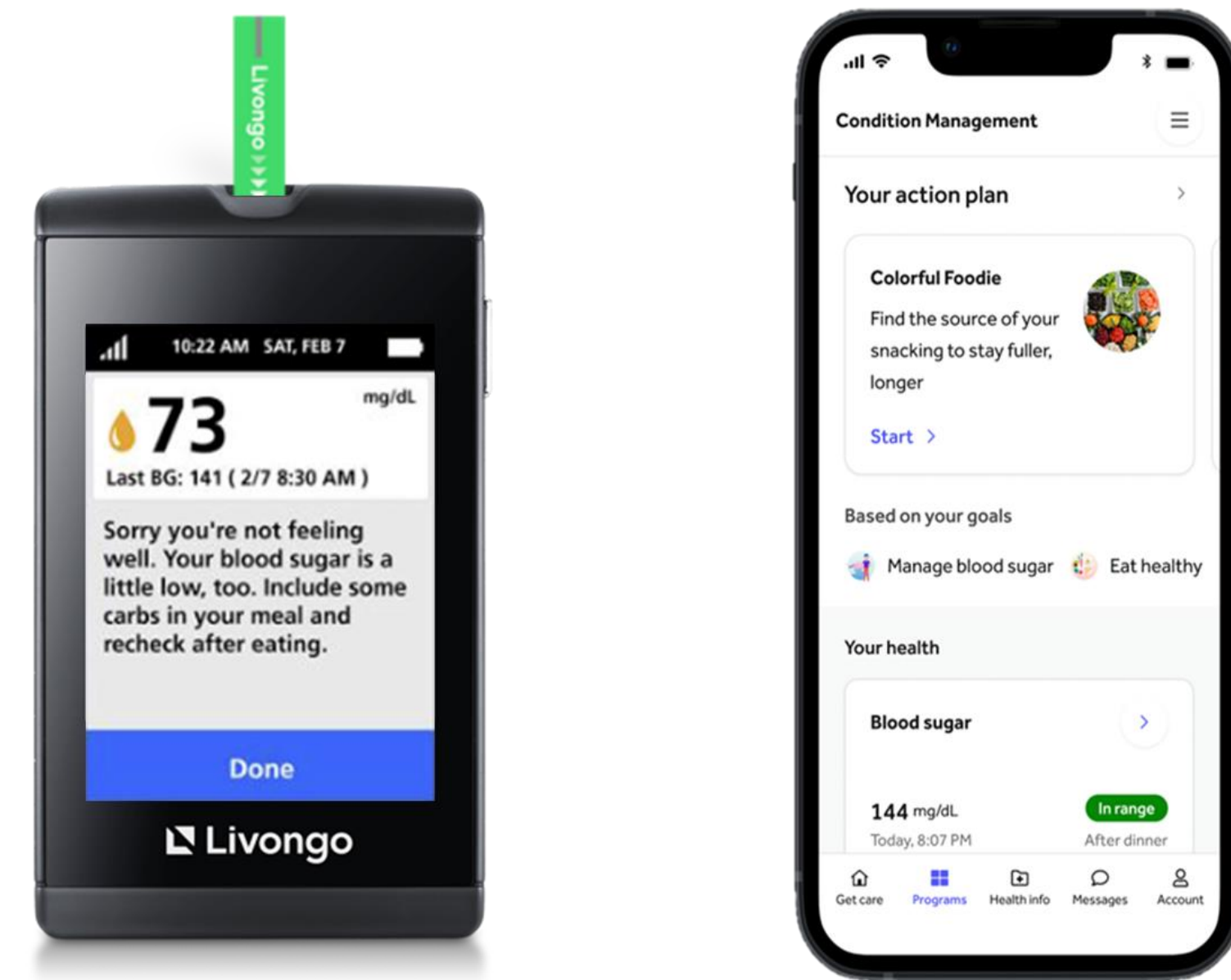


Background

- Glycated hemoglobin A1c (A1c) is the primary tool for assessing glycemic status reflecting average glycemia over 2-3 months and is strongly connected to diabetes complications.¹
- The American Diabetes Association (ADA) recommends quarterly A1c testing for individuals with poor glycemic control and semi-annually for those in glycemic control.¹
- However, approximately 50% of individuals with diabetes are not meeting A1c testing recommendations.²

Program Description

- Teladoc Health's remote diabetes monitoring program (RDMP) provided members with education and tools to self-manage their diabetes through mobile technology. In addition to a cellular-enabled, 2-way messaging device that measures blood glucose (BG) levels and delivers personalized insights into their glycemic management, members also had access to real-time, asynchronous, and live coach support.
- Members also had access to a web-based app and mobile phone app that tracked historical SMBG readings; provided reminders for SMBG checking, physical activity (PA), and food log tracking; and educational content for diabetes self-management, and the ability to send historical reports of SMBG readings to care providers, family members, and friends.



- The RDMP used fingerstick glucose values to estimate A1c (eA1c) to assess for improvement over time. However, this may require more frequent blood glucose (BG) monitoring than a member's provider recommends. This can result in a subset of the RDMP population not having sufficient data to properly assess glycemic control.³

Purpose

- At the request of employers and health plans to improve adherence to screening recommendations, self-collection A1c home-kits were explored to increase accessibility, remove the burden of travel from the individual, and enhance personal accountability for one's health and improve Healthcare Effectiveness Data and Information Set (HEDIS) quality measures performance.⁴
- While previous studies have evaluated glycemic improvement based on eA1c calculated by the Nathan method, established as an appropriate population metric and found to have a positive correlation with home-kit A1c, it is essential to demonstrate RDMP effectiveness with more established testing options.^{3,5}
- The objective of this study was to evaluate A1c impact using real-world home-kit data to validate prior findings of Teladoc Health's RDMP.**

Methods

- A retrospective analysis of dried blood spot A1c home-kit testing in 6-month intervals from September 2020 to September 2023 of members enrolled in a RDMP was performed. Home-kits were provided to a subset of RDMP members based on an opt-in feature available to employers and health plans who pay for the program.
- All home-kits were analyzed through CLIA-certified laboratories through the test kit provider and results were available to the member through the test kit provider's secure portal.
- Home-kits with valid test results were assigned as baseline, 1-year, 2-year, 3-year, or 4-year outcomes based on range between test date and member's program activation date.

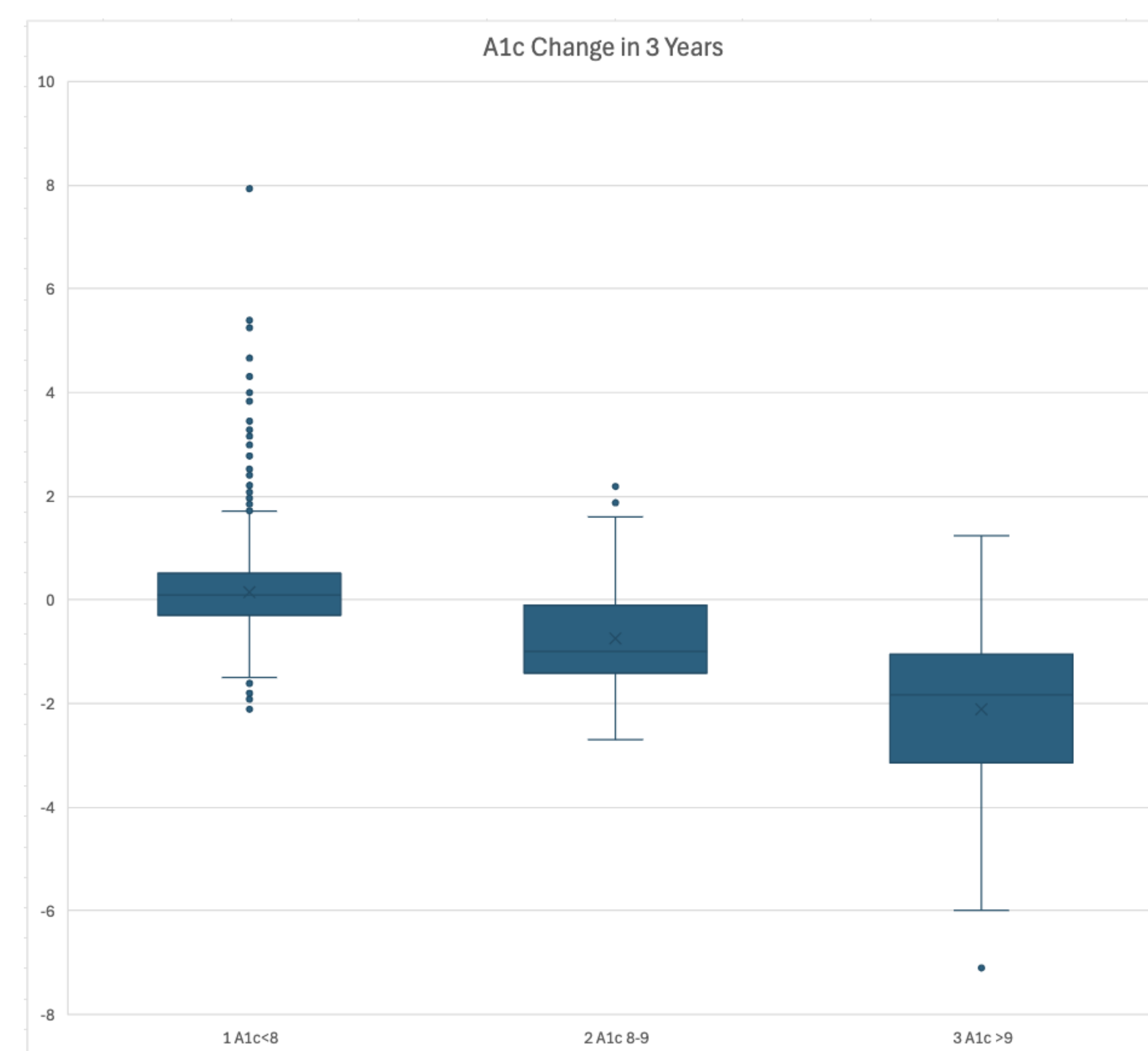
Outcome	Days
Baseline	0-90 days
1-year	270-450 days
2-year	630-810 days
3-year	990-1,170 days
4-year	1,350-1,530 days

- Activation date was defined as date of member's first registered blood glucose (BG) value from program provided BG meter.

Data Analysis

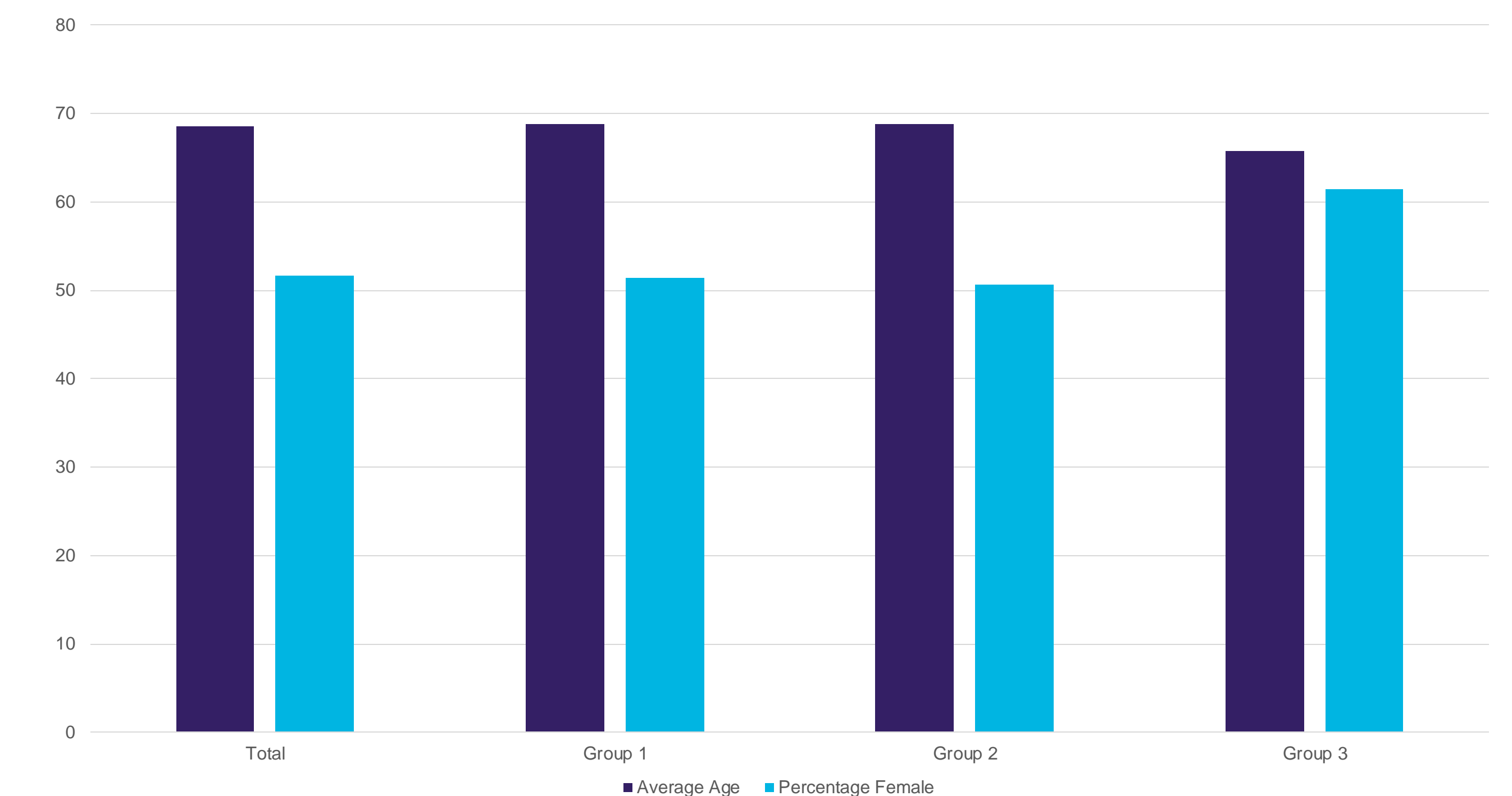
- Pooled 3-year change in home kit A1c outcomes were based on members with home-kit results for baseline versus 3-year outcome or 1-year versus 4-year outcome with groupings defined by the first available A1c home-kit result. Group 1 included members with A1c <8.0%, group 2 included members with A1c 8.0-9.0%, and group 3 included members with A1c >9.0%.

3-year A1c Home-kit Outcomes



- Group 1 (n=1,436) had an average change in A1c of 0.16 (SD 0.83) with 1,309 (91%) of members ending year 3 with an A1c <8%.
- Group 2 (n=134) had an average change in A1c of -0.75 (SD 1.03) with 94 (70%) of members ending year 3 with an A1c <8%.
- Group 3 (n=57) had an average change in A1c of -2.12 (SD 1.63) with 35 (61%) of members ending year 3 with an A1c <8%.

Results



- Members (N=1,637) with 3-year outcomes were on average 68.6 (SD 10.1) years old and 51.7% female.

Conclusion



This study shows effectiveness and supports the RDMP's goal of glycemic improvement and sustained control over time to improve member health through behavior change interventions. Recent evaluation of digital diabetes management solutions performed by the Peterson Health Technology Institute used a threshold of $\geq 0.5\%$ as clinically meaningful A1c reduction⁶, which was exceeded by members in this study with A1c $\geq 8\%$ over the 3-year period.

For the subset of members with A1c reduction $\geq 1\%$, this can result in a significant reduction of risk and costly complications.^{7,8} For members with an initial home-kit indicating moderate control (HbA1c <8%), an increase (0.15%) in A1c over the 3-year period was observed; however, previous studies have reported an annual A1c increase of 0.15% as part of the natural disease progression for those with a controlled status.^{8,9}



Therefore, the RDMP has demonstrated an ability to delay this natural progression, aligning with previous studies utilizing eA1c, displaying confidence that the RDMP can improve glycemic control over a 3-year period and support health plans in meeting Glycemic Status Assessment for Patients with Diabetes (GSD) as part of the HEDIS quality measures.

Clinical Implications

A1c home-kits are valuable as one of several tools for remotely assessing glycemic control and monitoring the risk for diabetes-related complications within populations. Needs and preferences for glucose monitoring may vary between individuals, and it can be advantageous to offer A1c testing when other methods are not available or provide inadequate data.

Future Directions

Further research is recommended to evaluate the role of A1c home-kits and continuous glucose monitoring in evaluating RDMP's long-term outcomes and directing meaningful interventions to those with the greatest clinical need.

REFERENCES

