

# CASE STUDY

## ENABLING 95% PATIENT ADHERENCE WITH RAPID PATIENT DATA ANALYTICS

CREATING AN INTEGRATED, CLOUD-BASED PATIENT INFORMATION ENVIRONMENT FOR A LEADING BIOTECH COMPANY TO ENABLE BEST-IN-CLASS PATIENT ANALYTICS CAPABILITY



SPs are reliable distribution channels for expensive drugs, offering patients convenience and cost benefits while maximizing insurance reimbursements from those companies that cover the drug.

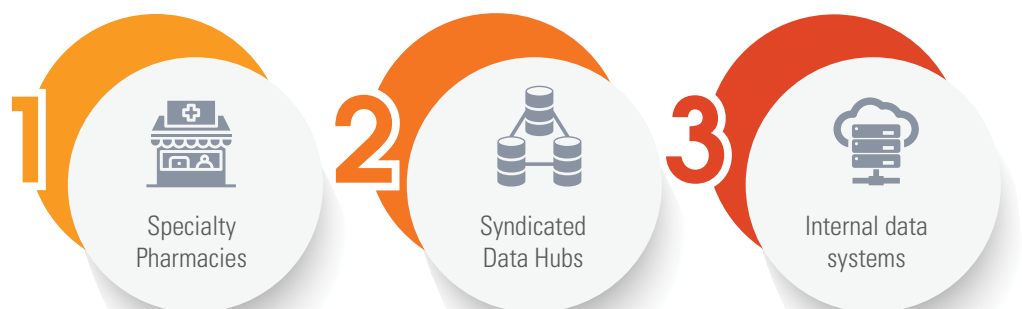
### INTRODUCTION

Many pharmaceutical companies distribute their products through Specialty Pharmacy (SP) channels, which collectively form the Specialty Pharmacy Provider (SPP) network. These channels are designed to distribute specialty drugs that are either high in cost, for highly complex treatments, and/or need high-touch in terms of distribution, administration, or patient management. SPs are patient-oriented distribution channels for providing convenience to patients along with cost and insurance benefits. Patient data coming from multiple pharmacies is recorded at different levels and lacks standardization & unique patient identifiers. Owing to the huge volumes of such complex patient-level data across geographies, sophisticated means of data management are required by pharma companies to harness its true potential. To add, with an increasing focus on patient-outcomes and benefits, pharma companies are leveraging patient-level information, such as Protected Health Information (PHI), to track the complete patient treatment journey and make informed clinical and commercial decisions.

In such a scenario, the wealth of complex patient information with SPPs becomes crucial for pharma companies to tap. This case study illustrates Axtria's experience in enabling rapid patient analytics by streamlining fragmented patient-level data into a unified data hub in a HIPPA environment, enriched with advanced analytics algorithms for actionable patient-level insights.

### BUSINESS SCENARIO

The client, a leading biotech company, was distributing its drugs through an open distribution network, including SPPs. Transaction data was being acquired at different levels, formats, and frequencies from:



Given the complexity of data feeds and the prevailing business priorities, the client faced two challenges.

#### IT CHALLENGES

1. Data Collection
  - a. Discontinuous and untimely receipt of data
2. Data Quality
  - a. Varying data formats, layout, and templates
  - b. Incorrect and incomplete data
3. Analytics Platform
  - a. Constant changes needed in the analytics algorithms to tackle the varying quality of data
  - b. Archaic process of data extraction for analysis

#### BUSINESS CHALLENGES

1. The multiple streams of data did not have a unique Patient ID to connect the IDs, making it difficult to stitch the complete journeys of individual patients across SPPs.
2. Due to delayed receipt of sales/claims data from the syndicated data vendors, the client's existing analytics platform was churning out insights after a minimum of six months of data collection. This made it difficult for the client to gauge the performance of SPPs.

#### BUSINESS NEED

To address all the prevailing challenges, the client had the following requirements.

##### DATA COLLECTION AND QUALITY

The client's data management team wanted to streamline the inflow, standardization, and outflow of all data.

##### PATIENT ANALYTICS

Best-in-class patient analytics support for rapidly developing analytical data cubes and reports in formats desired by client business teams (specifically the executive directors and brand teams).

##### INTEGRATED ANALYTICS PLATFORM

Implementation and operational support for the deidentified patient-level data.

##### SPP PERFORMANCE TRACKING

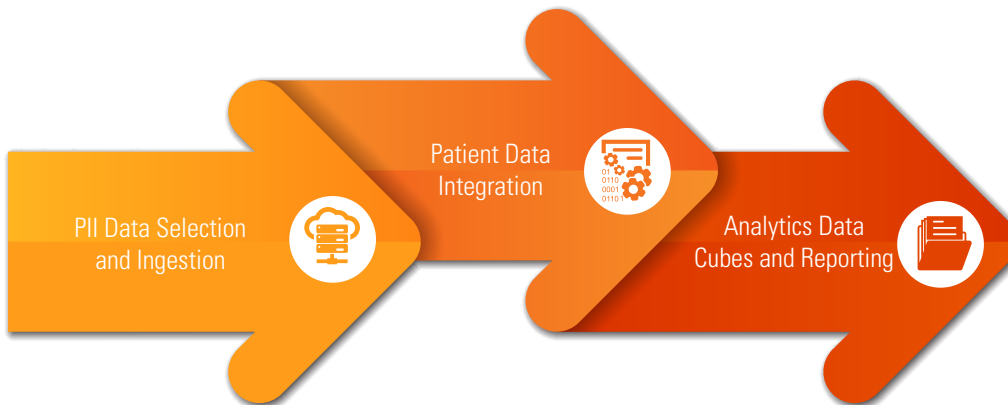
Rapid analytics and timely channel performance insights.

It was possible to overcome the existing challenges and meet the business need with a suite of enterprise-grade patient Master Data Management (MDM) capabilities, complying with HIPAA's Personally Identifiable Information (PII) data quality standards.

## AXTRIA'S APPROACH

As a solution, Atria implemented an integrated **Patient Data Hub** platform. The platform was HIPAA compliant and highly secure, built on Atria DataMAX™ and powered by Amazon Web Services (AWS). Along with sophisticated cloud data management capabilities, pre-defined business rules and a governance framework, the platform enabled a wide range of patient data analysis.

The solution approach consisted of the following steps:



Strong data security protocols were used for data encryption and deidentification throughout the process with access restrictions and multi-factor authentications. These features ensured the platform's airtight security and compliance with HIPAA's guiding principles.

### DATA INGESTION

1. Data feeds from various SP vendors, syndicated data hubs and the internal systems were uploaded into Atria DataMAX™. The external data came as encrypted flat files (CSV or TXT). The data also came in from the client's internal feeds.
2. The encrypted data was decrypted.
3. After decryption, the files were moved to the Atria DataMAX™, cloud-based server.

### PATIENT DATA INTEGRATION

1. Data Integration began with the process of ensuring data quality compliance.
  - a. Decrypted data was first validated using 200+ preconfigured quality checks included in Atria DataMAX™.
  - b. The SPPs were informed of the data quality errors if any.
  - c. The decrypted files were then compressed into a password protected zip file for future reference.
2. Input process was done to organize the data into a more meaningful form.
  - a. The staged data was inserted into the Input Table and removed from the Staging Table.
  - b. To adhere to HIPAA norms, the decrypted data was re-encrypted and inserted into an Encrypted Table. After encryption, the decrypted data in the Input Tables was deleted.
  - c. The data was split between multiple dimensions (e.g., Provider, Product, Services, Sites, Payer, Patient data, etc.) and added into their respective tables.
  - d. The PII was deidentified according to HIPAA's PII norms before being sent to the Data Analysis Team for further analysis.



3. Storing the Patient Activity Data in the Operational Data Store.
  - a. Multiple data dimensions were created: Provider, Product, Patient, Payer, Therapy, etc.
  - b. Two fact tables were generated: Committed and Uncommitted Patient Activity.
  - c. All activity history was maintained.

Each patient and payer in the data was assigned a unique Master ID. These IDs were used to uniquely identify the patient or payer in further processes.

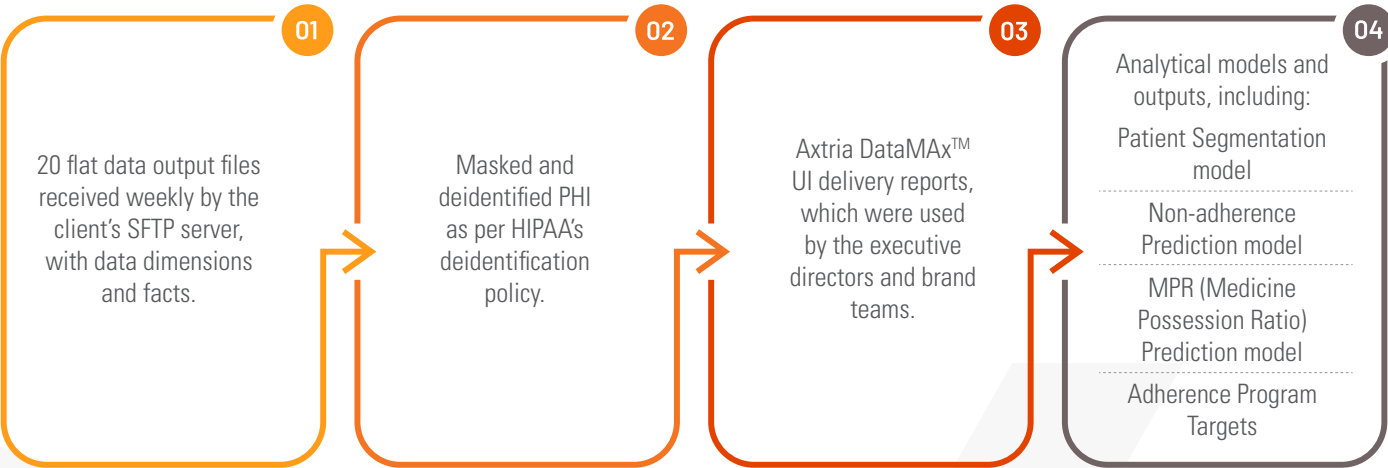
#### ANALYTICS DATA CUBES AND REPORTING

1. All the encrypted and de-identified patient data was leveraged by Axtria DataMAx™ for tracking the patient journey for further analysis.
2. New reports on patient segmentation and profiling were built to identify medium/low adherence by patients.
3. A model was developed to predict medium/low adherence risk patients based on non-adherence measures.

RESULT

The client received a highly-secured HIPAA compliant cloud-environment to enable ongoing data intake, storage, integration, enrichment, and deidentification of patient data from various sources, namely SPs and syndicated data hubs. This platform led to the creation of a singular, unique Patient ID across the system and enabled rapid patient analytics to understand patient behavior. Also, the client’s Field and Marketing teams led programs to improve the adherence/ compliance scores of the patient journey.

KEY DELIVERABLES



CLIENT BENEFIT

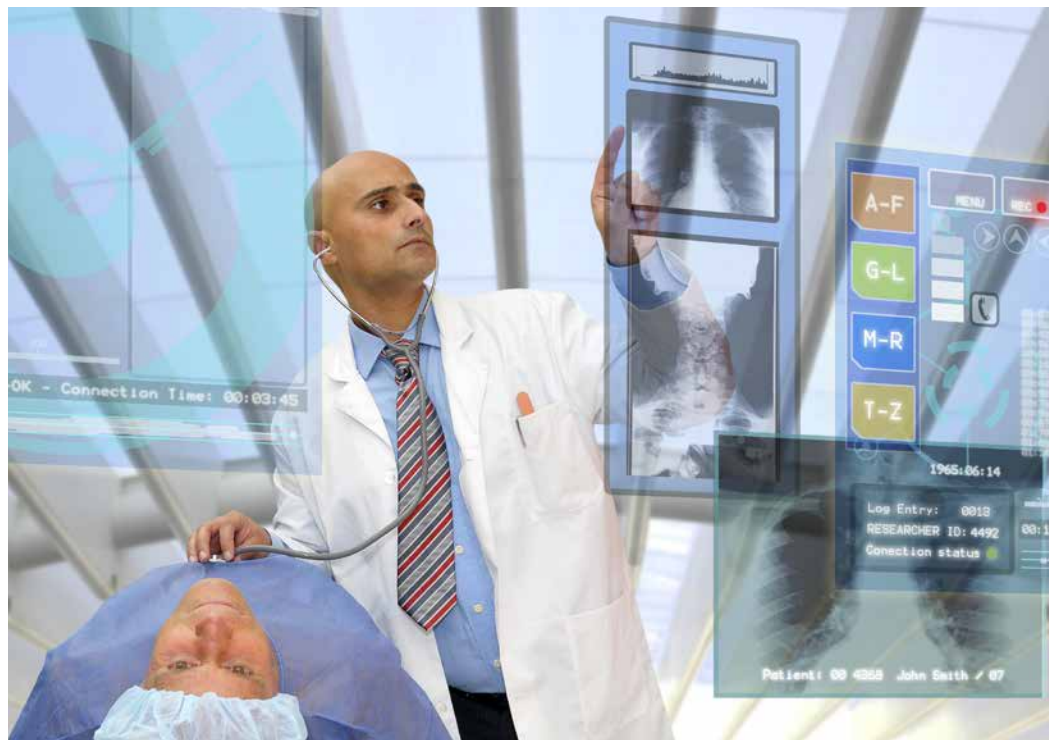
Implementing the Patient Data Hub via Axtria DataMAx™ benefited the client through direct patient outcomes, significant improvement in their understanding of the Patient Journey, deep commercial and patient behavior insights to their teams, speed of decision making and efficiency to the organization.

BEFORE	AFTER	CLIENT BENEFIT
<b>65%</b> Patient adherence	<b>95%</b> Patient adherence	Helped in improving health outcomes due to higher adherence. The client received industry-wide recognition for this.
<b>6 months</b> Patient journey insights every 6 months	<b>Every week</b> Patient journey insights every week	Weekly insights from daily data extracts ensured close tracking of drug performance and enabled prompt corrective actions.

Additional benefits included:

1. The client was able to renegotiate its business terms with SPPs to increase ROI based on channel performance insights on patient satisfaction score, shipment numbers, etc.
2. Patient journey insights on drug use, treatment duration and recovery progress helped understand drug inventory requirements and ensure a well-oiled supply chain for the SPs.





## CONCLUSION

By tracing an individual patient's end-to-end treatment journey, pharma companies can understand how and when to make specific offerings to significantly improve their health outcomes. The right intervention at the right touchpoints can make it easy for patients to overcome hurdles and help them better adhere to their treatments.

The power of the cloud and data transformation can improve patient lives. Patient-level analytics has the potential to influence patient behavior, including therapy-adherence patterns. Companies that do not acknowledge this fact, fail to improve outcomes for their patients and lose out to the competition. Some companies fail to tap this potential due to substandard and traditional data management methods. Only the select few companies who succeed in nurturing the true power of patient data, using the best-in-class cloud data management platforms and robust patient analytics capacities emerge as leaders and reap prolonged returns.

Founded in 2010, Axtria is a global provider of cloud software and data analytics to the Life Sciences industry. We help Life Sciences companies transform the product commercialization journey to drive sales growth and improve healthcare outcomes for patients. We continue to leapfrog competition with platforms that deploy Artificial Intelligence and Machine Learning. Our cloud-based platforms - Axtria DataMax™, Axtria SalesIQ™, and Axtria MarketingIQ™ - enable customers to efficiently manage data, leverage data science to deliver insights for sales and marketing planning, and manage end-to-end commercial operations. We help customers in the complete journey from Data to Insights to Operations.

For more information, visit [www.axtria.com](http://www.axtria.com)

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