BioSpectrum ASIA EDITION
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From Data to Decisions: How AI Is Redefining Clinical Development

July 8, 2026 | Influencers | By Ankit Kankar | ankit.kankar@mmactiv.com

Luke Wilson, Senior Director, Commercial Operations, Pharma Services at Thermo Fisher Scientific, explains how AI-powered platforms, decentralized trials, and integrated clinical ecosystems are enabling sponsors to accelerate development, improve evidence quality, and make faster, more informed decisions across the drug development lifecycle.



Advancing Clinical Development and Evidence Generation

Clinical development is entering a new era where success depends not just on collecting more data, but on turning increasingly complex information into faster, evidence-based decisions. Artificial intelligence, decentralized trial models, and connected digital ecosystems are transforming how clinical studies are designed, executed, and monitored. **In this conversation, Luke Wilson discusses how Thermo Fisher Scientific is leveraging AI,** integrated technology platforms, and flexible operational models to help sponsors accelerate development timelines, improve evidence quality, and make clinical research more patient-centric

Clinical research is becoming increasingly data-intensive. How are AI and data intelligence platforms changing the way sponsors design and execute clinical trials?

By Luke Wilson, Senior Director, Commercial Operations, pharma services, Thermo Fisher Scientific

Clinical trials now draw on electronic health records (EHRs), eConsent platforms, wearable devices and remote monitoring systems simultaneously, and the challenge for sponsors has shifted from collecting data to integrating it across the development lifecycle in ways that support timely decision-making. We're addressing this directly through Thermo Fisher's Accelerator™ Drug Development platform, which now embeds OpenAI capabilities to improve clinical trial cycle times and identify lower-probability drug candidates earlier in development. The collaboration integrates AI across the full Accelerator Drug Development continuum, spanning early development, Phase I–III clinical research, clinical manufacturing and supply and commercialization, combining both organizations' expertise to help sponsors more quickly identify therapies unlikely to succeed and redirect investment toward more promising opportunities.

What are the biggest barriers to generating high-quality evidence faster, and how can technology help overcome them?

By Luke Wilson, Senior Director, Commercial Operations, pharma services, Thermo Fisher Scientific

The most persistent barrier is fragmentation. A typical trial involves separate vendors for data management, interactive response technology, drug supply and monitoring; each with its own systems and protocols. If not implemented appropriately, adding digital tools to that structure can compound the problem rather than resolving it.

A decentralized trial drawing simultaneously from multiple data repositories, for instance, requires that data to be harmonized before it can inform any decision. Technology helps when it sits within an integrated service model, where manufacturing, logistics and clinical operations run within a unified framework. That structure allows data to move between stages without rework or information loss, and gives AI tools the foundation to support consistent, real-time capture and automated monitoring that shortens the administrative cycle without compromising evidence quality.

How do you see patient data, real-world evidence, and decentralized approaches shaping the next generation of clinical development?

By Luke Wilson, Senior Director, Commercial Operations, pharma services, Thermo Fisher Scientific

Decentralized trial models are opening participation to populations historically excluded from large trials. This could mean patients with mobility constraints, rare disease populations and those in geographically remote areas. Digital tools including direct-to-patient drug supply, remote monitoring and telehealth now allow data collection in settings that more closely reflect real-world conditions, improving the representativeness of the evidence base.

What impact will AI-enabled analytics have on decision-making across the clinical trial lifecycle?

By Luke Wilson, Senior Director, Commercial Operations, pharma services, Thermo Fisher Scientific

The most significant near-term impact is on candidate selection and portfolio management. For example, through Thermo Fisher's OpenAI integration, AI tools are now applied to identify lower-probability drug candidates earlier. This allows sponsors to redirect resources before late-stage failure costs compound. Further along the trial, real-time site monitoring and automated anomaly detection allow protocol deviations to be caught and addressed faster and interim analyses to be grounded in cleaner data. The cumulative effect is a trial that is more responsive at every stage, compressing timelines without the tradeoffs in rigor that regulators scrutinize most closely.

Looking ahead, what innovations will most significantly improve clinical trial efficiency and outcomes?

By Luke Wilson, Senior Director, Commercial Operations, pharma services, Thermo Fisher Scientific

Three developments stand out. First, the continued scaling of decentralized trial infrastructure: as direct-to-patient supply, remote monitoring and digital consent become more standardized, the operational cost of running these models will fall and their use will expand well beyond early adopters. Second, AI embedded at the platform level, as part of the clinical and manufacturing system rather than as a standalone tool, so that insights from data reach decision-makers in time to change outcomes. Third, flexible manufacturing technology that allows clinical supply to scale with trial results rather than with infrastructure commitments made years in advance.