LexisNexis® RISK SOLUTIONS | Health Care

RE-DEFINING REAL-WORLD DATA: UNLOCKING THE TRUE PATIENT JOURNEY USING NEXT-GENERATION DATA TOKENIZATION

KEY TAKEAWAYS

- Real-world data (RWD) can connect patients, providers, and healthcare organizations, but barriers exist.
- The definition of RWD continues to evolve.
- Incorporating life events into analysis and research can generate valuable insights for life science companies.
- Data tokenization unifies the patient and person journeys.
- Patient-centric tokens power RWD integration.
- RWD enables life science companies to more rapidly and affordably assess product effectiveness.

To watch the on-demand webinar, CLICK HERE.

OVERVIEW

For years, life science companies have attempted to reconcile differences between efficacy results from clinical trials and real-world effectiveness. Although a wealth of big data exists today, the lack of connectivity between de-identified data sets and the lack of precision in first-generation tokenization methods limit its utility.

Welcome LexisNexis® Gravitas, the next-generation tokenization solution to generate more precise information that be used to unify patients' unique journeys. Its patient-centric token approach supports data integration in ways that life science companies can use to enhance product development, clinical trials, and more.

CONTEXT

In a previous webinar, LexisNexis® Risk Solutions discusses how life science companies can gain more precision and greater insight into the entire patient experience by unlocking social determinants of health (SDoH) and other sources of data collected outside of the clinical setting.

KEY TAKEAWAYS

RWD can connect patients, providers and healthcare organizations, but barriers exist.

Being good data stewards and using data to improve the patient experience builds trust. When it comes to RWD within healthcare, however, the question of connectivity is important. Obstacles to connectivity include privacy and data protection risks, companies often siloing access to data, and tactical system and technology limitations which can make data sharing quite the challenge.

The definition of RWD continues to evolve.

RWD is information that typically is generated outside of or after a clinical trial. Traditionally, real-world data has been synonymous with claims data. It can also be clinical or electronic health records (EHR) data that augments a patient's medical experience.

The definition of RWD more readily is changing, however, as different types of data assets become available. Increasingly, individual-level information such as consumer behavior data, patient-reported outcomes, and survey results are being considered as sources of real-world data.

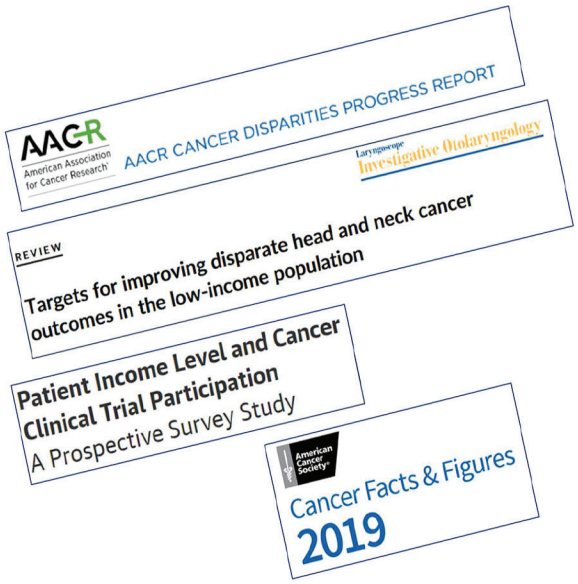
Social determinants of health (SDoH) show that the patient experience is more than just claims and clinical events. Researchers have found that social factors account for more than one in three deaths in the United States annually.[1] SDoH can be classified into five core domains:

1. Healthcare access and quality
2. Neighborhood and built environment
3. Social and community context
4. Economic stability
5. Education access and quality

1. Source: Hood, C. M., K. P. Gennuso, G. R. Swain, and B. B. Catlin. 2016. County health rankings: Relationships between determinant factors and health outcomes. *American Journal of Preventive Medicine* 50(2):129-135. https://doi.org/10.1016/j.amepre.2015.08.024

Studies demonstrate that SDoH factors are linked to disparate health outcomes and different treatment patterns. If life science companies fail to measure these dynamics using RWD, it could limit the ability of drugs to positively affect outcomes.

Figure 1: Examples of Disparate Health Outcomes Linked to SDoH



Lower income significantly associated with survival rates in head and neck cancer

Advanced stage at diagnosis associated with longer travel time to access healthcare

Lower household income associated with lower enrollment rates in clinical trials

Cancer fatality rates associated with lower levels of education

Rural breast cancer patients are less likely to receive radiotherapy

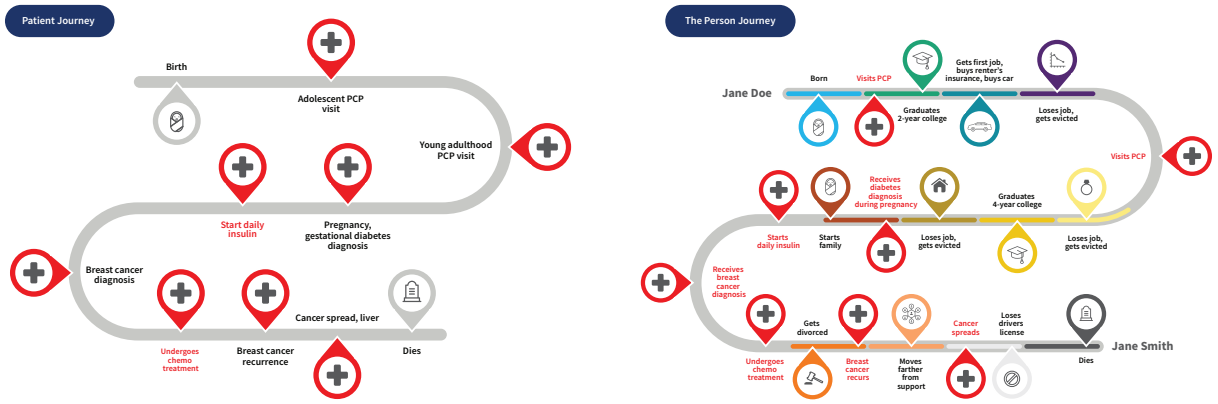
Based on the real-world data that's already being used, we know that observing the effects seen during a clinical trial through a different lens can create a broader picture of an individual.

Incorporating life events into analysis and research can generate valuable insights for life science companies. The life science industry focuses heavily on the patient journey, and defines that journey based on an individual's medical experience. Understanding more about people and their lives, however, could affect research and analysis results.

The patient journey often shows a fairly streamlined path through the medical system. Overlaying a patient's personal experiences on top of his or her medical and clinical experiences can be very impactful.

In Figure 2, for example, the patient's child rearing responsibilities may have affected her ability to manage care and treatment for a breast cancer diagnosis. Later in life, the loss of a drivers license due to vision problems could have prevented the patient from getting to doctors appointments after her breast cancer recurred.

Figure 2: The Patient Journey vs. The Person Journey



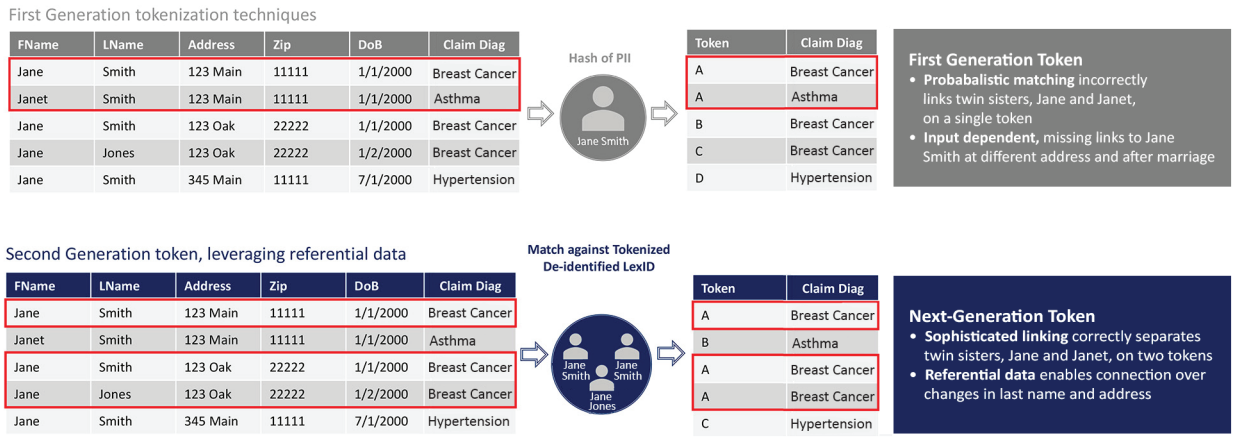
Thinking about life events as a normal course of analysis and research, rather than as an exception, could tell us more about the individual, create a broader viewpoint, and generate additional value.

Data tokenization unifies the patient and person journeys.
In healthcare, data tokenization enables researchers to view sensitive data elements without revealing the identity of individuals. It supports HIPAA-compliant data sharing for expert determination and de-identification.

Today, many tokenization solutions create a unique, de-identified patient token based on observed, input personal identifiable information (PII) data. These methods are enhanced with differential statistical techniques that create weights for naming and enhance probabilistic matching. However, these techniques are only as good as the information that is input. Data records may be erroneously linked or erroneously maintained as individual records. As a result, the view of individual patients is imperfect and incomplete.

Gravitas™ is the next-generation tokenization solution that adds referential data and value to the linking process. The result is higher fidelity and higher confidence de-identified records that provide consistency over time.

Figure 3: LexisNexis Gravitas Next-Generation Token Solution

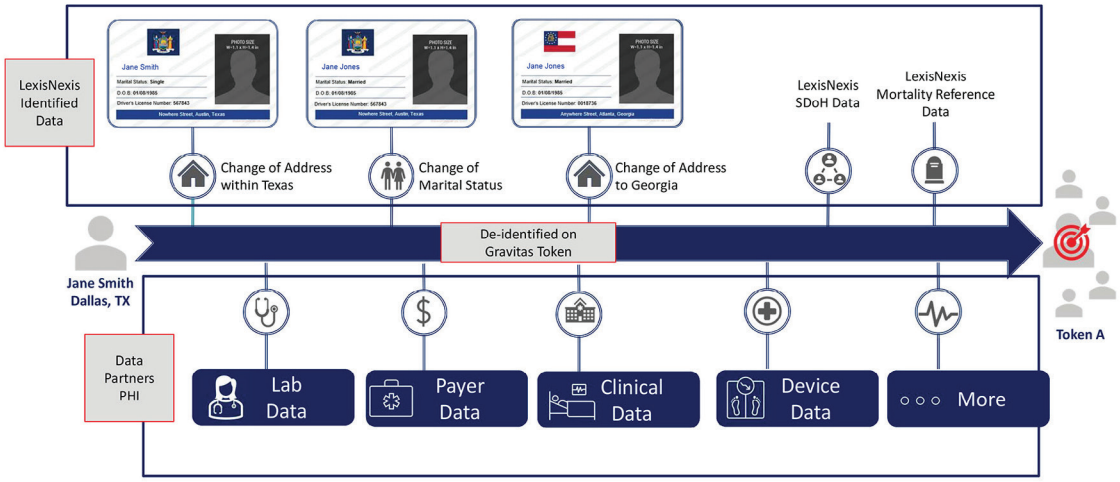


Patient-centric tokens power RWD integration.
In the real world, people's lives are complicated – which leads to complex data. Data is constantly changing as people move, get married, get divorced, and more. Many probabilistic matching techniques based on location or name can lead to incorrect tokenization.

LexisNexis Risk Solutions brings over 40 years of experience with data aggregation and linking, as well as industry-leading data protection practices. The company has captured data that accounts for over five billion permutations of personally identifiable information, observed across 280 million adult identities.

Its patient-centric tokenization can more accurately match data over time as patient information changes and achieves high match rates with precision across multiple data sets. Longitudinally comprehensive, patient-centric tokens enable high confidence in combined data to link events and outcomes for patients. This is critical for today's research-driven use cases in precision medicine and care outcomes.

Figure 4: RWD Integration with Gravitas™ Token



We're driving toward a world where considering more than claims and clinical data within real-world data is inevitable.

RWD enables life science companies to more rapidly and affordably assess product effectiveness.
RWD can serve as a feedback loop for designing and planning the next phase of product development or clinical trials.

- **Enhanced decision support tools.** If analysis with RWD shows that a drug will have less positive outcomes for patients with transportation challenges, the pharmaceutical company may decide to develop decision support tools to identify that barrier and offer services to mitigate it. This would improve the effectiveness of the product for certain patients.
- **Clinical trial design and recruitment.** Many companies want more comprehensive and heterogeneous clinical trial participants. Analysis can identify what additional factors need to be considered in RWD. With this information, organizations can modify clinical trial recruitment, site selection criteria, and support mechanisms for the clinical trial.

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Our healthcare solutions combine proprietary analytics, science and technology with the industry's leading sources of provider, member, claims and public records information to improve cost savings, health outcomes, data quality and compliance and minimize exposure to fraud, waste and abuse.