

How did a North American pharmaceutical company revolutionize epileptic seizure management in Dementia?

Need

- Improve epileptic seizure management in dementia patients.
- Reduce seizure frequency and improve patient responsiveness during seizures.
- Utilize extensive data for drug development.

Challenges

- Complex data mapping due to increasing volume.
- Ensuring data accuracy from diverse sources.

Solution

- Advanced data analytics with machine learning.
- Robust data integration strategy for accuracy.
- Real-time monitoring for global sales and inventory management.

Introduction

Recent statistics have revealed that 10-22% of Alzheimer's disease patients, the most common form of dementia, experience unprovoked seizures. The incidence of seizures among clinically diagnosed Alzheimer's patients ranges from 4.2 to 31.5 cases per 1000 person-years, with prevalence rates typically falling between 1.5% and 12.7%. Notably, early-onset Alzheimer's patients face a higher prevalence, reaching 49.5% in some studies.

Our client, a prominent North American pharmaceutical company, embarked on a mission to transform epileptic seizure management in dementia patients. Their objective was to reduce seizure frequency and minimize unresponsiveness during these episodes. Recognizing the critical role of data in this endeavor, the company gathered extensive information from diverse sources, including medical records, prescriptions, handwritten notes, and caregiver and nurse observations. However, they faced a daunting challenge in effectively organizing and utilizing this data for their drug development initiative.

Challenges

1. **Data complexity:** As data volume increased, the mapping process became increasingly intricate, making it challenging to extract meaningful insights.
2. **Data quality:** Ensuring data accuracy proved a persistent struggle due to discrepancies, missing information, and variations in data formats from various sources.

Solution

In pursuit of a solution, we implemented the following strategies:

1. **Advanced data analytics:** Leveraging state-of-the-art algorithms and machine learning models, we conducted advanced data analytics to unearth concealed patterns and correlations within the vast dataset.
2. **Data integration:** We implemented a robust data integration strategy, establishing a unified data pipeline to standardize information from diverse sources, ensuring data accuracy and reliability.
3. **Real-time monitoring:** We introduced a real-time monitoring system to monitor global sales, track repeat orders, and optimize inventory management. We developed custom inventory management software with features such as product management, inventory tracking, supplier administration, purchase and sales order management, reporting and analytics, and user authentication and access controls. Power BI was employed to provide a comprehensive view of the supply chain, sales performance, and customer behavior.

Results

- 25% reduction in seizure frequency.
30% average decrease in unresponsiveness.
- 40% fewer data entry errors and 20% less discrepancies.
- 15% reduction in excess inventory, saving \$2 million.
- 10% higher product availability, leading to 12% revenue growth in year one.

Results

The pharmaceutical company achieved significant outcomes through its innovative approach:

1. Enhanced drug development:

- A 25% reduction in seizure frequency among elderly dementia patients during clinical trials.
- A 30% average decrease in unresponsiveness during seizures, enhancing patient safety and quality of life.

2. Improved data quality:

- A 40% reduction in data entry errors, ensuring more accurate and reliable decision-making.
- A 20% decrease in data discrepancies across various sources, improving data consistency.

3. Global sales optimization:

- There was a 15% reduction in excess inventory, resulting in annual cost savings of \$2 million.
- There was a 10% increase in product availability, leading to a 12% growth in sales revenue during the first year of implementation.