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Underwriting with digital health data

Swiss Re and Diameter Health join forces to advance underwriting with digital health data: First ever scalable solution to use electronic health record data in life insurance underwriting

Adoption of Electronic Health Records systems (EHR) data in the life insurance industry has been a struggle. Various barriers such as lack of quick access, exchange and variation in patient data as well as disparate medical coding systems have been frustrating barriers for the L&H insurance industry and encumbered the underwriting process. Swiss Re's partnership with Diameter Health, combining deep understanding of risk with data-refinement technology to transform underwriting, offers the solution.

Electronic Health Records (EHR) systems have existed in the United States and around the world since the 1970s. However, their explosive adoption across industries that require health information is a more recent phenomenon.
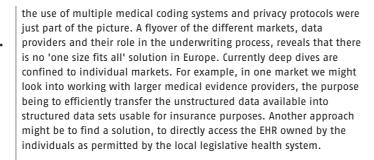
In 2008, there was very little adoption across the United States. As the financial crisis swept the country, the government looked for projects which could put people to work, create industry and improve our health care infrastructure. National Health statistics have EHR adoption growing from 9% in 2008 to in excess of 84% in 2015. However, systems for tracking, organising, storing and extracting the data being captured were disparate and fragmented. Not only did it vary from software provider to software provider, but also from actual installation to installation, and clinician to clinician. The dream of digitising the patient record keeping was alive and thriving. But the idea of interoperable information which could be easily and freely exchanged was far from a reality.

The struggle for EHRs to mature and become widely adopted was a global problem. In Europe, unique regulatory landscapes, varied laws,

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the use of multiple medical coding systems and privacy protocols were just part of the picture. A flyover of the different markets, data providers and their role in the underwriting process, reveals that there is no 'one size fits all' solution in Europe. Currently deep dives are confined to individual markets. For example, in one market we might look into working with larger medical evidence providers, the purpose being to efficiently transfer the unstructured data available into structured data sets usable for insurance purposes. Another approach might be to find a solution, to directly access the EHR owned by the individuals as permitted by the local legislative health system.

Similarly, in Asia the EHR landscape is still fragmented with low adoption rates. Many records are not interoperable across hospitals, which limits the extent these records can be used for patient care. In China, insurers have been trying to bridge the gap to get access to digital health data via development of Optical Character Recognition (OCR) and Natural Language Processing (NLP) technologies. The developments in this space are still nascent. Nevertheless, they remain worth observing as machine learning speeds up the accuracy of these technology solutions.

Access to and the quick exchange of the patient data contained within these systems is essential for individuals proper treatment and care. It is also a highly sought by legal firms working with claims that involve medical treatment, as well as insurance companies with products which require medical underwriting.

Insurance underwriters rely heavily on attending physician statements as they assess their applicants' risk. For decades those records have been hand-curated. They have been an amalgamation of doctor office documentation pulled from varying systems, which are still occasionally transmitted to the requester via fax machine. After waiting weeks and sometimes months for the record to arrive, the manual underwriting review process begins.

THE RISE OF EHR SYSTEMS AND THE RESULTING SLOW-DOWN OF THE UNDERWRITING PROCESS

About three years ago, the United States life insurance underwriting market began accessing electronic health record data. Quickly the industry learned that leveraging the full power of EHR in underwriting wouldn't be quick and easy. In order to harness the full power of the record, the underwriter must be able to work with the structured and unstructured data within.

Tracking alongside the rise of EHR systems was the rise of medical codes. Dozens of medical coding systems are in use in the United States and some code sets are used globally. Even when the record is received quickly, disparate codes, coding systems and software are producing data extracts that have slowed the underwriters' work.

The confluence of barriers amongst the EHR systems presented significant challenges to life insurance clients and the effective adoption of EHR data. Time and again we heard of similar struggles and

questions, about how and when we would be able to accurately use this EHR data to streamline the underwriting process.

Identifying the reality that the underwriting process had slowed, Swiss Re, a leader in life and health underwriting expertise partnered with Diameter Health, a leader in health data interoperability. This joint effort began in the United States. It resulted in Diameter Health's proprietary Fusion data refinement technology, which is able to normalize, enrich and intelligently reorganise and summarise health data to provide a consolidated secure view of patients' EHR information.

SWISS RE'S MAGNUM AND DIAMETER'S HEALTH FUSION TECH BREAK THE MOLD

Diameter Health Fusion technology can cleanse electronic health records from any United States certified EHR provider. Raw clinical data is inconsistent, incomplete, and requires refinement to be integrated successfully into business processes. Diameter Health's API-based technology automates clinical data integration, normalisation, and enrichment in real-time and at scale, filling gaps in data using evidence-based rules. With observed uplift in clinical data quality and average processing speeds of 500 kb/second, Fusion automates the complex and tedious mapping of text and codes to national terminology standards, even as those standards grow and change. Its targeted natural language processing and logic standardise, classify, enrich, and deduplicate EHR data. The result is a single longitudinal patient view enabling improved analysis and utilization.

Health records contain sensitive, personal information and are handled in compliance with applicable privacy laws. To ensure regional compliance and privacy, records are only processed after an individual has provided permission.

Swiss Re offers its 'Magnum' platform, an automated underwriting engine. Backed by Life Guide, Magnum can seamlessly and securely ingest the normalized Diameter output to its automated rules engine. It is then able to apply its precise risk assessment technology to provide an underwriting decision. Built around the needs of the customer, Magnum is easily customizable, agile and adaptable. It is currently used by more than 60 insurers and is available in 26 countries and 17 different languages.

AN INDUSTRY-CHANGING PARTNERSHIP

Combining Swiss Re's deep understanding of risk, commitment to automation and data-conscious underwriting with Diameter Health's innovative proprietary information-cleansing technology is an industry important partnership. Unlocking new possibilities that enable insurers to make faster, better decisions, also makes it easier for consumers to get the protection, care and coverage they need.
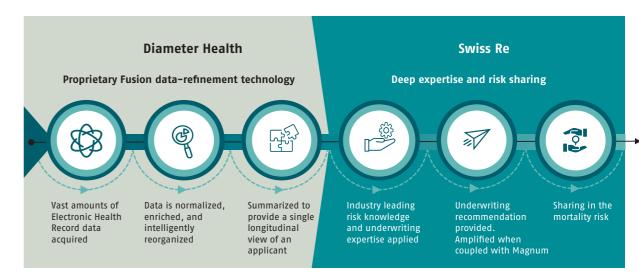
"Being able to accurately use electronic health record data is one of the biggest challenges for our clients. This urgency has certainly increased as a result of the COVID-19 pandemic, which has magnified the difficulties of collecting physical medical records from doctors' offices or through intrusive home visits", says Jolee Crosby, Head of Swiss Re's Global Life and Health underwriting and Medical Reinsurance. "By combining our risk knowledge with Diameter Health technology, we cut through the complexity and can offer, subject to regulatory requirements, a range of innovative options that enable our clients to use clinical data to affectively access and confidently price biometric risks."

"Diameter Health's Fusion technology is the driver that powers refined and consolidated clinical information into Swiss Re's underwriting process", says Eric Rosow, Diameter Health's CEO. "Fusion has processed hundreds of millions of patient records, and billions of data elements from virtually every certified EHR, and we are excited to be an integral component of the Magnum underwriting engine."

Advancement to more efficient, accurate, automated underwriting has been the goal of this partnership. Moreover, it is capable to deliver to insurers the ability to deploy clinical health data to enable faster, less expensive and more accurate underwriting and pricing. In addition, it can also improve customer experience by reducing the time from application to issue, keep costs down and enable fair underwriting processes, thus making life insurance more accessible to all.

About the authors: *With almost two decades of experience in life insurance underwriting, Nichole Myers is a leader in innovation and automation in North America. She is passionate about maximizing underwriting efficiencies using the latest available Insuretech and biomedical capabilities. Nichole has a master's degree in behavioral economics. Dan McKinney started his insurance journey on the carrier side and transitioned to reinsurance where he brings his experience in operations, business growth and underwriting to deliver custom innovations to the customer. He differentiates underwriting innovations by incorporating best practices and thought leadership from across the spectrum of industries. Daniel received his undergraduate degree from Columbia University in the City of New York.* ■

Diameter Health — Proprietary Fusion data-refinement technology | **Swiss Re** — Deep expertise and risk sharing

- Vast amounts of Electronic Health Record data acquired
- Data is normalized, enriched, and intelligently reorganized
- Summarized to provide a single longitudinal view of an applicant
- Industry leading risk knowledge and underwriting expertise applied
- Underwriting recommendation provided. Amplified when coupled with Magnum
- Sharing in the mortality risk