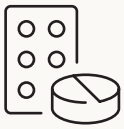
The benefits of rapid topline pharmacokinetic (PK) data in clinical pharmacology studies

Early access to the pharmacokinetic properties of an asset can provide valuable insights into its ongoing development. Topline PK data delivered rapidly after database lock helps developers make critical decisions on follow-on pharmacology studies and optimize clinical development.

Topline results are commonly reported in industry for key proof of concept or efficacy outcomes from patient clinical trials. Increasingly, rapid topline PK results are being used to support crucial decisions throughout the drug development journey, from **early-phase trials** to regulatory authority interactions and beyond.

Receiving topline PK data quickly—within, say, 5 days of database lock (DBL)—as informative tables, figures and listings (TFLs), can serve as useful inputs in decision-making processes for ongoing drug development programs. Here we will explore the role, benefits and inherent challenges of these data, along with the strategic methodologies employed by Fortrea to ensure swift and accurate delivery from DBL.

Gain insight into



The pivotal role topline PK data can play in informing dose selection, regimen optimization and regulatory strategy[5]

The benefits of timely access to these data, and their opportunity to inform decision-making and ongoing study outcomes

The inherent complexities involved in generating topline PK data, along with strategic approaches to overcome these challenges

The strategic methodologies and best practices employed by Fortrea to ensure the rapid and reliable delivery of topline PK data

Fortrea

Understanding the significance of rapid topline PK data

At its core, PK data usually reflect the primary results of clinical pharmacology trials. Their significance extend beyond study level results, influencing drug development and study design decisions that are ultimately reflected in the drug label. Access to these data early in clinical development can offer strategic advantages by indicating potential areas of risk and opportunity in ongoing development.

For example:

- Understanding the bioequivalence of different drug formulations ensures the rate and extent of drug absorption remains uniform, which is crucial for ensuring consistent clinical outcomes and therapeutic effectiveness[1]
- Identifying drug-drug interactions (DDIs) highlights potential interactions between the investigational drug and concomitant medications, a necessity for optimizing patient clinical trials (e.g., inclusion/exclusion criteria) and minimizing safety risks[1]
- Understanding the impact of food on drug pharmacokinetics helps inform dosing administration timing with respect to meals during clinical development and post-approval labeling[2]

Speed (with no sacrifice to quality) matters

Insights gleaned from topline PK data can be useful in guiding critical aspects of drug development programs. They enable sponsors to navigate complexities like trial continuation and dose adjustments with speed and precision, thereby enhancing study outcomes.

Earlier PK results can also expedite documentation in support of regulatory interaction and enable the refinement of study protocols, endpoints and safety measures, facilitating the efficient progression of drug development initiatives.[3]

Navigating the complexities of clinical pharmacology studies

Clinical pharmacology studies—indeed drug development overall—have become progressively more complex, necessitating a strategic and agile approach to study management. Successfully navigating these intricacies requires an experienced multidisciplinary team able to understand and foresee the risks and opportunities as each layer of data is added to the understanding of the asset in development.

Integrating the disciplines needed is no small undertaking. It involves project management, regulatory and ethics experience, biometrics, modeling and simulation, medical and scientific expertise, quality management and reporting. Within a team that is able to interpret the emerging result and agile enough to pivot, risks and dead ends can be avoided, and smart choices made for speedy development advancement.

Strategic use of in-house and outsourced vendor-managed specialisms

Effective vendor management is instrumental in the successful execution of clinical pharmacology studies, where precision and quality are paramount. We take a meticulous approach to vendor selection, partnering with best-in-class vendors and maintaining stringent quality control measures throughout the study life cycle.[4]

By fostering collaborative relationships with bioanalytical vendors and proactively managing project timelines and deliverables, we reduce the risk of delays that can negatively impact the downstream TFL and Clinical Study Report (CSR) timelines. Effective vendor management to ensure bioanalytical data are transferred before database lock, is instrumental in delivering topline PK data within five days of DBL, empowering developers to make confident go/no-go decisions.

Effective vendor management offers several key benefits to a CRO:

- Firstly, strategic vendor partnerships allow a CRO to tap into specialized expertise and technologies, enhancing study capabilities beyond what is available in-house
- Secondly, through the proactive management of vendor relationships, a CRO can ensure seamless communication and alignment, driving efficiencies and minimizing delays
- Lastly, leveraging external vendors enables both flexibility and scalability, enabling quick adaptation to evolving study requirements and timelines

Overcoming challenges in achieving timely PK TFLs

To overcome the challenges inherent in achieving timely PK TFLs, integrated management is essential. This includes protocol deviation management for immediate identification and resolution of deviations, minimizing disruptions to study timelines. Effective planning and collaboration between clinical site and biometrics functions also allow early programming and ongoing data review during the study to facilitate the timely generation of outputs, including inferential statistical analysis for primary endpoints.

Bioanalysis represents a significant bottleneck in many clinical studies, especially for CROs relying solely on in-house capabilities. In-house bioanalysis facilities can quickly become overwhelmed, leading to delays in data processing and the delivery of results. This highlights the importance of robust vendor management strategies in ensuring efficient study timelines and timely access to critical insights, with the potential to have multiple specialist vendors on hand to efficiently manage the availability of bioanalytical labs.

Utilizing a pre-analysis header file (bioanalytical transfer file without PK results) enables reconciliation and assists early programming, streamlining data processing and minimizing delays. This proactive approach allows for efficient reconciliation ahead of live bioanalytical transfers, reducing the risk of processing bottlenecks down the line.

Initiating final programming and PK activities using quality control (QC)-checked bioanalytical data ahead of receipt of final quality assured (QA) data also expedites timelines. Leveraging a managed risk environment, we balance the need to progress quickly with the imperative of ensuring data quality and integrity. With rigorous QC measures and risk management protocols in place, high standards of data accuracy and reliability can be maintained while expediting study timelines.

Key benefits of timely PK TFLs

Where topline PK and full TFL safety data can quickly be made available, developers gain timely access to potentially pivotal study insights. This turnaround time enables sponsors and CRO partners to collectively advise and make informed decisions promptly, accelerating the drug development process and minimizing the risk of costly delays.

Fortrea. Delivering timely topline PK results

We ensure our sponsors have access to comprehensive insights throughout every stage of the drug development process—critical to sound decision-making in this high-risk, high-reward industry.[6] By offering strategic guidance and leveraging decades of expertise conducting clinical pharmacology studies, we empower sponsors to make informed choices swiftly and confidently.

Through a broad-spectrum approach that encompasses scientific and operational excellence, as well as collaborative partnerships, we build strong relationships with our sponsors from timely and reliable topline PK results throughout clinical development, helping them achieve their development milestones.

Key takeaways:

- Rapid and reliable delivery of topline PK data empowers developers with timely insights
- Our sponsors benefit from our focus on speed, quality and strategic guidance throughout the drug development process
- Deep expertise enables developers to navigate the complexities of clinical pharmacology studies effectively
- With extensive experience and scientific expertise, we collaborate closely with our sponsors to drive innovation and accelerate progress in drug development endeavors

With Fortrea as your partner, you can navigate the drug development journey with assurance, knowing you have a dedicated team aligned with your success. Contact us today to learn more about how we can support your topline PK data needs and help you achieve your development milestones efficiently.

References

1. Atkinson Jr, AJ, et al. Principles of Clinical Pharmacology. *Principles of Clinical Pharmacology.* Published 2012 Oct. 16.
2. Guideline, ICH. Ethnic Factors in the Acceptability of Foreign Clinical Data E5 (R1). Poster presented at: *International Conference on Harmonisation of Technical Requirements for Registration of Pharmaceuticals for Human Use.* Published 1998 Feb. 5.
3. Hill, RG, et al. Drug Discovery and Development: Technology In Transition. E-book. *Elsevier Health Sciences.* Published 2021 Sept. 9.
4. Das, S Optimizing Clinical Trials Through Vendor Management. *Journal of Clinical Trials.* Published 2023 Oct.
5. Oppenheimer, DS, et al. An introduction to regulatory strategy. *Regulatory Focus.* Published 2022 Sept. 30.
6. Cato III, A, et al. The Role of Pharmacokinetics in Drug Development. *Clinical Drug Trials and Tribulations, Revised and Expanded.* Published 2002.

LEARN MORE at fortrea.com

Fortrea

Together, exceptional is possible

AR_0007_Rapid PK Data_0424