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Clinical Breast Cancer Study Reveals that Tempus' Real-World Database Mirrors Overall U.S. Breast Cancer Population

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Tempus, a leader in artificial intelligence and precision medicine, announces a recent study in Clinical Breast Cancer that demonstrates how Tempus' real-world database mirrors the U.S. breast cancer population, ultimately suggesting that real-time, real-world data analyses are feasible in a large, highly heterogeneous database.

For the study, which was co-authored by leaders at the Duke Cancer Institute, Stanford Cancer Center, and Texas Oncology-Baylor Charles A. Sammons Cancer Center, Tempus performed a retrospective analysis of longitudinal real-world data (RWD) from a cohort of 4,000 breast cancer patients throughout the country to replicate results from clinical studies and demonstrate the feasibility of generating real-world evidence. Tempus analyzed de-identified, longitudinal data from its own dataset of U.S. breast cancer patient records. Demographics, clinical characteristics, molecular subtype, treatment history, and survival outcomes were assessed according to strict qualitative criteria. In a separate molecular sequenced cohort of 400 breast cancer patients, RNA sequencing and clinical data were used to predict molecular subtypes and evaluate signaling pathway enrichment. Analyses of HER2 testing records, treatment history, and molecular data from these two cohorts produced the following insights:

- 31.7% of patients with HER2+ IHC had discordant FISH results recorded.
- Among patients with multiple HER2 IHC results at diagnosis, 18.6% exhibited intra-test discordance.
- Through development of a whole-transcriptome model to predict IHC receptor status in the molecular sequenced cohort (n=400), molecular subtypes were resolved for all patients (n=36) with equivocal HER2 statuses from abstracted test results.
- Receptor-related signaling pathways were differentially enriched between clinical molecular subtypes.

In a more generalized analysis of demographics, clinical characteristics, DNA data, molecular subtype, treatment history, and survival outcomes the study found that Tempus' database mirrored the overall U.S. breast cancer population. This observation further demonstrates that real-time RWD analysis using the Tempus database is an accurate and useful research tool. Furthermore, the study revealed that molecular data may aid deficiencies and discrepancies observed from breast cancer RWD. This analysis is possible with a rich data library like Tempus', which includes deep representation of patients (DNA, RNA, and clinical data, as well as pathology and radiology imaging) at scale, reflecting the real-world distribution of patients, treatments, and diseases.

To read the full study, visit Clinical Breast Cancer's website [here](#).

About Tempus

Tempus is a technology company advancing precision medicine through the practical application of artificial intelligence in healthcare. With one of the world's largest libraries of clinical and molecular data, and an operating system to make that data accessible and useful, Tempus enables physicians to make real-time, data-driven decisions to deliver personalized patient care and in parallel facilitates discovery, development and delivery of optimal therapeutics. The goal is for each patient to benefit from the treatment of others who came before by providing physicians with tools that learn as the company gathers more data. For more information, visit tempus.com.