GNS HEALTHCARE

Value Based Drug Models for Biopharma

Leveraging powerful AI and real world data to generate evidence that addresses changing market dynamics

As the healthcare industry transitions from a compensation system based on pricing and rebates to one that stresses value, biopharma companies are facing increased pressure from health plans and healthcare consumers to prove the effectiveness of treatments. The effort to provide evidence of value is especially crucial in late stage development and continues throughout the drug's life-cycle.

Due to this increased pressure, life science companies are beginning to implement risk-sharing programs centered on value-based concepts that originate in late stage clinical trials. The strategies used to implement value-based initiatives in biopharma are evolving and companies can be found at every point on the spectrum: those trying to figure out how to enter the space, those launching pilot programs and those with mature programs.

The Challenge of Leveraging Real World Data

The key to successful implementation of value-based initiatives lies in biopharma's ability to make the data collected in the real world actionable.

There are several business opportunities that real world data can address:

- Generate a broad set of insights about a drug's performance in the real world prior to launch
- Define a product strategy and value proposition earlier in the clinical trial phase
- Demonstrate market differentiation during a drug's growth phase

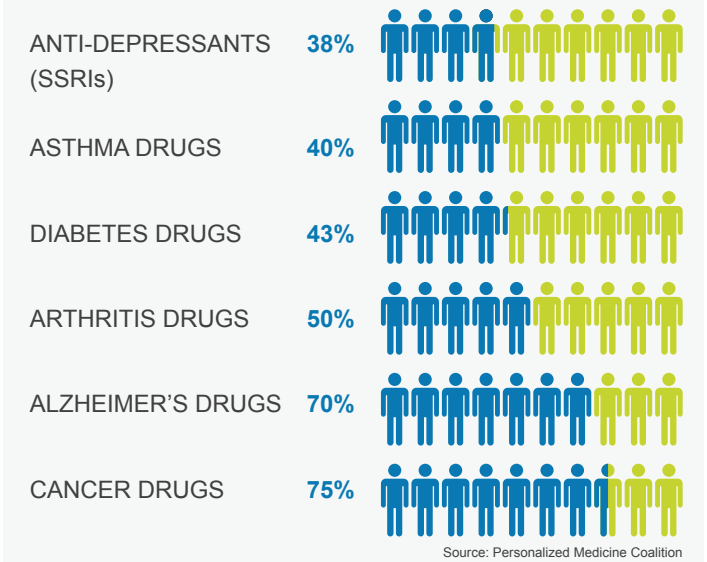
Answering these types of questions can help biopharma proactively manage the risk of value-based arrangements by identifying drugs best suited for value-based initiatives, the measurable and meaningful evaluation criteria on which to base these initiatives, and potential new opportunities for product expansion after launch.

The GNS Value Based Solution

GNS creates a path for biopharma companies, payers and providers to develop innovative value-based solutions through the use of its powerful AI platform, REFS (Reverse Engineering Forward Simulation). The GNS REFS platform provides the ability to leverage massive diverse data sets, including EMR, medical claims, genetics, registry, labs, imaging, genomics and molecular, to identify patient subpopulations and model their disease trajectories. When robust, diverse data sources are explored using REFS, biopharma can uncover valuable insights and produce the real-world evidence (RWE) needed to support value-based programs.

Evidence generated from GNS and REFS helps life science companies be better informed and prepared for value-based contracting and to expand to areas such as formulary management, line of therapy treatment patterns, and treatment effectiveness.

Percent of the Patient Population for Which a Particular Drug is Ineffective, On Average



Source: Personalized Medicine Coalition

THE GNS VALUE DRUG SOLUTION SUPPORTS THE ENTIRE DRUG LIFECYCLE BY ANSWERING KEY BUSINESS QUESTIONS

Clinical Trials

- Can we identify subpopulations of patients with unmet needs?
- Can we identify patients likely to be responders? Can that help inform future trials?
- Can we identify subpopulations of patients that will accelerate and reduce costs of clinical trials?
- Can we predict real world outcomes for a drug still in trial and begin to demonstrate real world value?
- Which products are right for value-based contracts?
- How do you define the right health outcomes to prove success?

Launch Support

- Can we model patients likely to initiate or discontinue our drug?
- Can we identify the right subpopulation of patients for whom you are willing to go "at risk"?
- Can we predict rapidly progressing patients who are likely to have poor outcomes if not treated differently from standard of care?
- Will a treatment work for additional indications?

Post Launch

- Can we identify a subpopulation of patients that should receive the drug as a first line therapy vs. second line?
- Can we show improved clinical and economic outcomes for patients who move the drug to first line?
- Will a treatment improve health outcomes if given earlier or in combination with standard of care?
- Can we optimize outcomes based on drug choice? Or drug combined with "beyond the pill" initiatives?

Rigorous Math, Powerful Science

REFS™ uses Bayesian network inference to learn causal models directly from data. In doing this instead of trying to learn a single or 'best' model, REFS learns how trillions of small sets of variables can be connected, and evaluates how these sets of variables may be assembled together into network models, across thousands of these models simultaneously.

The platform then evolves these models, rapidly iterating through trillions of possible configurations, to discover which configurations better describe a process or underlying structure that is consistent with the data.

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*.