

# The Vast Majority of Hypercholesterolemia Patients Never Reach Below LDL-C Thresholds in the 2018 ACC/AHA Guideline

Katherine A. Wilemon<sup>1</sup>, Diane E. MacDougall<sup>1</sup>, Mary P. McGowan<sup>1</sup>, William Howard<sup>2</sup>, Kelly D. Myers<sup>1,2</sup>

<sup>1</sup>Family Heart Foundation, Pasadena CA, <sup>2</sup>Atomo Inc., Austin TX

## SYNOPSIS

Based on extensive clinical trial data demonstrating lower LDL-C reduces heart attacks, strokes, and need for interventional surgery, the 2018 Multidisciplinary Guideline on the Management of Blood Cholesterol calls for initiation and intensification of lipid-lowering therapies (LLTs) if LDL-C exceeds defined thresholds in patients at elevated risk.

## PURPOSE

Achievement of below threshold LDL-C levels in patients at elevated risk was assessed using real-world data from the Family Heart Database™.

## METHODS

The Family Heart Database™ is comprised of diagnostic, procedural, and prescription and/or laboratory data for >324 million individuals in the US from 2012 to 2021.

The dataset used in this analysis included 38,110,734 patients with sufficient diagnostic, procedure, medication, and lab data, and either:

- severe primary hypercholesterolemia (LDL-C  $\geq 190$  mg/dL)
- or other risk factors (above guideline threshold  $>100$  mg/dL)
- or ASCVD (above guideline threshold  $\geq 70$  mg/dL)

Patient histories were divided into contiguous episodes characterized by LLT use, prescription filling, and LDL-C level (see Figure 1)

Table 1: Prescription of Lipid-Lowering Therapies

	Treating Clinicians N (%)
Prescribing combination LLTs	162,596 (20%)

## RESULTS

- Most elevated-risk patients (72%, n=27,525,227) never achieved LDL-C below guideline thresholds.
- For those achieving periods below guideline LDL-C thresholds, mean duration of each episode was 159 days.
- Most clinicians (80%, n=632,114) never prescribed combination LLTs, though the guideline provide direction and rationale for doing so. (see Table 1)

## CONCLUSIONS

- Despite effective and safe LLTs, real-world data show that most patients remain above guideline-recommended LDL-C thresholds.
- Those who achieve persistent episodes below LDL-C thresholds do so for only brief durations.
- For American patients, low prescribing of combination LLTs by their clinicians and low patient adherence to prescribed LLTs further elevate their risk for ASCVD events.

The Family Heart Foundation is a 501c3 public charity research and advocacy organization that receives contributions and sponsorships from individuals, foundations, and pharmaceutical companies. This research was partially funded by Amgen, although it played no role in study design, conduct, interpretation, or plans for publication.

FamilyHeart.org

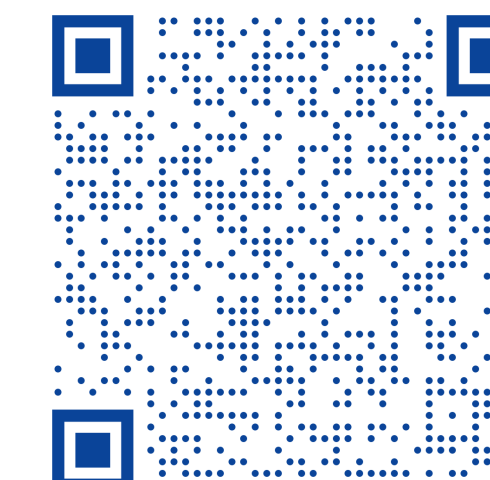
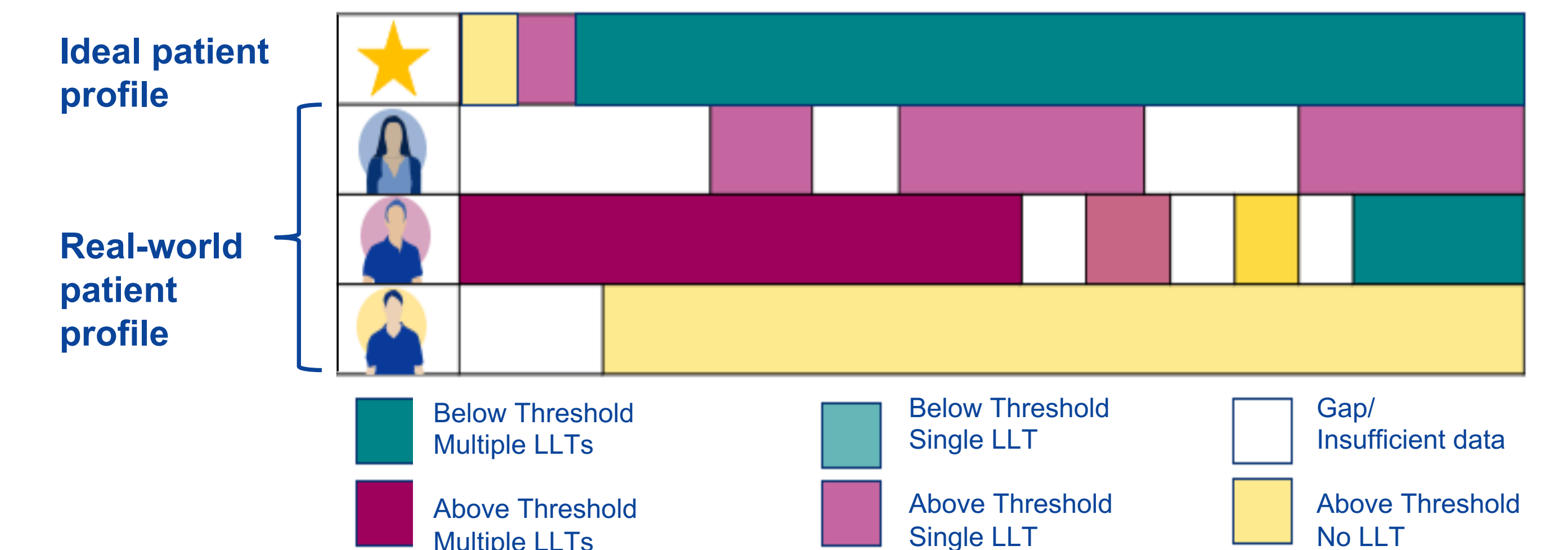
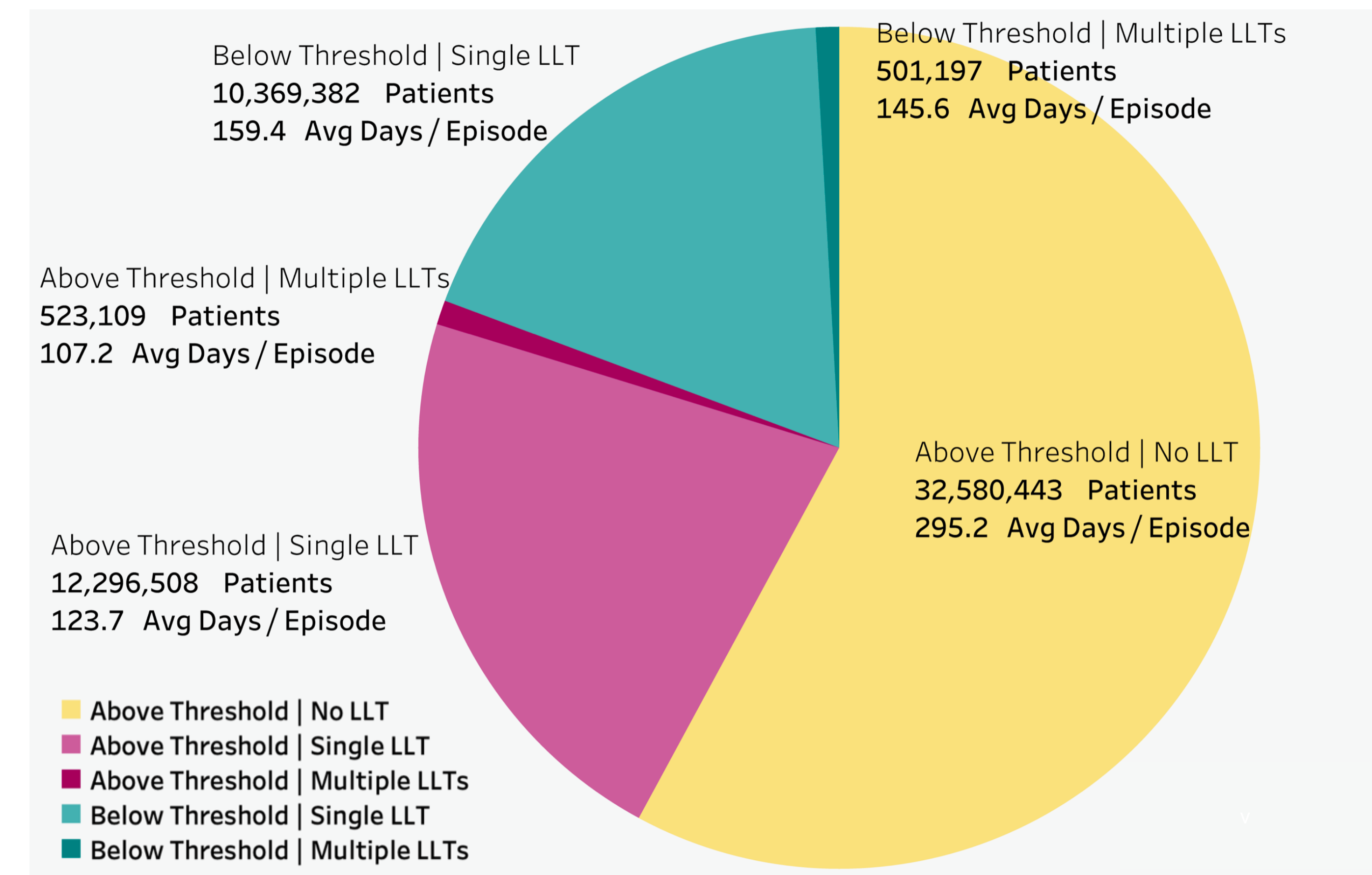


Figure 1: Representative patients with complex and variable lipid profiles over time\*



\*Episodes represented by colored blocks are characterized by LDL-C level and LLT use. Periods of time with missing or insufficient data appear as white gaps and are not episodes.

Figure 2: Proportion of patients above and below LDL-C thresholds while taking combination, single, or no LLT



\*Note: Some patients are counted in multiple categories