Making data possibilities a reality

June 2018



Health care in 2018:

The defining trend is

CHANGE

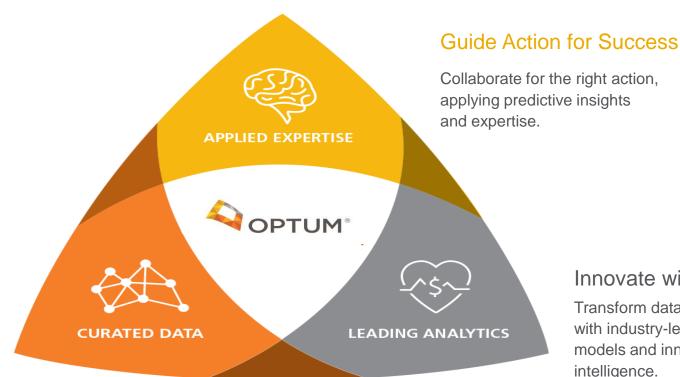
"The momentum towards a digital future is gathering pace."

—The Economist: A Digital Revolution in Health Care is Speeding Up, March 2017



Powering intelligence across the health care system

HEALTH CARE INTELLIGENCE



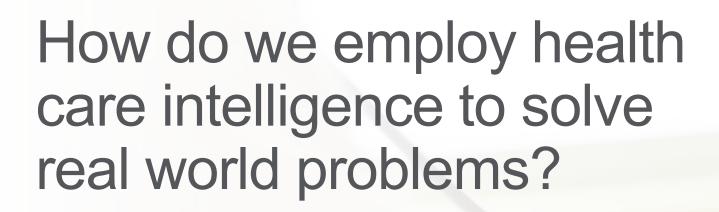
Build a Common Language

Standardize, link and integrate data from many disparate sources.

Innovate with Purpose

Transform data into insight with industry-leading, dynamic metrics, models and innovation in artificial intelligence.







Business environment for health care companies

Product development challenges

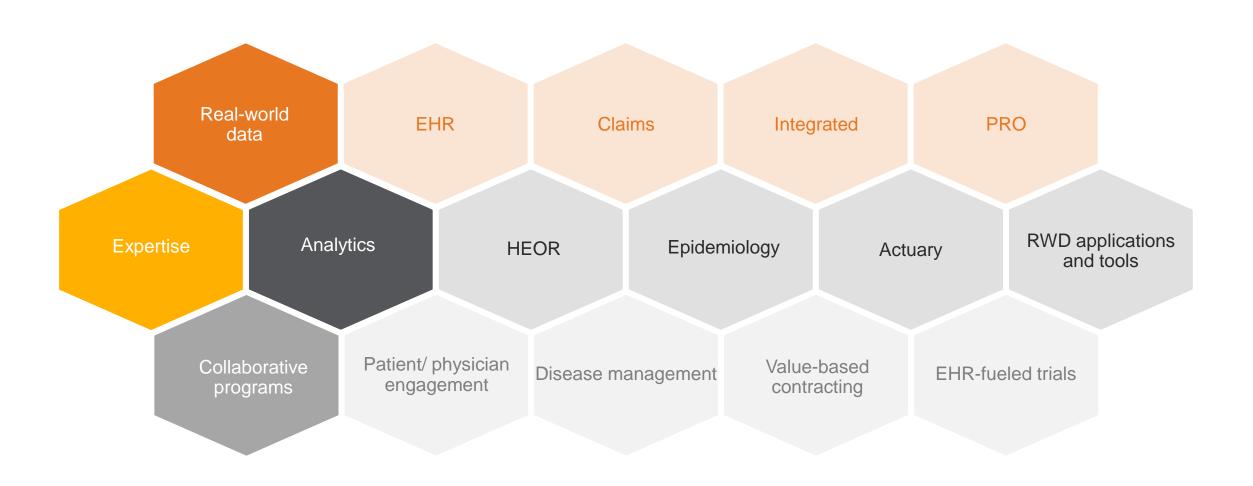
- Dynamic healthcare environment, diverse reimbursement requirements
- Developing a differentiated product value strategy in increasingly generic and competitive markets
- Selecting study endpoints that will convince stakeholders of the products price/value position
- Aligning clinical and commercial objectives early to support pricing and generate promotable claims
- Analyzing and assembling evidence from multiple data sources and geographies to support launch

Commercialization challenges

- Bridging pre-launch data with real world evidence post-launch
- Operationalizing big data and emerging technology for competitive advantage
- Managing payer demands to provide ongoing comparative data and value assessments
- Reacting to policy or payer actions such as mandatory price cuts
- Expanding the value of products into new indications and populations
- Evaluating the market effects of new entrants or patent expiries



Optum capabilities and expertise





Insights from big data

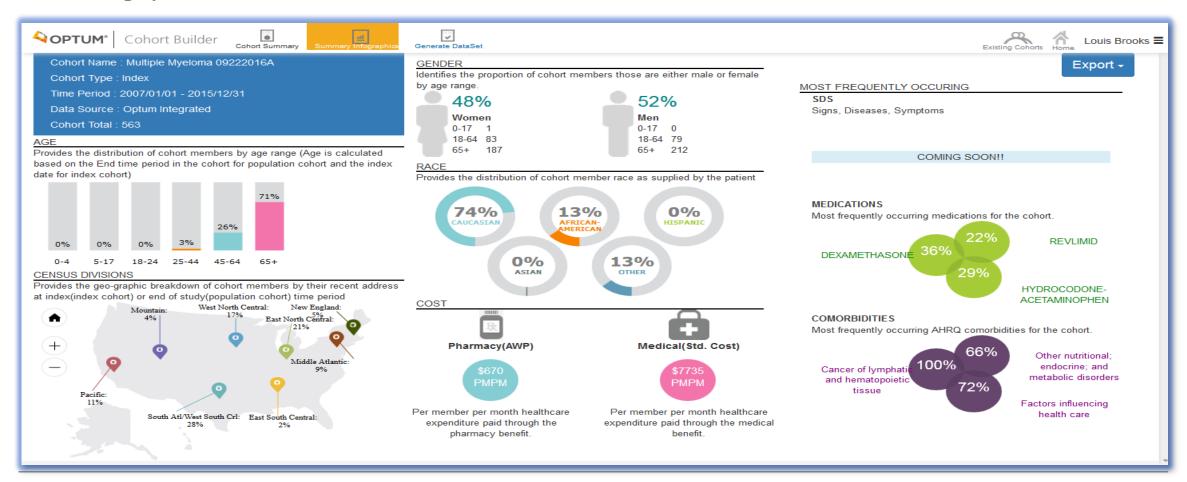


- OPTUM Life Sciences and The Lewin Group conducted a study on behalf of NIH to examine the association between the measlesmumps-rubella (MMR) vaccine and autism spectrum disorders (ASD). No association was found.
- Results received national attention:
 - Published in JAMA
 - Jain AJ, Marshall J, Buikema A et al. Autism Occurrence by MMR Vaccine Status Among US Children With Older Siblings With and Without Autism. JAMA, 2015, 313 (15).
 - Article received record-breaking number of hits online and was highly cited
 - Picked up by the Associated Press



Cohort Builder results

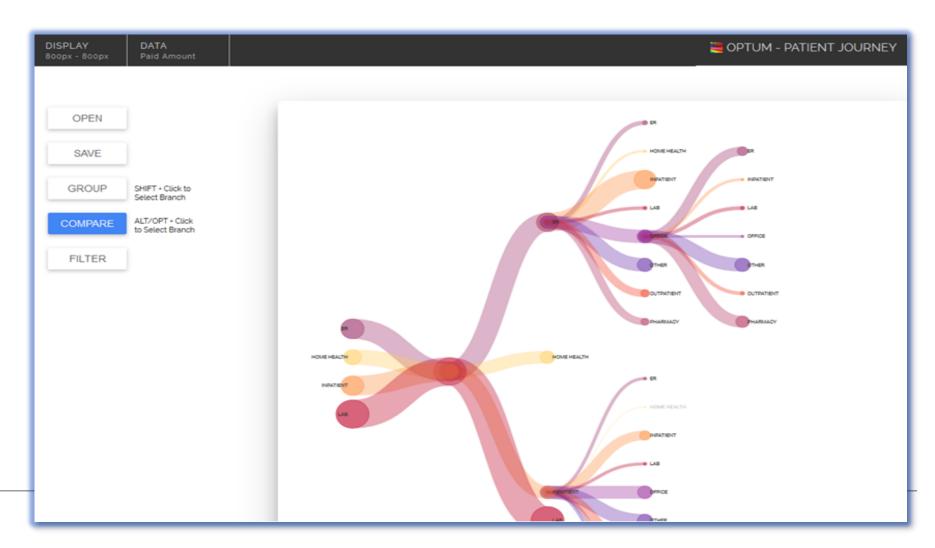
Cohort Infographic





Patient Journey results

Patient Journey Detailed Analytics





Inpatient Grouper – Designed for Brazilian market to group clinically homogenous admissions

Diagnosis



Identifies the patient's medical condition based on ICD-10 diagnosis code upon hospital discharge

Approximately 16.000 ICD-10 diagnosis codes were grouped into 22 Major Diagnostic Categories (MDCs)

Procedures



It checks all performed procedures to identify the main one and to determine the admission as surgical or clinical

Approximately **5.000 procedure codes** (TUSS) were mapped

Complication factors



It assesses 3 factors to determine the admission as 'with complication':

- Mechanical ventilation
- Procedure mix
- Patient's age

Customized logic for the **Brazilian market** due to the absence of
comorbidity data

IPG coding



After the patient is discharged, 1 IPG code of a total of 537 will be calculated based on the admission components

Regression model was built to calculate the **weight** for each IPG code

