

Vironix Health Accepted to ML4H 2025 & NeurIPS TS4H for Privacy-Preserving Generative Health Data Modeling

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Health is proud to announce the acceptance of its latest research paper, "Privacy-Preserving Generative Modeling and Clinical Validation of Longitudinal Health Records for Chronic Disease" for publication in the Machine Learning for Healthcare (ML4H) 2025 Proceedings and presentation at the NeurIPS TS4H workshop. The study, conducted in collaboration with the University of [Oxford](https://www.oxford.ac.uk), introduces a breakthrough in privacy-preserving synthetic data generation, enabling safer modeling of chronic disease progression.

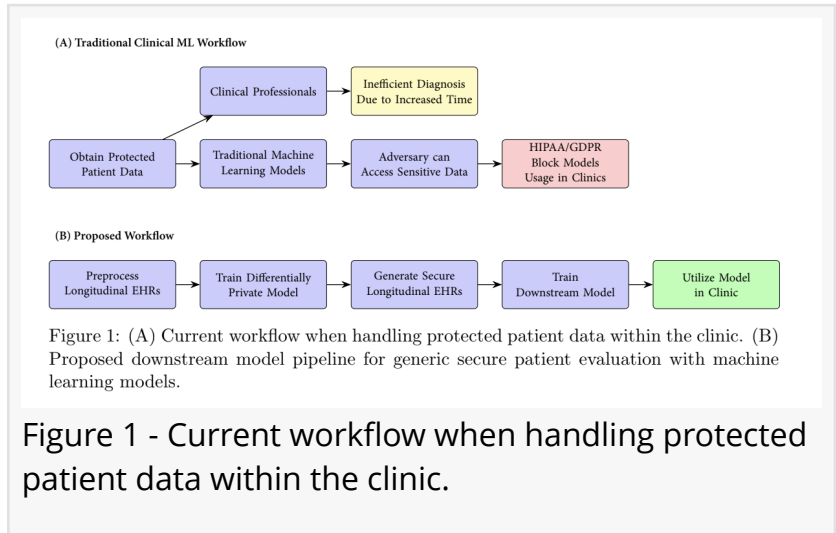


Figure 1 - Current workflow when handling protected patient data within the clinic.

The research presents DP-TimeGAN, a novel model that generates realistic, longitudinal electronic health records (EHRs) while ensuring quantifiable privacy protections aligned with HIPAA and GDPR. Unlike existing approaches that struggle with time-dependent data or lack measurable privacy safeguards, DP-TimeGAN provides a scalable and compliant framework for creating and sharing synthetic patient data without compromising confidentiality.

"Trustworthy clinical machine learning requires realistic, privacy-preserving health records for training, which existing generative models struggle to produce. We are excited to share our exploration of a scalable method for generating time-dependent health records with clear, measurable privacy safeguards" said Ben Ballyk, the lead graduate student from the University of Oxford.

"Access to longitudinal health records is essential for building accurate disease prediction models, but patient privacy laws have long restricted their availability," said Dr. Sumanth Swaminathan, CEO and Co-Founder of Vironix Health. "Our new framework bridges that gap, delivering high-fidelity, privacy-protected synthetic data that allows clinicians to train, test, and validate models responsibly."

"Collaborating with Vironix Health on the development of these privacy-preserving synthetic data generation algorithms has been a genuine pleasure. Seeing this work featured at top venues like ML4H and NeurIPS TS4H showcases the company's impressive blend of rigorous research and real-world impact." said Dr. Georg Maierhofer, a Hooke Fellow at Oxford.

Validated using real-world datasets on chronic kidney disease (CKD) and intensive care unit (ICU) admissions, the study demonstrates that DP-TimeGAN can generate synthetic patient trajectories that are both statistically and clinically indistinguishable from real cases. In blinded evaluations, clinicians identified over 95% of DP-TimeGAN-generated records as realistic — a landmark achievement in the field of synthetic health data.

By enabling generation of time-series medical data with built-in privacy guarantees, Vironix's research opens the door to new forms of data sharing and algorithm development across a spectrum of chronic diseases — including kidney, heart, lung, endocrinological, and gastroenterological conditions. This innovation stands to accelerate the deployment of machine learning tools in clinical settings while upholding the highest standards of patient confidentiality.

The paper will appear in the ML4H 2025 Proceedings (<https://ahli.cc/ml4h>) and be presented at the NeurIPS TS4H workshop (<https://timeseries4health.github.io/>), further underscoring Vironix's mission to integrate ethical and impactful AI into real-world clinical workflows.

About Vironix Health

Vironix Health develops intelligent remote patient monitoring and early detection systems powered by AI and clinical science. With a focus on chronic disease management, Vironix partners with leading healthcare institutions and universities worldwide to bring privacy-conscious, data-driven tools into everyday care.

For media inquiries, please contact: Sswami@vironix.ai

Sumanth Swaminathan

Vironix Health Inc.

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