



Healthcare & Life Sciences

**Improve medication adherence to lower health costs and improve patient outcomes**

**fractal** ●●●  
INTELLIGENCE FOR IMAGINATION

## The Big Picture

Non-adherence of medication is one of the most critical problems when treating patients with chronic conditions. Patients who do not follow the prescribed drug regimen are more likely to suffer poor health outcomes, significantly contributing to the total cost of care. A top 5 health insurance payer wanted to improve medication adherence of patients with chronic conditions to lower health risks, improve health outcomes and lower costs. The organization also wanted to improve customer engagement. To achieve all of this, the organization needed insights to understand and anticipate medication non-adherence to drive more effective intervention strategies.

## Transformative Solution

The solution involved developing a medication non-adherence framework to identify individual patients less likely to adhere to their prescribed drug regimen during one year. A structured problem-solving framework was designed to identify the types of non-adherence, understand the drivers of non-adherence, build a model to predict members likely to exhibit such behavior and then implement the right intervention plan to decrease medication non-adherence. The solution involved three stages:

**Stage 1 - Problem solving:** This stage identified over 200 potential hypotheses by integrating data from claims, medication utilization history, medication information, member demographics and consumer data and classified medication adherence based on key drivers.

**Stage 2 - Predictive modeling:** This stage evaluated various types medication non-adherence that could be measured and acted upon. These are: 1) no prescription or refill filled, 2) incorrect dosage, 3) medication at the wrong time, 4) forgetting to take doses and 5) stopping therapy too soon. The scope was limited to defining non-adherence based on prescriptions filled due to non-availability of data to ascertain other behaviors. We leveraged advanced machine-learning models to predict past non-adherence looking at various factors, including patient-related, healthcare system and provider-related, therapy-related, conditions and disease-related, cost-related and socio-economic.

**Stage 3 - Assigning action plans by segment:** This stage mapped out recommended strategies for three key patient segments that behaved differently in their medication adherence for chronic diseases.

## The Change

Armed with more accurate prediction and classification, the payer was able to create targeted intervention and outreach programs to improve medication adherence and health outcomes for patients with chronic diseases, resulting in \$5 million dollars in annual care related savings.