GNS Precision Medicine Forum:
How AI is Driving Precision Medicine

The topic of artificial intelligence (AI) and how it is driving precision medicine in healthcare was the focus of the inaugural GNS Precision Medicine Industry Forum which took place May 18th in Cambridge. More than 50 attendees representing biopharma, health plans and foundations joined forces with industry leaders to discuss how AI is propelling precision medicine to improve drug discovery and development, enhance health outcomes and help the industry address the challenges of value-based care.

"We are on the precipice of making precision medicine a reality because we now have the capability to discover novel insights at scale with AI," said Colin Hill, Chairman, CEO, and Co-Founder of GNS Healthcare. "Our forum brought together some of the most innovative biopharma companies and thought leaders to discuss how to drive success in all phases of drug development, from discovery to clinical trials to commercialization. Our forum is also unique in its ability to offer the payer perspective and drive the conversation around value-based strategies."

Through a series of panel discussions, interactive presentations and an engaged audience during Q and A, forum attendees left with an understanding of how their peers are using data and technology to unravel the underlying complexity of human disease.

Featured speakers included: **John Baldoni**, PhD, SVP, DPU Head of In Silico Discovery, GSK Pharmaceuticals; **Troy Brennan**, MD, MPH, Chief Health Officer, CVS Health; **Joseph Lehar**, PhD, Executive Director of Computational Biology, MRL, Merck; **Gary Loveman**, PhD, former President of Consumer Health and Service, Aetna; **John Reynders**, PhD, VP of Data Sciences, Genomics, and Informatics, Alexion; **Michael Ryan**, PharmD, Head of US Value, Access and Payment, Bristol-Meyers Squibb; **Birgit Schoeberl**, PhD, Global Head Modeling & Simulation, PK Sciences, Novartis Institutes of Biomedical Research; **Meena Subramanyam**, PhD, VP, Global Program Leader of Gastroenterology Therapeutic Unit, Takeda Pharmaceuticals; **Gregg Talbert**, PhD, Global Head of Digital Personalized Healthcare Partnering, Roche; **Alan Venook**, MD, Madden Family Distinguished Professor of Medical Oncology and Translational Research, UCSF; **Iya Khalill**, PhD, Chief Commercial Officer and Co-Founder, GNS Healthcare; **Colin Hill**, MS, CEO, Co-Founder, GNS Healthcare.

Conference Highlights

- **Personalized medicine is currently at an inflection point.** There's been much discussion around AI and data, but we are now at a point where a number of factors are coming together to make it a reality. The volume and variety of data, like genomic data, the computing power and the AI technology allow us to precisely discover and identify patient populations who will respond to a drug and make personalized medicine a reality.

- **Organizations must find ways to collaborate to provide more widespread access to data.** Data that is locked up in individual silos and not generally available will restrict the power of AI and precision medicine. The multiple data streams now available need to be sorted, connected and consolidated into one dataset available to all researchers in order to leverage them effectively.
- **Data quality is critical to generating relevant information.** Real world responsiveness to drugs in development relies on bringing fragmented data sets together and applying next generation sequencing and genomics analysis through AI to get a granular view of specific endpoints.
- **More *in silico* work around drug development expected.** Nine out of ten drugs in development fail to obtain FDA approval so more *in silico* work is expected to be done to help design trials and target drugs for greater efficiency.
- **Researchers need to move beyond predictions and correlations to causation in disease progression.** It is now possible to collect the right data sets and use machine learning to get to causality in a probabilistically, rigorously statistical way. Only by understanding the cause and effect can you understand root cause and make informed decisions.
- **Value-based pricing in pharma can't be separated from the drug development process.** Using AI and machine learning modeling to generate evidence that identifies the responders to a drug eliminates the need for risk-based models since pricing can be set for specific subpopulations early on.
- **Financial success for healthcare stakeholders comes from keeping people healthy not by suppressing services.** The most innovative care providers in the U.S. today use data and technology to keep patients out of the hospital, reduce readmissions, prescribe medicine thoughtfully and encourage adherence to reduce costs.
- **Machine learning enables clinicians and biologists to analyze models to understand responsive subpopulations.** Leveraging machine learning will be used more and more in all phases of drug development, from discovery to clinical trials to new indications post commercialization. The need to prove drug value and ROI continues to grow as both payers and patients make more value-based treatment decisions.

The Forum insights illustrate that the convergence of AI, precision medicine and data are producing results that are starting to transform the treatment of various diseases, and yet this is only the beginning. A complete transformation of the healthcare system and how care is delivered will go beyond the current paradigm of trial and error medicine to one of precision and targeted therapy based on the individual patient.

About GNS Healthcare

GNS Healthcare solves healthcare's matching problem for leading health plans, biopharma companies, and health systems. We transform massive and diverse data streams to precisely match therapeutics, procedures, and care management interventions to individuals, improving health outcomes and saving billions of dollars. Our causal learning and simulation platform, REFS, accelerates the discovery of what works for whom and why.

To learn how GNS Healthcare can help support your initiatives, email us at info@gnshealthcare.com.