

# Hyperlipidemia

Identifying Gaps in LDL-Cholesterol  
Testing with Intermountain Healthcare

## MDCLONE USE CASE

# Hyperlipidemia

## Overview

Heart disease is the leading cause of mortality among American adults, responsible for nearly 700,000 deaths in the United States in 2020. Dyslipidemia (abnormal cholesterol levels) is a leading risk factor for atherosclerotic cardiovascular disease (CVD), including heart attack and stroke. Even moderately elevated cholesterol levels can lead to coronary artery disease later in life. Nearly 93 million US adults, representing more than 38 percent of the population, have total cholesterol levels over 200 mg/dL. Because high cholesterol has no direct symptoms, many patients are unaware they carry this major risk factor for CVD. While self-awareness of high cholesterol among adults increased from 49 percent to 63 percent from 1999 to 2004, it did not increase any further through 2010. In a 2018 study, 43 percent of young adults aged 18 to 39 years with cholesterol levels of 240 or higher were unaware they had dyslipidemia.

Undiagnosed and untreated, these patients represent an enormous potential future burden to the health system. There are several modifiable risk factors for CVD, including overweight and obesity, lack of exercise, smoking, excessive alcohol consumption, and an unhealthy diet. The discovery of the cholesterol-lowering drugs, statins, has resulted in a marked improvement in mean cholesterol levels among US adults over the past 20 years. Timely diagnosis of dyslipidemia followed by prompt risk-factor modification and, when appropriate, initiation of pharmacological treatment, can directly improve population health and lower the cost of care.

## Challenges

Processes for data querying and analysis are time-consuming and often require significant IT, analyst, and clinical resources. Providers are required to work with data and business analysts to identify patients at risk. Clinical variation and gaps in diagnosis often make it difficult to define and implement standard protocols for patient evaluation, testing, and initiation of medical therapy.

## Key Questions Answered

- How many patients have ever had an elevated LDL-cholesterol level, and what is their age distribution?
- Do the patients with elevated LDL-cholesterol have a corresponding diagnosis of hyperlipidemia recorded in the medical record?
- How many patients have been diagnosed with familial (hereditary) hyperlipidemia, and what is their age distribution?
- Have patients with an elevated LDL-cholesterol level been prescribed a statin medication?

- How many patients suffering a major cardiac event (e.g., heart attack) had a lipid screening test during the two years prior to the event?
- How many patients suffering a major cardiac event had a visit to a primary care provider in the year prior to the event?
- How many patients suffering a major cardiac event had an LDL-cholesterol test subsequent to the event? How many of those had a second LDL-cholesterol test?

## Results to Date

Intermountain Healthcare used MDClone's longitudinally structured data lake and self-service analytics tools to identify high-priority patients who were non-adherent to a standard-of-care lipid-management regimen by identifying gaps in LDL-cholesterol testing, statin medication compliance, and diagnostic documentation. Their analysis revealed that approximately 1,200 health-plan patients per year are non-adherent, of whom approximately 20 percent will subsequently suffer a major cardiac event. Because hyperlipidemia is a major risk factor for cardiac disease, many of these major cardiac events could be prevented if adherence rates were higher.

**As a result of this analysis, Intermountain Healthcare is implementing a strategy to decrease clinical variation and close the gaps in care, with an ultimate goal of increasing adherence and improving outcomes:**

- Proactive outreach and caregiver planning for patients with an elevated LDL-cholesterol level who do not have a follow-up LDL-cholesterol test recorded and who have not been prescribed a statin medication within the last two years
- Data-driven referrals to primary-care providers and comprehensive care-coordination for patients identified as high-risk for adverse outcomes
- Incremental approach to building capacity to support this data-driven referral model

**This targeted, real-world, evidence-based strategy and capacity planning are expected to yield tangible benefits to Intermountain Healthcare and its patients:**

- Launch of Intermountain's new Advanced Lipid Management Clinic in 2021
- Prevention of major cardiac adverse events for the 1,200 patients per year who do not remain on the lipid-management pathway
- Avoidance of 75 percent of cardiac events, including a decrease in unplanned hospital admissions
- Reduction in costs in excess of \$7 million per year

## Conclusion

With dozens of additional use cases launched this past year, Intermountain Healthcare is expecting to grow its data-driven strategies to other areas of care, focusing on early identification, engagement, and prevention, while encouraging staff to explore data to find insights that matter.

## About the Technology

The MDClone ADAMS Platform is a self-service data environment empowering users to organize and access information quickly, sparking ideas and insights that power research, drive better patient outcomes, and create impactful healthcare innovation.

### **Data are everywhere. Insights are hard to find.**

Navigating data in a health system can be challenging, expensive, and time consuming. Answering simple questions can take months or longer due to siloed systems, complex data models, unstructured data, privacy regulations, and limited support from IT and data teams.

With MDClone's unique underlying technology, healthcare organizations can leverage ideas from across the entire ecosystem, overcoming common obstacles that hinder research, innovation, and collaboration.

### **Fast Access to Dynamic Data Exploration, Analysis, and Action**

The rapid cycle of idea-to-data-to-insight enables healthcare organizations to ask for information, discover insights, act on new understandings, measure performance, and share ideas around the world to improve patient health and outcomes.

- Independent self-service discovery
- Interact with all patient data from any source
- Leverage structureless data
- Collaborate freely using synthetic data

Learn more at [mdclone.com](http://mdclone.com)

## About Intermountain

Intermountain Healthcare is a Utah-based not-for-profit system of 24 hospitals, 215 clinics, a medical group with some 2,500 employed physicians and advanced care practitioners, a health insurance company called SelectHealth, and other health services. Intermountain is widely recognized as a leader in transforming healthcare through evidence-based best practices, high quality, and sustainable costs.

[intermountainhealthcare.org](http://intermountainhealthcare.org)





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