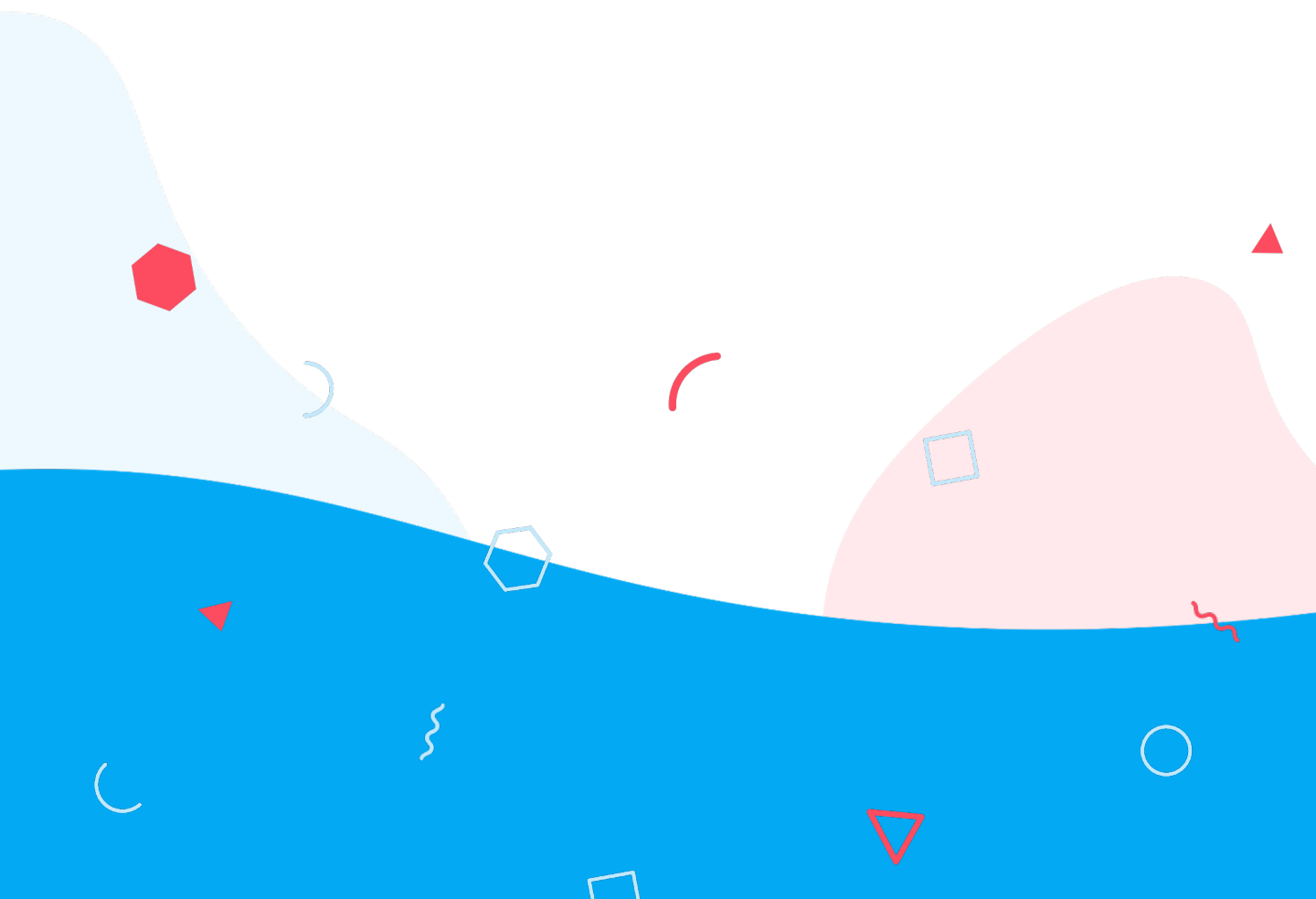




# Closing the insights gap

## Precision analytics for life sciences





## Context

The US healthcare industry is in need of transformation, driven by unsustainable increases in costs, chronic illness, and an aging population. Leading life science, health insurer, and provider organizations must innovate to address industry shifts, such as the commercialization and delivery of personalized care and therapies.

In order to do so, these organizations need to change the way they operate at their very core. They must simultaneously understand broad patient populations to identify and respond to patterns, while delivering personalized approaches tailored to each patient. *The key to meeting these objectives is applying advanced analytics to distill and connect healthcare's big data.*

There is no shortage of data in healthcare. In recent years, the widespread adoption of the electronic medical record (over 85% of healthcare organizations in 2017) has exponentially increased the amount of interpretable patient data. But we have a lot more than just EMRs. Labs, radiology, genomics, medical and Rx claims, and systems outside the clinical setting (i.e., wearables and consumer products) are generating tons of useful data that inform health outcomes and tell us more about our patients.

Despite all the seemingly available data, they are often times just out of arm's reach. Most life science organizations are hindered by legacy IT infrastructure and data investments that have not delivered ROI, and a menu of point solutions that cannot share results across business channels and functions.

So how do we close the insights gap in life sciences that persists and hinders progress?

# The enterprise analytics revolution

*Big data has made its way into life sciences, but gaining insights through it is not as easy as it seems.* The industry overall has made major investments in data and analytics capabilities over the past decade, but we still lack the analytical power that is available to the financial services, consumer and logistics industries; a power that is necessary to enable the discovery of new insights about patients, physicians, therapies and facilities.

The trend in other industries has been investments in foundational platforms, the full embrace of cloud technology, and the elevation of analytics as an enterprise-wide priority and capability.

One major lesson from other industries is the speed and scale at which advanced analytics has transformed business models and created new industry leaders. In less than a decade, trading floors have disappeared, cars are directed turn-by-turn in real-time, credit cards are approved instantaneously, and retailers proactively personalize purchase recommendations. Significant investments in cloud technology, big data, machine learning, and AI have underpinned these advances.

## The building blocks for enterprise analytics include:

1. Large and comprehensive patient-level data sets
2. Advanced computing power and systems of intelligence
3. Clinical and operational insight
4. Ability to implement at scale
5. Culture and behavior change

## THE NEED FOR AN ENTERPRISE ANALYTICS PLATFORM IN LIFE SCIENCES

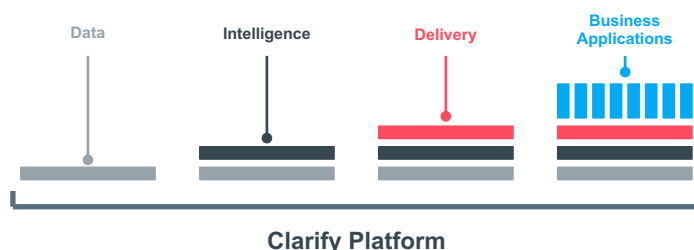
Advanced analytics have the power to transform and continually improve multiple aspects of business operations in life sciences. However, the industry will need to rapidly transition from standalone analytics data sets and solutions targeted to single business applications (i.e., today's laundry list of point solutions), to an enterprise-wide integrated platform. This enterprise-wide platform will need to:

1. Connect all existing internal and external datasets, make them interoperable and be able to provide the technological horsepower to rapidly query data in a secure manner.
2. Generate scale and synergy for cutting-edge AI/ML workbenches and create consistency across the analytical algorithms and methodologies that can support multiple applications.
3. Support the delivery requirements of a diverse group of end-consumers of these applications (e.g., business owners, executives, data scientists, analytics experts).

Such an enterprise analytics platform can significantly simplify the process of development and deployment of additional analytics solutions in the future. However, in its absence, scalability of analytics across an organization could face significant barriers due to silo-ed nature of each application, duplication of infrastructure and data linking efforts, and increased cost / lower ROI for each solution.

Building such an enterprise-wide platform can propel an organization to an industry-leading position as have been evidenced multiple times in other analytics-driven industries such as online retail (e.g., Amazon), navigation (e.g., Waze), and financial services (e.g., JPMorgan).

The four fundamental elements of an advanced enterprise analytics platform:



# Build or buy?

Building the capabilities of a true Enterprise Analytics Platform *de novo* – even for a highly advanced organization – would require a \$150-250M+ investment in new personnel, external data acquisition, professional services, and software development over a 5-year period. Furthermore, making such an investment to build the necessary platform and capabilities ground-up is a risk for any institution given that it requires extensive data as well as experience and capabilities often found outside of the healthcare industry. This could result in a

Knowing in advance the types of data and the amount of data that will be made available to you when partnering with an analytics vendor will help determine if it will be sufficient to answer your business questions. Few have access to the sheer amount of data necessary to power a predictive analytics engine with statistical validity, and even fewer have the processing power needed to extract, validate, clean, and normalize the data to make it interpretable and actionable.

**Data is the foundation for differentiated predictive analytics capabilities. In order to make data actionable, you must have the technical architecture and infrastructure to rapidly ingest, clean, link, and analyze siloed data sources.**

You'll want to make sure your vendor has a built a secure, HIPAA-compliant infrastructure with the ability to rapidly ingest new data from external sources, linking in claims and clinical data at the patient-level to increase the value of your own data in yielding useful insights. Your organization has already made significant investments in the data revolution, put that data to work.

As an alternative to building in-house, you may look for an analytics platform with the capabilities needed to drive growth at a fraction of the investment required to build. If you are considering investing in an enterprise analytics platform to power your brand, portfolio, or broader business, there are 4 critical components you must assess:

**1. DATA & ARCHITECTURE** – Big data doesn't necessarily mean good or useful data. Big data is possible in healthcare due to the vast amounts of claims, clinical, and health-related data generated through electronic medical records, billing systems, consumer, and social data. But one data point alone has limited predictive value. The power of big data comes from the ability to link and analyze disparate data sources to generate longitudinal views of individual patient journeys and identify trends overtime.

**2. SYSTEMS OF INTELLIGENCE** – Closing the insights gap in life sciences doesn't stop with the raw data. It is now finally possible to union data to generate terabytes, and soon petabytes, of patient-level data using machine learning and artificial intelligence. A standout analytics partner will have an automated data processing and modeling pipeline, so your data is always fresh and accessible.

Cutting-edge applications of cloud technology, data storage, and real-time analytics available in the market today are finally providing the analytical power and speed to unlock more precise, timely and actionable insights across a multiplicity of business use cases.

“The healthcare system generates approximately a zettabyte (a trillion gigabytes) of data annually, and this amount is doubling every two years. The scale and distributed nature of this data presents an enormous challenge for those seeking to understand health data. Yet as the scope of this challenge keeps increasing, so does the potential to use data to define and deliver value for patients across the healthcare system.”<sup>3</sup>

Do you know how their predictive models are arriving at a conclusion? What can be done to address the insights shown? There are many “black box” analytics offerings on the market today which may be flashy, but not actionable for your patients or physicians.

**3. ADAPTIVE DELIVERY** – The knowledge and insight that big data can provide is useless until it makes its way into the hands of decision makers. In order to be impactful, these analytics should offer flexible ways to interact with the user to optimize actionability. An enterprise analytics platform should seamlessly digest data and present insights through a range of different visualizations and formats. Depending on the audience, your organization will need to align the most appropriate format (cloud-based software platform, report, data feed, mobile, in EMR, data portal) to the end user. You should have the final say in how to translate analyses into action and, ultimately, outcomes. Just as if a tree falls in the forest and no one is around to hear it, of what use is a more precise insight if it is not delivered into the relevant workflow in a timely manner?

**4. BUSINESS APPLICATIONS** – Read-to-deploy SaaS solutions will help your organization quickly answer your most pressing business questions. For example, using the available health data and advanced analytics, you can answer questions like:

An important consideration when assessing an analytics partner is whether you can interpret the insights provided to **take action**.





- How do I best demonstrate and quantify the value of my therapy for precise patient cohorts?
- How do I accelerate my trials by finding patients and the best investigators rapidly?
- How can I accelerate my therapy launch with better understanding and targeting of physicians?
- Who and where are the high-volume providers (physicians/hospitals/sy stems) seeing patients for my indication?

## CASE STUDY

### Optimize drug uptake at launch and track market evolution using deep, longitudinal patient and physician insights

*Understanding a rare hematological disease with Clarify's rich data, deep clinical informatics, and predictive analytics*

#### CHALLENGE

A global biopharma manufacturer successfully developed a novel targeted therapy to manage a complex and debilitating genetic blood disorder with chronic complications.

As the company prepared to launch this high-value product with a new mechanism of action to reduce frequency of pain crises in patients, they needed to identify the patient profiles most likely to be prescribed their drug and clinically benefit from it. They also wanted to track the evolution of the profiles as physician behaviors change with launch of competing drugs. Finally, the manufacturer wanted to quantify the opportunity at a national-level and individual physician-level based on the composition of their patient panel.

#### SOLUTION

The company selected the Clarify Growth solution to support their product launch due to the breadth and depth of the dataset and actionability of insights. To address the launch team's key questions, Clarify delivered the following three areas of output:

1. Precise identification, characterization and mapping of patient profiles most likely to adopt therapy. Profiles are dynamically-refreshed to track changes over time.
2. Quantification of patients who match the profiles most likely to benefit from the drug.
3. Opportunity scoring at physician-level based on patient panels (i.e., number of patients matching profiles identified) and therapy usage/switch behavior to support on-going commercial efforts.

#### RESULTS

Clarify identified 15 patient disease history attributes, provider attributes and treatment history patterns that were highly correlated with therapy usage to create a composite patient profile. This translated to ~14,000 patients who are currently not on therapy but match the patient profiles that could benefit the most from the drug ("look-alike" patients). Additionally, Clarify identified ~120 physicians who had a sizeable cohort look-alike patients and quantified an Opportunity Score for each physician. Commercially, this exercise translated to **~\$300M increased revenue potential** and instrumental in shaping a targeted sales strategy for the drug manufacturer.

**\$300M+ in product revenue potential**

by finding 14,000 patients most likely to adopt therapy

**~14,000 patients identified**

with profiles indicating that they would most likely benefit from therapy

**Dynamically-refreshed modules**

to track patient / physician profile changes, and respond to market changes

**Physician-level dashboards with opportunity scoring**

to show patient populations mapped to physicians responsible for treatment decisions.

## Conclusion

The power to close the insights gap in life sciences lies in linking all available patient-level data and using that data to train predictive models through an advanced analytics engine for the purpose of providing timely and actionable results to business leaders. However, like many organizations, you may not have the time, resources, or ability to collect and link every piece of health-related data relevant to your brand or to build an enterprise analytics platform from the ground up. This whitepaper can be used to help guide your decision to partner with an enterprise analytics vendor that can power your organization's transformation.



## About Clarify Health

Clarify Health empowers customers to deliver better care and therapies through more actionable insights from all the world's patient-level data.

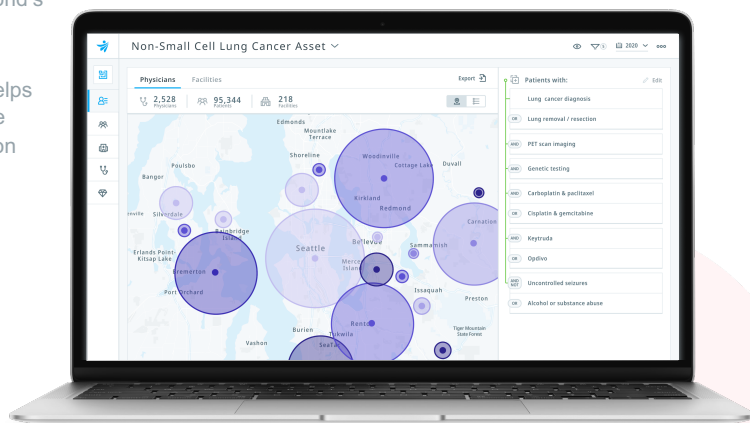
With an integrated enterprise analytics platform, Clarify helps customers select the best providers, map and predict care journeys, and understand the use and impact of therapy on patients.

Contact us at

[info@clarifyhealth.com](mailto:info@clarifyhealth.com) to request a meeting

Visit our website

[www.clarifyhealth.com](http://www.clarifyhealth.com).



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