

Optimization Recommendations for Reducing Appointment No-Shows

Based on Data Analysis and Predictive Modeling

This project has revealed key insights into the behavioral and demographic factors that affect patient attendance. Below are targeted recommendations designed to optimize healthcare appointment systems and reduce the no-show rate:

1. Optimize Scheduling Timeframes

- Reduce scheduling lead times: No-show rates rise when appointments are booked more than a week in advance.
- Implement short-notice availability: Offer same-day or next-day slots when possible, as these have the highest attendance rates.

2. Focus on High-Risk Groups

- Young Adults (18–34): Target this age group with personalized reminders and flexible scheduling options, such as evening or weekend hours.
- Patients with Financial Aid (Scholarship status): Provide additional communication and transportation support as they have a higher likelihood of missing appointments.
- Patients with Alcoholism: Integrate behavioral health outreach or care coordination for patients with substance-related issues.

3. Improve Reminder Systems

- Re-evaluate SMS reminders: Since SMS alone showed minimal impact, consider supplementing with:
 - Automated phone calls
 - Mobile app notifications
 - Two-way confirmation systems (e.g., requiring “Yes”/“No” replies)

4. Leverage Chronic Condition Awareness

- Encourage regular follow-ups for chronic conditions (e.g., diabetes, hypertension) as these patients show higher commitment.

- Use predictive models to identify patients likely to attend and prioritize their scheduling for efficient slot utilization.

5. Integrate Predictive Models into Workflow

- Use ML models to score incoming appointments based on likelihood of attendance.
- Flag high-risk patients for:
 - Double booking strategy
 - Extra reminder calls
 - Pre-visit engagement (e.g., health coaching or check-ins)