogirala, A., Koblan. K., Siegel, J., Hopkins, S. "Evaluating speech latencies during structured psychiatric interviews as an automated objective measure of psychomotor slowing." Journal of Psychiatry Research, Volume 340, 116104, ISSN 0165-1781. https://doi.org/10.1016/j.psychres.2024.116104.

4. Cohen, A., Kirkpatrick, B., Opler, M., Tatsumi, K., Bhat, S., Bhat, L. "Enrichment Based on Speech Latency Enhances Treatment Effects in a Phase III Study of Brilaroxazine." Poster Presented at the 2024 CNS Summit.

RELATED INSIGHT

Under the Microscope: Biomarker and Diagnostic Tests as FDA-Regulated Devices

Regulatory Innovation

Regulatory Innovation

In an era where clinical research is more complex than ever, regulatory innovation is essential to streamline processes and safeguard participants' rights while accelerating the development of life-saving treatments. As the research landscape continues to evolve, regulatory bodies like the U.S. Food and Drug Administration (FDA) are taking significant steps to modernize and harmonize regulations, making it easier for sponsors, institutions, and investigators to conduct trials that meet high standards of rigor and efficiency.

One major focus of regulatory modernization is the push for single IRB (sIRB) review in cooperative research. This approach, already mandated by the Common Rule for federally funded studies, requires only one Institutional Review Board to oversee research involving multiple institutions, reducing duplicative reviews and expediting study initiation.

The FDA's proposed rule to mandate single IRB review in FDA-regulated research marks a critical alignment with the Common Rule, signaling a step toward consistency across regulatory frameworks.

While the proposed rule would streamline oversight and reduce administrative burdens, the FDA has outlined specific exceptions for cases where local expertise is crucial, or where product-specific regulatory pathways apply.

Though many sponsors have already adopted single IRB practices voluntarily, FDA's formalization of this requirement will necessitate changes for some institutions and investigators. Adjustments to standard operating procedures (SOPs) and resource allocation will be necessary, particularly for those who have not yet transitioned to this model. With the final rule anticipated this year, stakeholders have an opportunity to align processes in anticipation of this shift.

The following pages provide deeper insights on single IRB (sIRB) review, including an analysis of the FDA's proposed rule and an overview of the rulemaking process.

Together, these perspectives illustrate how regulatory innovation is reshaping the clinical trial landscape and advancing research efficiency for all stakeholders.

David Forster, JD, MA, CIP
Chief Compliance Officer

FDA's Proposed Rule for Single IRB Review in Cooperative Research

The FDA has released a notice of proposed rulemaking to mandate that any institution located in the United States, participating in FDA-regulated cooperative research, must rely on a single Institutional Review Board (sIRB) for overseeing research conducted in the United States. (See Institutional Review Boards; Cooperative Research (87 FR 58752)).

The proposal aims to harmonize the FDA Institutional Review Board (IRB) regulations with the Federal Policy for the Protection of Human Subjects, known as the "Common Rule", which currently requires a single IRB review for such research.

The new FDA regulation will require that "Any institution located in the United States that is participating in cooperative research must rely upon approval by a single IRB for that portion of the research that is conducted in the United States." To ensure the rule is comprehensive yet pragmatic, the FDA has proposed four exceptions to this requirement:

i Cooperative research for which more than a single IRB review is required by law (including tribal law passed by the official governing body of an American Indian or Alaska Native tribe);

ii Cooperative research involving a highly specialized FDA-regulated medical product for which unique, localized expertise is required;

iii Cooperative research on drugs exempt from an investigational new drug application, as outlined under § 312.2(b) of this chapter; or

iv Cooperative research on medical devices that meets the abbreviated requirements under § 812.2(b) of this chapter or that meets the requirements for exempted investigations under § 812.2(c) of this chapter.

Regulatory Innovation

When the FDA adopts this requirement, sponsors will be obligated to use a single IRB for U.S. sites. Previously, this approach was allowed, but not required. Many industry sponsors have voluntarily taken this approach for some time, so disruption at the sponsor level will be minimal.

For institutions and investigators, the imposition of the single IRB requirement will likely require some modifications to standard operating procedures (SOPs) and resources in order to comply.

Still, many have already taken these steps due to the previous adoption of the Common Rule requirement, thereby facilitating a smoother transition and promoting more harmonization as we move into 2025.

Donna Snyder, MD, MBE
Executive Physician

FDA's Single IRB Requirement, Expected but Not Guaranteed in 2025

The Office of Management and Budget has noted in its Unified Agenda that the single IRB final rule is expected to be issued in May 2025, but this date is not guaranteed and is subject to change. Although sponsors, investigators, and institutions may have already implemented changes in processes and standard operating procedures (SOPs) in advance of the rule's finalization, some may wonder why the rulemaking process takes so long and why the timing of implementation is so unpredictable.

Rulemaking is a complex process outlined under the Administrative Procedures Act (5 USC §553 (1946)). The Act requires that a Notice of Proposed Rulemaking (NPRM) be published in the *Federal Register* to allow for public comments unless the agency issuing the rule finds the notice and public comments to be impracticable, unnecessary, or not in the public's interest.

Public comments generally close 60 days after publication of the *Federal Register* notice. FDA staff then review the comments and decide if points raised in the comments require modification of the proposed rule. Any revisions require consensus among the stakeholders involved in the rule writing. In addition to this, many internal agency and interagency steps occur from the time rule making is initiated until a final rule is published, further lengthening the timeline.

At the FDA, many offices can be involved in the process of rulemaking or in modifying a draft rule. Changes made by one office may require re-review by another office, depending on the significance of the change, to ensure agreement. Once the language is agreed upon, a formal clearance process takes place that may include additional offices. Agency priorities may slow the process. The immediate public health issues resulting from the COVID-19 pandemic are one example of a situation that directed agency resources away from more routine processes and may have delayed the work on the proposed rule.

Interagency review occurs after the FDA finishes its review. Although the additional agencies may not be disclosed, for the single IRB rule, review by the Department of Health and Human Services (HHS), as well as the Office of Human Research Protections (OHRP), will certainly need to take place given the impact on the existing regulations on cooperative research under the Common Rule.

Once the rule is finalized, the FDA will likely allow a grace period for implementation, but whether a grace period is allowed and/or the length of any grace period is not stipulated in the NPRM.

Consequences of Not Being Prepared

Once the rule is finalized, the FDA is likely to allow a grace period for implementation, although the specifics are not guaranteed in the NPRM. Below are the possible consequences for sponsors, institutions, and investigators who are not ready when the final rule goes into effect:

Operational Disruptions: Institutions that have not yet adopted changes in SOPs and processes may face significant operational disruptions.

The need for rapid implementation of new procedures could overwhelm administrative and operational capacities, leading to delays in research activities and potentially impacting ongoing studies.

Regulatory Non-compliance: Failure to comply with the new single IRB mandate could result in regulatory non-compliance. This could lead to warnings, fines, or other penalties from regulatory bodies. Non-compliance might also jeopardize funding and sponsorships as adherence to regulatory guidelines is often a pre-requisite for financial support.

Regulatory Innovation

Loss of Credibility and Trust: Non-compliance with the single IRB rule can damage an institution's or investigator's credibility. It may lead to a loss of trust among stakeholders, including funding bodies, collaborators, and study participants. Maintaining compliance with regulatory requirements is essential for preserving the integrity and reputation of research entities.

Legal Implications: Institutions and sponsors that fail to comply may face legal consequences. Non-compliance can lead to lawsuits or legal actions, particularly if the failure to implement changes results in harm or risk to study participants.

Legal battles can be costly and time-consuming, further straining resources and tarnishing reputations. Sponsors, institutions, and investigators that have yet to implement changes in processes to conform with the single IRB mandate should consider making those changes now in order to be ready when the final rule goes into effect.

RELATED INSIGHTS

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Revisiting the FDA's Proposed Single IRB Mandate: Navigating Changes and Aligning for Success

WCG is a global leader of solutions that measurably improve and accelerate clinical research. Biopharmaceutical and medical device companies, contract research organizations (CROs), research institutions, and sites partner with us for our unmatched expertise, data intelligence, and purpose-built technology to make informed decisions and optimize study outcomes, while maintaining the highest standards of human participant protection. WCG raises the bar by pioneering new concepts, reimagining processes, fostering compliance and safety, and empowering those who perform clinical trials to accelerate the delivery of medical therapies and devices that improve lives. For more information, please visit wcgclinical.com or follow us on X @WCGClinical or LinkedIn.

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