AliraHealth

Unlocking the **Database Lock** Process

Key Factors and Practical Advice for **Database Lock** Success

Database Lock: What Is It and Why Can It Be So Stressful?

Database lock is the final step of the data management process in clinical trials. When the patient data is deemed accurate and complete according to the patient records and the data collection needs of the trial, it is locked. Access to the database is removed for all users, and no additional changes can be made to any data source.

Once locked, the final data is released to the statistical team for unblinding (for blinded trials) and reporting (all trials). Unblinding after database lock is critical to the integrity of the results. Therefore, the database lock is the last major active-study phase milestone ahead of the much-anticipated trial results.

Database lock can be stressful for multiple reasons:

- **Numerous activities**
- **Multiple involved functional groups, typically both internal and external to a Sponsor to coordinate**
- **Datalock is timebound, with significant pressure**
- **Accuracy is critical to confidence in trial results.**

In clinical trials, the quality of the data is everything. The data will determine whether a new drug fails or is approved, and Sponsors want the results from clinical trials as soon as possible to determine the next steps in their development programs.

Database lock is the culmination of all the work that has gone into a trial. Therefore, everyone plays a role. The following groups play a significant role in the process:

All of the extended team members have an essential role in achieving this important study milestone. The project manager is typically the hub of this team, responsible for ensuring all parties are working towards agreed timelines, with each step being completed correctly and on time, and ensuring all issues are appropriately addressed as they come up.

Once the last study subject finishes his/her final study visit, the countdown to database lock begins. However, waiting until this final visit to create a plan for database lock results in unnecessary delays, miscommunication, and stress.

Fortunately, having an in-depth understanding of the steps involved and the key success factors can significantly reduce the timelines and stress, ensuring a smooth, efficient, and successful database lock.

The Database Lock Steps

1. Final data entered into the electronic data capture (EDC) system by clinical sites
2. Final data source documents verified by clinical monitors
3. Final EDC queries issued and resolved
4. Final reconciliation of external data with EDC-collected data
5. Final reconciliation queries issued and resolved
6. Final coding run and approval
7. Database freeze (soft-lock)
8. Final data review by clinical and biometrics teams at a formal Data Review Meeting
9. Final queries issued and resolved
10. eCRFs signed by the Principal Investigator(s)
11. Database locked by Data Management

THE KEY SUCCESS FACTORS

While the extended team is large, a successful database lock is primarily driven by close collaboration between the overall Project Manager, the Clinical Monitoring Team and the Data Management Team.

Among them, they can minimize the time to database lock by focusing on four key success

Regular and Thorough Data Review

The first key to success is planning for and ensuring that a **regular and thorough data** review is occurring throughout the trial, not just in the run-up to database lock. A **Monitoring Plan and Data Management Plan** should be created at the beginning of a trial to outline the details of the regular data review, including third-party data reconciliation processes and schedules. Data should be source document verified as soon as possible upon data entry to allow for ongoing cleaning, review and query resolution. Sites should be monitored for timely data entry and query responses in order to avoid a backlog of entry or queries as the last subject visit approaches.

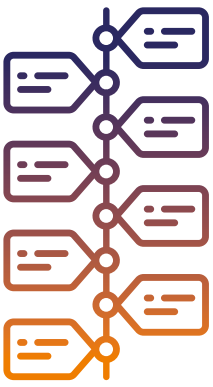
The Clinical Team should keep the Data Management Team updated with plans for monitoring visits (either on-site or remote) to ensure they can alert monitors regarding any specific data issues identified, including outstanding queries, consistent data errors, or high numbers of queries compared to other sites. This information can help the clinical monitor work with the site to address any misunderstandings and improve data quality.

Other site specific issues or challenges should be identified and escalated early to the Project Manager and/or Sponsor. The issue can then be investigated and an effective Corrective and Preventative Action (CAPA) put in place. Issues may include the identification of protocol deviation trends, identification of data entry backlog, and identification of insufficient query responses causing the need for several rounds of re-querying.

Regular reconciliations between the clinical database and external data sources and regular coding runs should also occur throughout the trial to correct errors early and to prevent major issues late in the study. If medical reviews are planned as part of the data cleaning process, the schedule for their occurrence should also be included in the initial study plans to ensure a timely data review and resolution of any resulting queries.

Setting a Feasible and Realistic Timeline

The second key to success is setting a feasible timeline for database lock activities. The timeline can vary greatly depending on the complexity of the trial and amount of data being collected. It is critical to work with the sites, functional leads, and third-party vendors to determine the amount of time needed to complete each step.



This timeline should include all of the steps to lock, including the penultimate and final reconciliations, medical reviews and coding reviews, along with the schedule for the final data review meeting. It is essential that this timeline be discussed and agreed to well before the last subject is enrolled; the team can then hit the ground running with the final data cleaning.

Each functional group needs to understand their responsibilities and timelines and how their specific database lock activities impact the overall timeline in order to avoid introducing unnecessary delays.

Ensuring Effective Communication and Collaboration

The third key to success is ensuring effective communication and collaboration among all functional groups. As the last subject visit approaches, the Project Manager should review the database lock timelines, get final acceptance from all relevant stakeholders, and confirm that each functional group is aware of the critical path items and lock dependencies. This is an ideal time to determine and address any backlog or delay in the data-related activities, from entry in the EDC system at the site, to query generation and resolution, and finally to external data reconciliation.

The Project Manager is also responsible for managing the communication among monitors, Data Management, sites and third-party vendors in order for everyone to work towards the lock milestone. This includes making sure that Data Management is aware of the final monitoring visits to ensure queries are generated ahead of visits, that third-party vendors know when to issue data transfers for final reconciliation(s), and that any medical reviewers know what final reviews are planned and when.

Understanding the Impact of the Final Data Review

The final key to success involves understanding the impact of the final data review. While this activity is known by different names, including the Data Review Meeting, the Blind Data Review Meeting or even simply, Data Review, it is a critical step in the lock process, especially for any double-blind studies.

During the final Data Review Meeting, the Clinical and Biostatistics Teams will meet to review data anomalies and outliers, protocol violations and deviations, and define analysis datasets. It is common that final, last minute queries will be generated during this meeting. Here again, it is crucial that sites and monitors know the timing of this meeting to ensure they are ready to manage these final queries.

Conclusion

Database lock is an extremely collaborative process, and does not have to be overwhelming, stressful, or inefficient. A close collaboration among the Project Manager, the Clinical Monitoring Team and the Data Management Team can minimize the time to database lock. Focusing on the four key success factors help ensure a relatively smooth database lock that produces complete and accurate data and minimizes the time to study results:

- Regular and thorough data review
- Setting a feasible and realistic timeline
- Ensuring effective communication and collaboration
- Understanding the impact of the final Data Review

Fortunately, understanding of these key success factors can significantly reduce the timelines and stress and ensure that database lock is done successfully, allowing you to get the information you need for key decision making on the road to improving patients' lives.

From early planning and study design, to full-service management and execution, Alira Health can support each step of your clinical trial.

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