



American Heart Association®

Scientific Sessions

# Digital Care Transformation: Report from the First 10,000 Patients Enrolled in a Remote Algorithm-based Cardiovascular Risk Management Program to Improve Lipid and Hypertension Control

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HARVARD MEDICAL SCHOOL  
TEACHING HOSPITAL



Mass General Brigham

# Disclosures

AJB: National Institutes of Health grant T32HL007604 (P. Libby – PI)

JP: Consulting from Alnylam, Amgen, Medicines Company, Novartis, Sanofi.

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# Background

- Undertreatment of hypertension (HTN) and hypercholesterolemia remains a persistent clinical challenge
- 30-50% of patients do not receive optimal medical treatment – even though most treatment options are generic
- The shift towards remote health has the potential to revolutionize care but raises concerns for deepening the “digital health divide” thus exacerbating health inequities
- We developed a remote program to address these gaps in care

Carson, Jo Ann S., et al. *Circulation* 2020  
Patel N et al. *J Am Coll Cardiol* 2019  
Wong ND, et al. *J Clin Lipidol* 2016  
Bradley CK, et al. *J Am Heart Assoc* 2019

# Methods

- We report the outcomes from an ongoing clinical program within the Mass General Brigham health system starting 1/2018
- Patients identified by provider referral and electronic health record (EHR) screening for HTN or LDL-cholesterol (LDL-c) optimization to achieve guideline recommended targets
- Exclusion criteria: pregnant, planning pregnancy or breastfeeding, eGFR<30
  - HTN program: Severe aortic stenosis, renal artery stenosis, heart failure with reduced EF
- HTN management was enabled by WiFi, cellular, and Bluetooth devices
- Mass General Brigham and AllWays Health Partners Insurance funded the program at no additional cost to patients

# Methods - Digital Care Transformation



- Non-licensed
- High-contact model
- Provide Education
- Gather Data

+



- Prescribe and up-titrate Rx as part of a Collaborative Drug Treatment Management Program

+



- Patient relationship management software to provide:
  - Patient-relationship tasks
  - Decision support
  - Communication



Device Data / Remote Physiologic Monitoring



Labs / Med Rx



Omni-channel communication



Education



EHR integration



Workflow Automation  
(Customer Relationship Management)

Remote Care Delivery Platform

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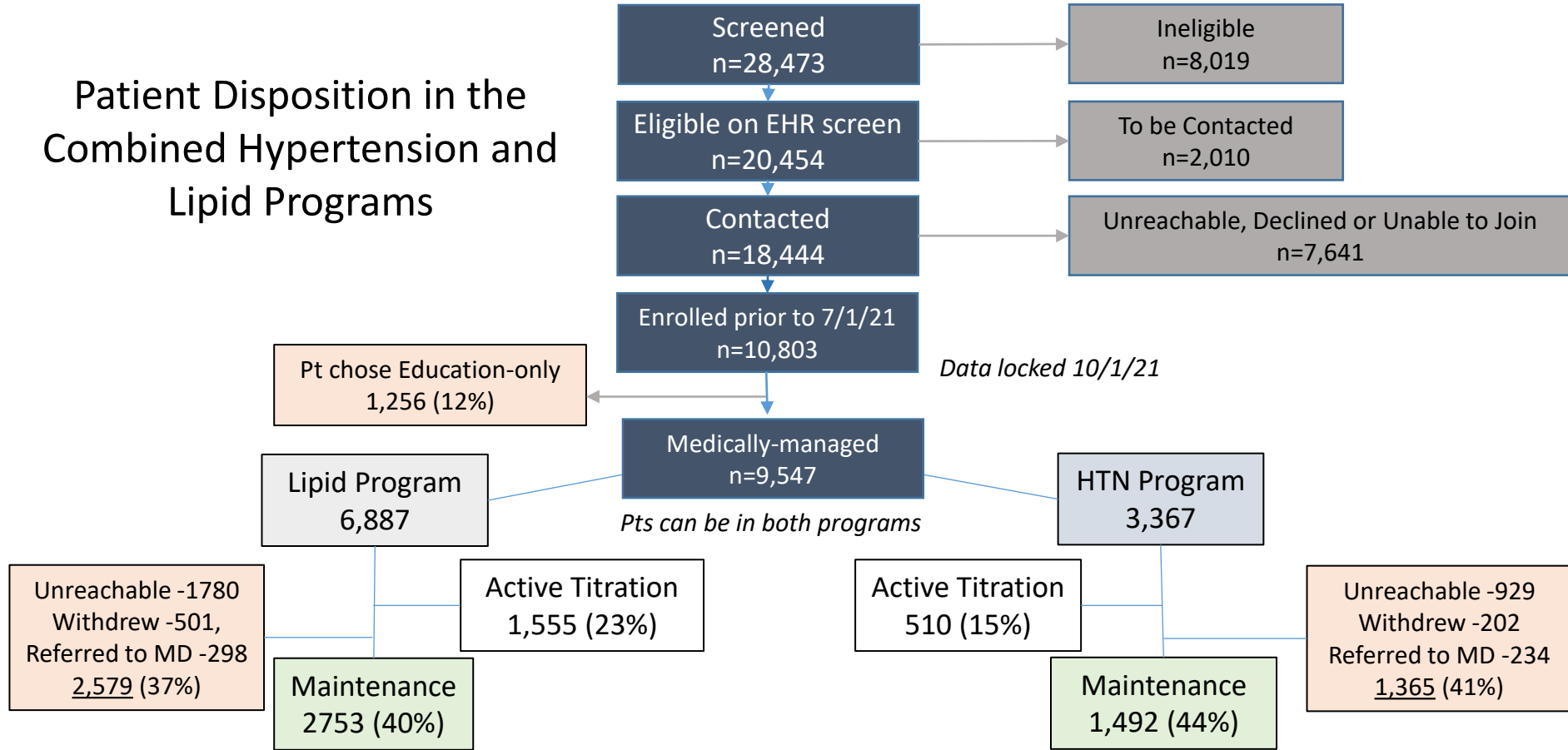


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# Patient Disposition in the Combined Hypertension and Lipid Programs



# Enrolled Baseline Characteristics

Baseline Characteristics	
Age >75yo	12%
Female	55%
Non-White	29%
Non-English Speaking	8%

Lipid Categories	
Established ASCVD	29%
Diabetes (no ASCVD)	22%
LDL >190 mg/dl (no ASCVD or Diabetes)	26%
High-risk primary prevention	23%

ASCVD: Atherosclerotic CardioVascular Disease

LDL-c: Low-density lipoprotein cholesterol

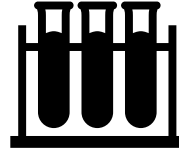
# How did we do this?



100,663  
Phone calls



424,482  
BP values



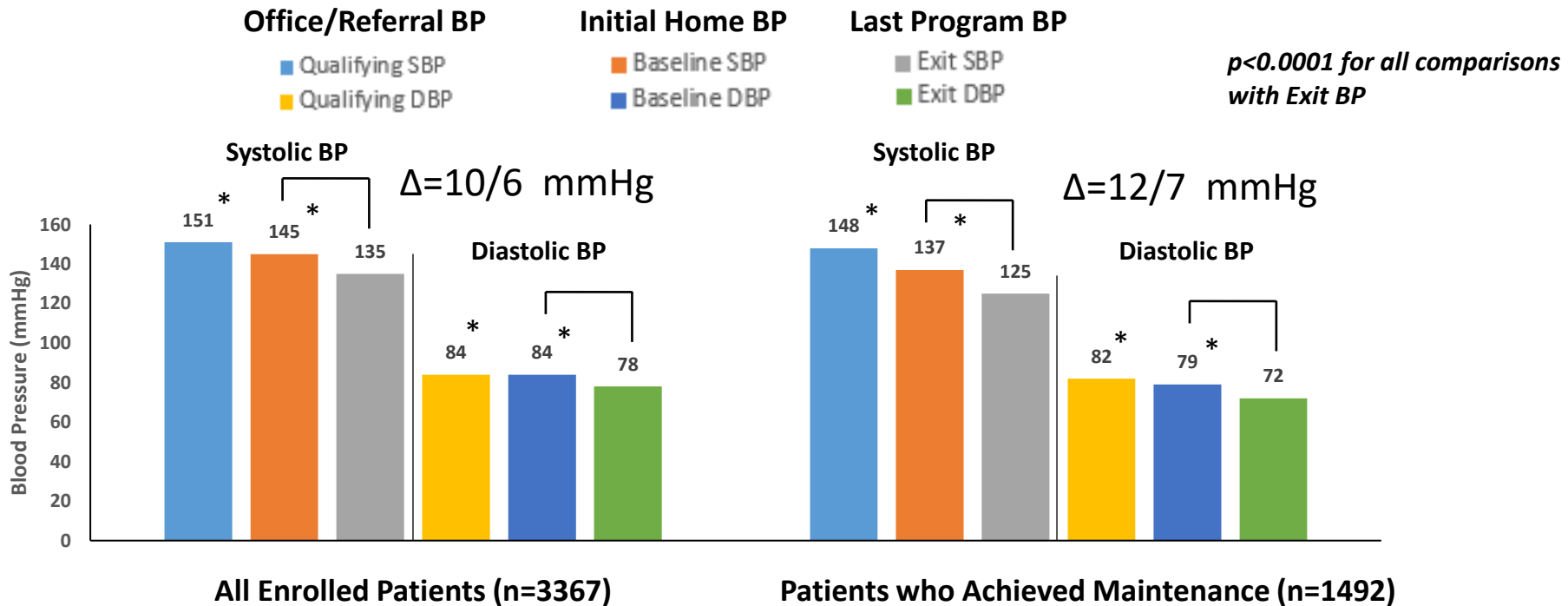
74,027  
Lab evaluations



27,885  
New prescriptions

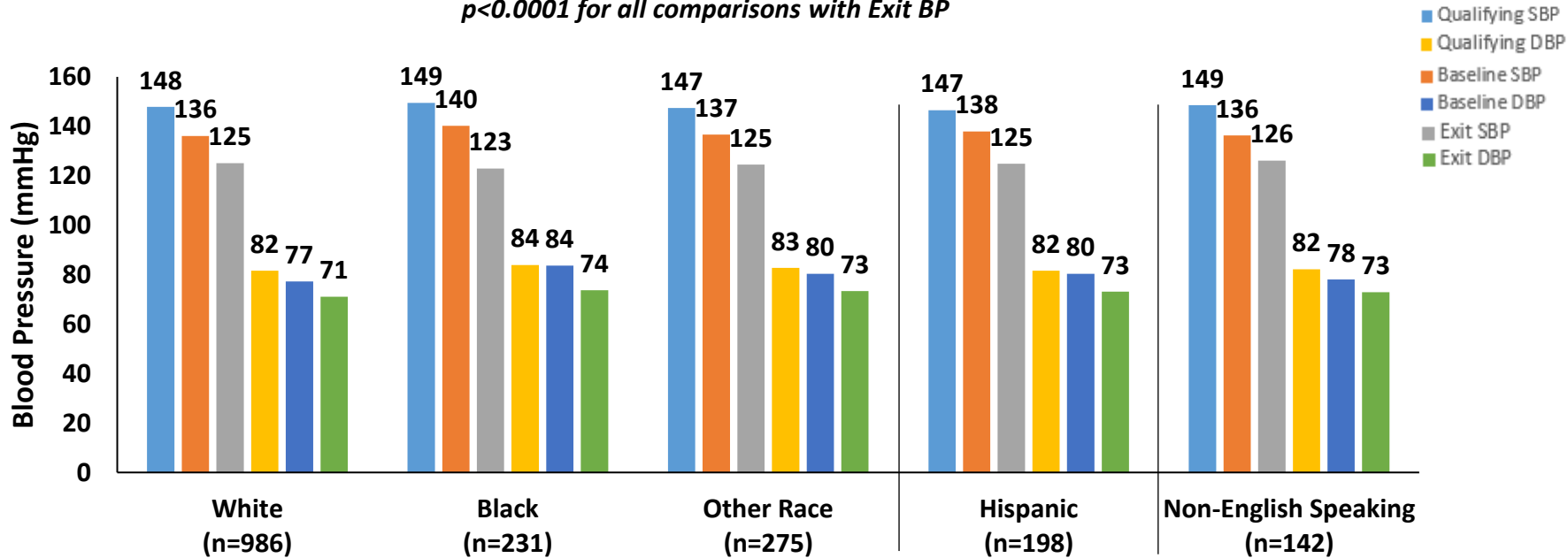


# Overall Blood Pressure Results

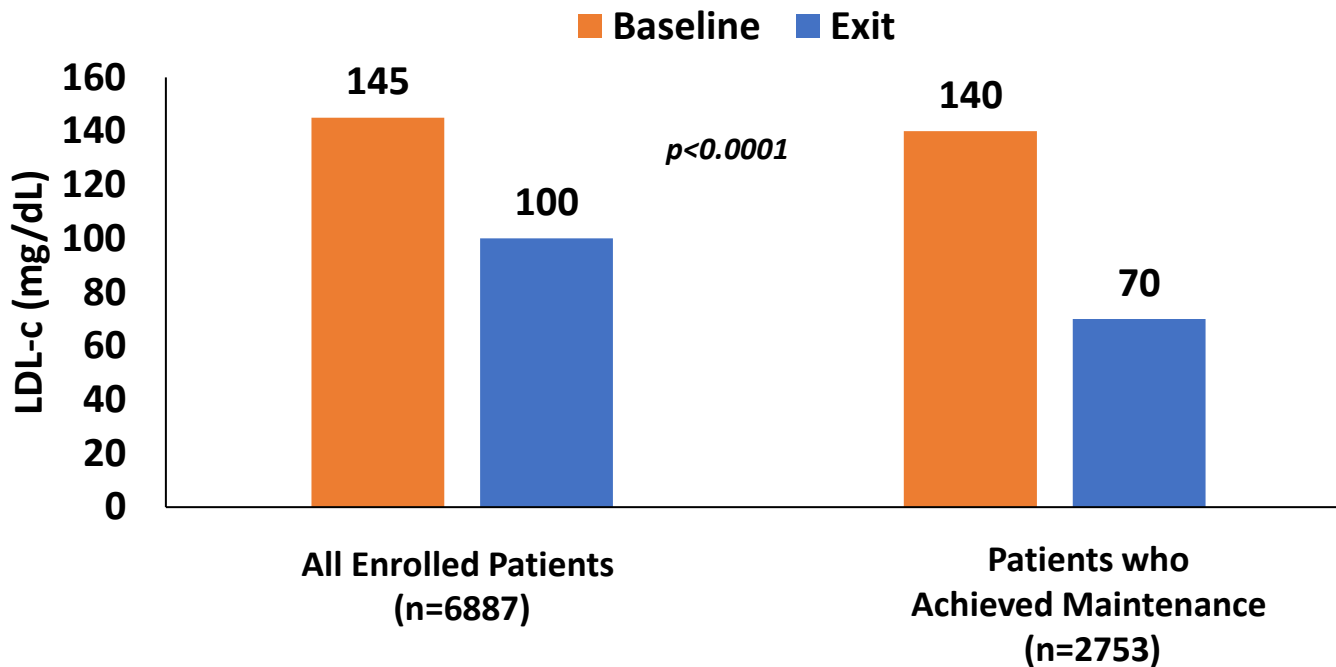


# Blood Pressure Results in Selected Populations who Reached Maintenance

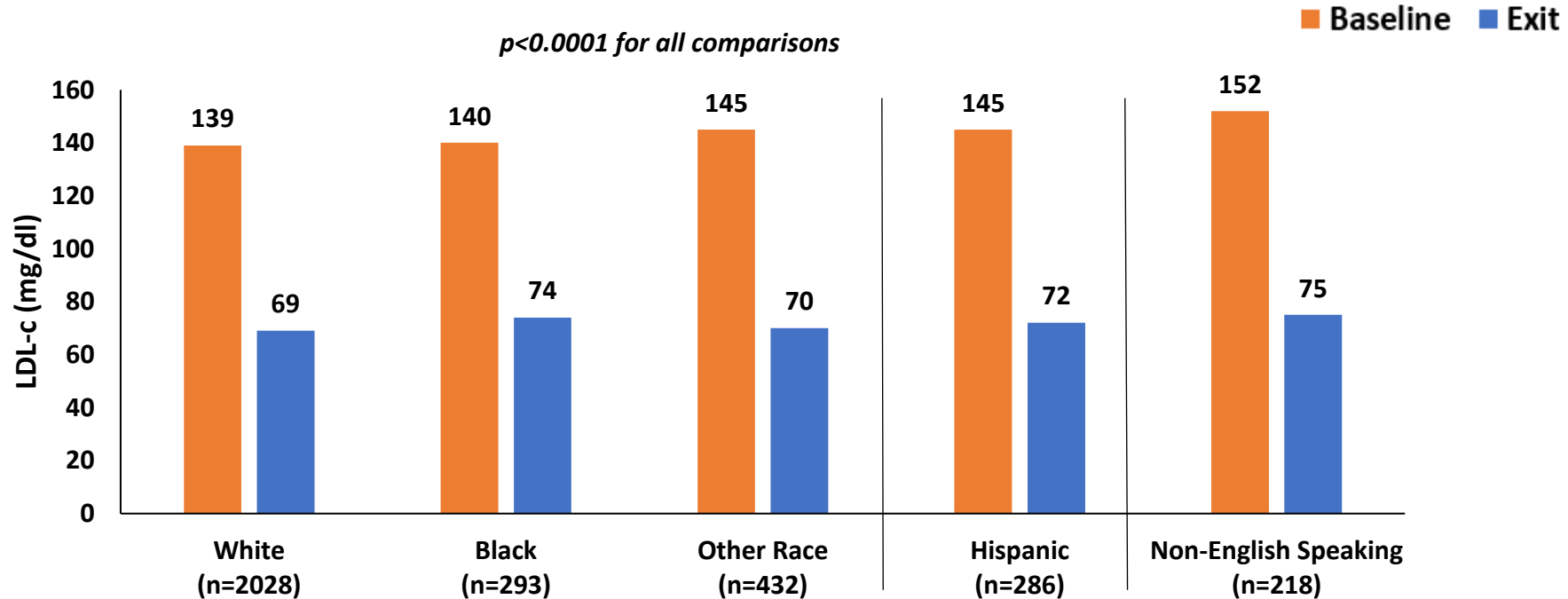
*p<0.0001 for all comparisons with Exit BP*



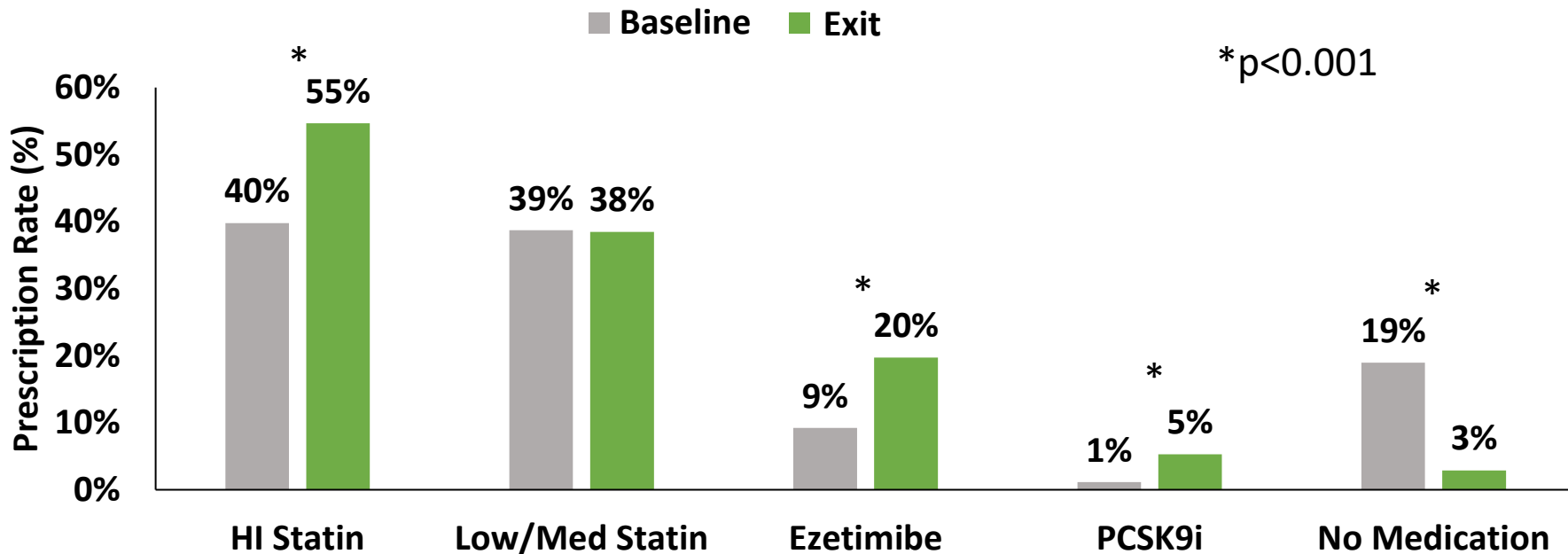
# Overall LDL-c Results



# LDL-c Results in Selected Populations who Reached Maintenance



# Lipid Lowering Therapy between Baseline and Exit in Patients who Reached Maintenance (n=2,753)



# Summary - a remote, algorithm-driven management program:

- Effectively improves HTN and LDL-c in high-risk patients
- Reduces need for in-person visits and physician time
- Highlights the persistent challenges for longitudinal care
- Delivers equitable remote care across traditionally underserved populations

# Conclusion

This program has the potential to expand remote healthcare delivery, increase access to care, reduce health inequities, and improve healthcare quality – our research illustrates its performance in a learning health system

A  
collaborative  
effort!

