Understanding Medication Adherence in Patients with Diabetes
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Background

- On average, only 50% of patients who suffer from chronic diseases in the United States adhere to prescribed treatments
- Increasing adherence to medication regimens promises to improve public health outcomes and decrease healthcare costs
- The NIH listed improving medication adherence as a top priority
- Adherence is measured using medication possession ratio (MPR) and a patient is deemed adherent if their MPR is ≥80%
- Patients with chronic conditions, like diabetes, struggle to take their medications as prescribed due to a variety of barriers and factors
- The patient perspective on which of these factors are most important is vital, but not fully studied or understood

Aim

The aim of this project is to improve medication adherence from 54% to 75% during the period of June 2017- May 2020 in the patients with diabetes at UT Southwestern.

Immediate Goals:
1) Identify demographic characteristics associated with poorer adherence
2) Understand the major barriers to adherence from both patient and provider perspectives to help gain stakeholder buy-in

This project aligns with UT Southwestern’s mission to “improve health care in our community, Texas, our nation, and the world through innovation and education.”

Project Design

Define
- Project Charter
- Literature Review
- Stakeholder Analysis
- Provider Interviews (PDSA)
- Brainstorming
- Affinity Diagram
- Fishbone Diagram
- DPAT meetings with patients
- Brainstorm and search literature for ideas to test

Measure
- Determined MPR would be primary process measure
- Determined HgbA1c would be an outcomes measure
- Data Extraction Planned (PDSA)
- Driver Diagram with patient and provider feedback
- Provider & Patient Interviews (PDSA)

Analyze
- Identified least adherent patient populations
- Compare/contrast provider and patient perspectives on barriers and determined primary drivers
- Prioritize matrix for ideas to test to decide on best interventions

Results & Discussion

Why is medication adherence important in patients with diabetes? Patients with MPR <80% have 1.35x (odds ratio not adjusted for race, age, or gender) greater risk of having HgbA1c ≥7%.

Population characteristics (N=9058 UT SW patients with diabetes):
1) Adherence by Gender: Women-47.8% and Men-57.8%
2) Adherence by Age: 41.1% of patients 18-29yo were adherent and 65.4% of patients ≥ 80yo were adherent. The age ranges between these two showed steady increase in adherence with age.
3) Adherence by Race: African American-54.0%, Hispanic-55.2%, White-67.8%, and Asian-71.2%

Major Barriers to Adherence (from patient/provider interviews):
Physicians, pharmacists and patients all agreed that cost, complicated medication regimens, and fear of side effects are the most important factors to address. However, it was found that providers underestimated how pivotal patients’ routines and occupations are in leading to poor adherence. This could be a major opportunity for improvement in the care provided in the future.

*More extensive details on the important factors in Figures 1 and 2

Quality Tools

Figure 1. Fishbone diagram. Causes of poor medication adherence from literature, brainstorming and multi-voting.

Outcome Primary Drivers Secondary Drivers
- Cost
- Communication with healthcare providers
- Concerns about Medication
- Low motivation
- Lack of perceived benefit
- Low SES patients
- Fear of side effects
- Complicated Regimen
- Minimal results
- Social Stigma
- Side effects
- Pre-set Routines
- Occupational Constraints
- Inadequate social support
- Forgetful

Figure 2. Simplified Driver Diagram. The major primary and secondary drivers of poor medication adherence, as identified by patients and providers. Tertiary and quaternary drivers are not shown.

Figure 3. Diabetes Patient Advocacy Team (DPAT) patients providing feedback on driver diagram and the most important barriers to medication adherence.

Planned Interventions

Given that cost is a primary barrier to adherence:
1) Develop an insurance flowsheet for patients to follow to ensure all patients have proper insurance coverage
2) Create a list of stores/pharmacies with the best prices for each medication (i.e. Wal-Mart’s $4 prescriptions) and keep this list in every exam room

Given the age trends and the importance of patient schedules and occupational constraints in adherence:
3) Develop a form where patients mark specific hours they are willing and able to take their medications based on their individual schedules and have providers prescribe treatment regimens accordingly. Therefore, patients will take their medications more reliably and feel more responsible for the shared treatment decision.

References: