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Using Artificial Intelligence to Boost Medication Adherence for a Retail Pharmacy

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Evaluating the Impact of a Retail Pharmacy AI Program

In 2019, Walgreens—a national retail pharmacy chain—partnered with AllazoHealth to launch a pharmacy-based adherence program powered by artificial intelligence (AI) and predictive analytics.

The study aimed to evaluate the impact of using artificial intelligence to target in-person, telephone, and digital patient interventions—all with the ultimate goal of improving the year-end adherence rates of patients taking diabetes, hypertension, and statin medications.

Find out how AllazoHealth's artificial intelligence (AI) targeting resulted in a 5.5% to 9.7% increase in population adherence by predicting optimal interventions, including:

- Communication channels
- Messaging content
- Timing and frequency

How Poor Adherence Affects Quality Performance

Medication adherence is a common pay-for-performance metric used to quantify the quality of services provided by pharmacies.

Successful medication adherence programs enable retail pharmacy chains and health plans to improve their quality performance on Centers for Medicare and Medicaid Services (CMS) Star Ratings.

When patients fail to take their medications as prescribed, both those individuals and their healthcare system may experience detrimental consequences, including poor health outcomes and overall increased cost of care. For more than a decade, the healthcare industry has looked at medication adherence as a critical factor in improving health outcomes for chronic conditions, such as diabetes and hypertension.

Rules-based interventions are often deployed to improve patient adherence to prescribed treatments. However, AI can now be used to deploy more impactful, multi-channel interventions that promote medication adherence, improve health outcomes, and enhance quality performance.

Using AI to Drive More Effective Patient Interventions

During the study, AI modeling was used to predict patients' adherence to medications and which interventions would best influence behavioral changes in *each* individual.

AI predictions also determined the optimal intervention channels, messaging, and timing based on learnings from AllazoHealth's prior work, analysis of Walgreens' historical patient data, and ongoing learning within the AI platform[*].

The AI platform was designed to continually learn, improve, and optimize its targeting throughout the adherence program. Patients were eligible for the study if they received more than one fill of non-insulin anti-diabetic medications, renin-angiotensin-system (RAS) antagonists for hypertension, or statin medications in the respective periods.

* Due to limitations in data available to the retail pharmacy chain, adherence rates shown in this study will be lower than the equivalent rates reported by the pharmacy benefit manager (PBM). This is because adherence rates in this study were calculated using available Walgreens data, and did not include some of the additional data utilized in calculating the pay-for-performance metrics.

> **The AI platform was designed to continually learn, improve, and optimize its targeting throughout the adherence program.**

Interventions utilized during the program included:

- **Adherence barrier reviews:** Telephone and in-person interventions delivered by pharmacists to understand an individual patient's barriers to adherence and determine which actions would lead to adherent behavior.

- **Refill reminders:** Telephone and digital (e.g., SMS text messaging, email, mobile app push notifications) interventions targeted toward patients who come due or are past due for medication refills.

- **90-day supply conversion:** Telephone interventions targeted toward patients who are not currently being dispensed 90-day supplies of adherence medications by their retail pharmacy.

Program goals were threefold, utilizing data to make predictions and:

- Improve adherence in existing non-adherent patients.
- Maintain adherence in already compliant patients.
- Ensure adherence in patients newly starting therapy.

In each of these circumstances, AI selected the best communication channel, content, and timing to support *each* patient. Then, Allazo's AI engine prioritized interventions based on these predictions and staff capacity. In the group without AI, a traditional, rules-based system was used to target adherence interventions.
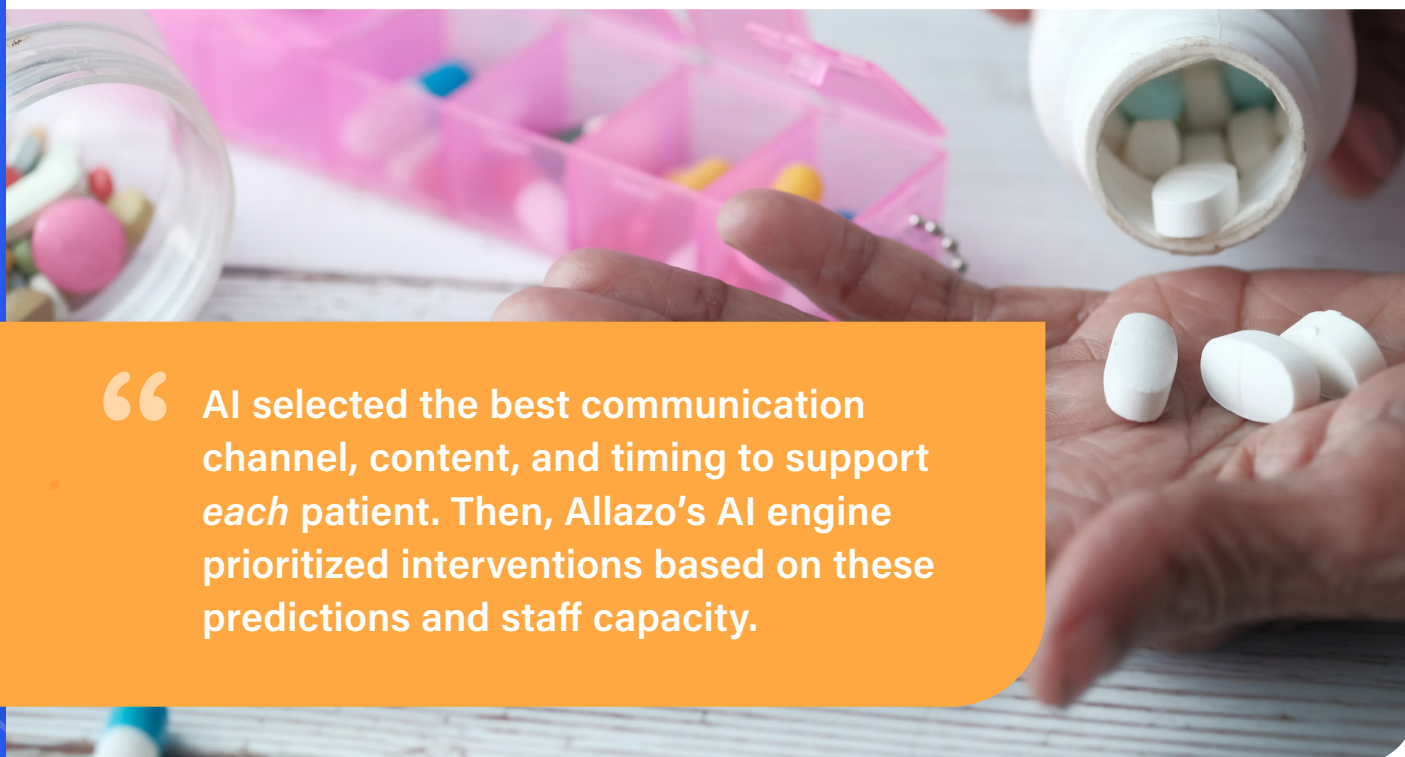
> **AI selected the best communication channel, content, and timing to support *each* patient. Then, Allazo's AI engine prioritized interventions based on these predictions and staff capacity.**

AllazoHealth's Positive Impact on Medication Adherence

The results speak for themselves. Using AllazoHealth's AI engine, Walgreens was not only able to improve efficiency and cost savings, but also deliver effective, personalized interventions that had a greater impact on diabetes, hypertension, and statin patient populations.
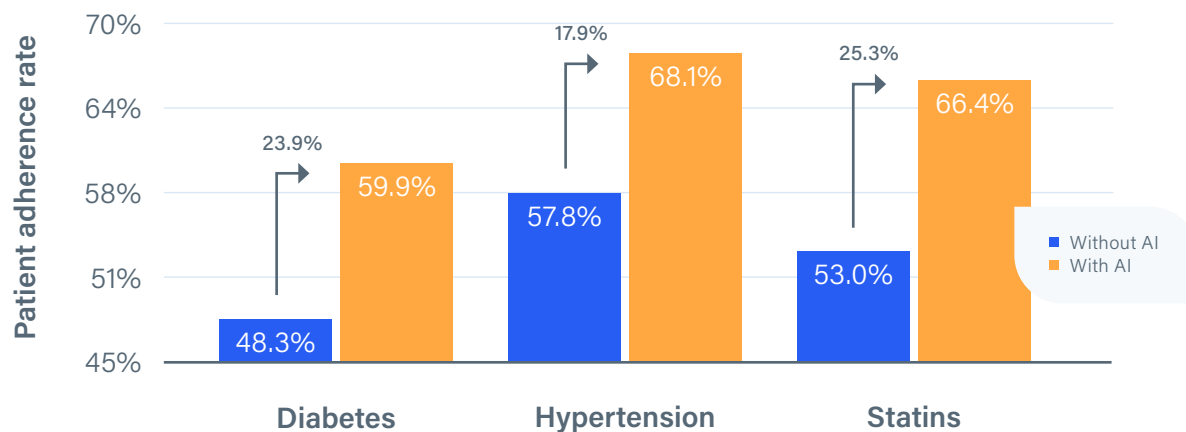
Let's take a look at the results for each of the three groups targeted during the adherence program.

AI targeting resulted in a **17.9% to 25.3% increase** in population adherence among patients who were non-adherent before the study.

Figure 1: Percent of Non-Adherent Patients Who Became Adherent


AI targeting achieved a **21.1% to 31.2% reduction** in population non-adherence among patients who were adherent before the study.

**Figure 2:** Percent of Adherent Patients Who Became Non-Adherent
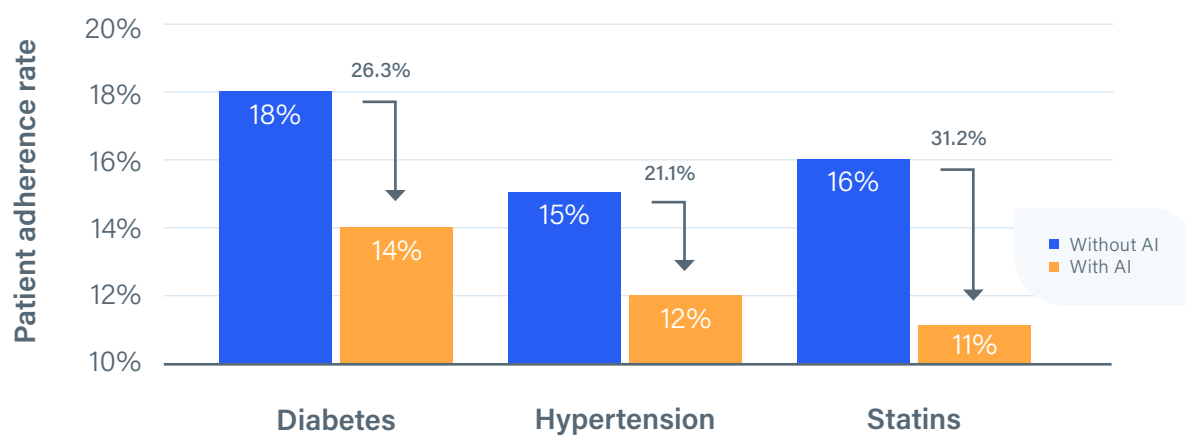
AI targeting resulted in a **4.9% to 9.9% increase** in population adherence among "new" patients—or those without available historical data.

Figure 3: Percent of *New* Patients Who Became Adherent by Year-End
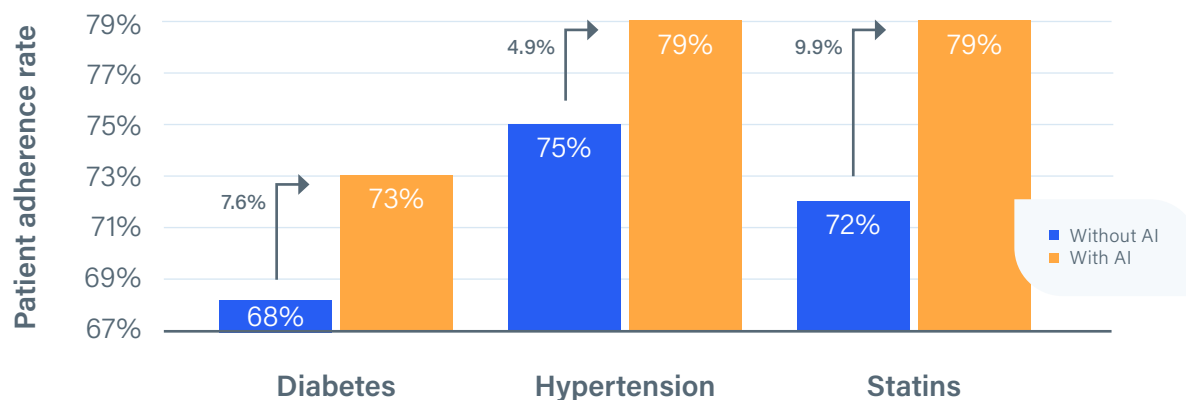
Overall, as a result of the AI targeting program, there was an **8.6% increase** in population adherence between the Without AI and With AI groups for diabetes, **5.5%** for hypertension, and **9.7%** for statins.

Figure 4: Percent of *All* Patients Who Became Adherent by Year-End
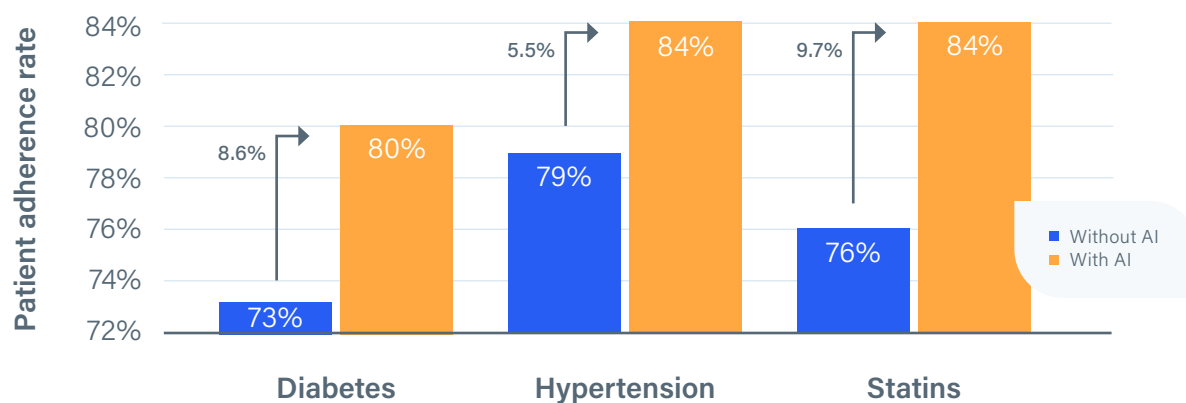
Transforming Programs with AI-Driven Interventions

Here's what we learned: An AI-powered, pharmacy-based program can improve population adherence among non-adherent patients and reduce the shift to population non-adherence in those who are already adherent.

In addition, these AI-powered programs can improve population adherence among "new" patients, or those without available historical data.

By leveraging AI to identify which patients to target with interventions— as well as the best channel, content, and timing of those interventions— pharmacies and health plans can improve population adherence rates, health outcomes, and quality performance.

AllazoHealth's AI engine pulls from large, varied datasets of more than 23 million patients—including social determinants of health, historical program data, consumer behaviors, and payer, provider, and retail claims. These diverse datasets provide multiple views of patient behavior and are proven predictors of adherence.

References:

Evaluation of an AI-Driven Multichannel Program to Increase Medication Adherence in a Retail Pharmacy Setting, Thomas Marano, MA; Clifford Jones, BSEng, BSEcon; Kevin Leung, PharmD, MS; Linda Schultz, PharmD; Balamurugan Sivakolunthu Vel, MS; Chaoran Chen, MS; Claudio Flores, MS; Saikit Chan, BS; Peggy Wonders, MS; Alexandra Broadus, PharmD; Michael Taitel, Ph.D.

Request a demo for a firsthand look
at AllazoHealth's AI engine.

Request a demo →

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