OVERVIEW

The Challenge:

Gain access to and securely de-identify up to 5 million Electronic Medical Records (EMRs) to produce quality data for analysis in public health and disease outcome reports or to be shared with manufacturers and researchers.

The Solution:

Build a customized process using Privacy Analytics' software to de-identify EMR data so that it can be safely utilized without putting patient privacy at risk.

The Benefit:

Access to quality datasets for academic research institutes and medical manufacturers provides better understanding of the patient population, including the ability to evaluate unmet needs, compare cost and effectiveness of existing treatments, find connections between diseases and improve healthcare overall.

IMS Health: Unlocking the Value of EMR Data for Advanced Research and Analysis, Better Health Metrics, and Product Innovation

There is an understanding among healthcare industry professionals that improvement in how we approach healthcare requires better knowledge, and better knowledge requires better – and more – data. But how do we get larger amounts of quality data and still protect patient privacy?

Gaining Access to Clinical (EMR) Data, De-identifying it for Secondary Use

IMS Brogan, the Canadian branch of IMS Health, came to Privacy Analytics in 2009 with two goals in mind: (1) Use Privacy Analytics' Expert Determination method of de-identification to help form a partnership with a large electronic medical record (EMR) vendor and (2) Securely de-identify the EMR data obtained through the partnership so that it can be used to produce up-to-date analysis and understanding, while still protecting patient privacy.

Before working with Privacy Analytics, IMS Brogan had access to prescription and claims data, which had much less patient identifying information in it, but as a result, lacked the rich analytic value of EMR data. When EMR data is responsibly de-identified, it can be used to create customized datasets that enable highly detailed performance analytics reporting and research.

In order to secure a partnership with an EMR vendor and gain access to EMR data, IMS Brogan had to give assurance that patient privacy would not be at risk. A commitment to use Privacy Analytics' de-identification expertise and software - the only de-identification software that applies the Expert Determination methodology - provided the assurance that the EMR vendor needed.

As a direct result, IMS Brogan now has the potential to access the records of up to 5 million patients from a network of 5,850 providers working in more than 2,600 primary care sites in the Canadian province of Ontario.

Using a de-identification engine that Privacy Analytics built, they now regularly de-identify over 915,000 of those patient records, making them available for analytical use.

"With this system, we keep the quality of the data and bring timely and accurate data insights to the healthcare industry without having to put patient privacy at risk," said Richard Borrelli, Principal of Commercial Effectiveness Services at IMS Brogan. "The data is much richer than what we had access to before."

Managing population health and treatment of diseases puts responsibility on four main parties: Patients, clinical professionals, payers and manufacturing companies. Patients bear the disease itself, payers bear the cost of treatment which must be balanced against their budgets. Doctors help those same patients to determine the right treatments, medications and products to use. Manufacturers produce the products and treatments that doctors then prescribe to their patients.

Increasing the exchange of information between these parties brings powerful outcomes and allows for a wide range of analyses to be performed on the de-identified data, including post-marketing surveillance of drugs, public health surveillance, and determining the number of patients who meet screening criteria for clinical trials.

Real World Application: Improve Understanding of Diabetes and Rheumatological Disorders

By analyzing de-identified data, IMS Brogan found several trends in patients with diabetes. Patients with diabetes tend to spend more time with their primary care doctor than other patients; they are typically overweight and typically being treated for high cholesterol, with a high proportion still unable to maintain control of their diabetes after being treated.

In a similar analyses, IMS Brogan analyzed de-identified EMR data of patients with rhuematological disorders. With this de-identified data, they were able to determine the economic impact of rheumatological disorders, both time and money spent, on patients and doctors per year.

Through their partnership with the EMR vendor, IMS Brogan was able to gather information from Patient Reported Outcome (PRO) surveys as well, which gives quantitative insights on which medications and products patients with diabetes and other disorders are using, their overall satisfaction with the treatments, and self reported quality of life and outcomes. These findings are combined to demonstrate gaps in therapy and need for treatment innovations, as well as demonstrate the value of medications.

Real World Application: Facilitating Research and Product Innovation

For researchers and medical manufacturers, having access to de-identified data sets that contain accurate, up-to-date patient information and are custom-built for specific analysis, is incredibly valuable.

With Privacy Analytics' software, IMS Brogan is able to de-identify patient data to meet the needs of specific studies. Clients can then gain direct access to run their own analysis of the data to better understand the patient population that their products are treating, evaluate unmet needs, inform recruitment for clinical trials or evaluate comparative treatments that are available.

Privacy Analytics' software provided IMS Brogan with the only way to achieve a scalable, HIPAA-compliant approach to accessing and sharing EMR data for important secondary purposes. Simple data masking or the Safe Harbor method are not responsible approaches to producing the type of complex de-identified data sets for sophisticated research and analysis that are required by IMS Brogan's clients.

To produce high quality de-identified datasets for specific analytic use, Privacy Analytics' software assesses the level of re-identification risk based on the anticipated analyses that will be performed on the data. In addition, part of what sets Privacy Analytics' approach apart from simple data masking, is the ability to evaluate the impact of date shifting on the data and to apply a proprietary and patented approach to shifting dates as part of the de-identification process without compromising data quality.

The amount of change made by de-identification to data utility is important and very context-driven. All stakeholders need to provide input on what is most important to them, be it data utility or privacy. It's not easy to balance the needs of everyone involved, but good communication and a commitment to producing useful data that keeps the risk of re-identification low is all you really need to get started. It's not an easy negotiation—and it may be iterative—but it is an important negotiation to have.

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Who Benefits?

Ultimately, because of the high quality, useful data that is produced as a result of Privacy Analytics' software, IMS Brogan is able to provide benefits to all stakeholders. IMS Brogan's clients are able to gain better understanding of the patients for whom their products are designed, doctors are able to better

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understand trends and perceived effectiveness of treatments based on PRO survey data and patients are being provided with better products and treatment through IMS Brogan's clients and physicians.

"The outcomes of our work have been tremendous," said Borrelli. "Knowing that we can secure patient privacy and still give information and analysis to our clients, the desire to dig even deeper into the data, to gather more information and do more with it, is very strong."

Healthcare analytics will be front and center as providers and manufacturers look for ways to transform their practice and deliver better products and treatments for patient centered outcomes. With the data de-identified by Privacy Analytics' software, IMS Brogan is able to provide its clients with access to specific data points and metrics and quantitative insight collected from Patient Reported Outcomes (PRO) surveys.