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Factors impacting adherence to antidiabetic medications and health outcomes in diabetes mellitus patients in Medicare populations

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Background

- Non-adherence has been correlated with increased morbidity, mortality, and total costs of care in patients with diabetes¹
- Adherence is measured using proportion of days covered (PDC):²

$$\text{PDC} = \left(\frac{\text{Number of days in period "covered"}}{\text{Number of days in period}} \right) \times 100\%$$

- The Centers for Medicare & Medicaid Services (CMS) evaluates Medicare Advantage health plans on their members' medication adherence rates in quality measures³
 - Health plan's performance in quality measures, such as adherence measures, impacts their Star Rating (an aggregate of quality measure scores).
 - Health plans receive quality bonus payments directly correlated to their overall Star rating
- CMS considers a patient to be adherent to an antidiabetic medication regimen if PDC for diabetes medications is 80% or more³
 - Health plans are evaluated on the percentage of eligible members who achieve adherence
 - The percentage required to achieve a high Star Rating increases yearly
- Continual improvement in quality programs is crucial for maintaining a high overall plan rating and access to funding while improving health outcomes

Objectives

Purpose: Evaluate factors impacting adherence in Providence Health Plan Medicare Advantage patients with diabetes to identify at-risk patient groups who may benefit from additional interventions.

Primary outcomes

- Adherence rates to diabetes medications measured using proportion of days covered (PDC) in patients who do not use insulin

Secondary outcomes

- Correlation between PDC and A1C
- Adherence rates of patients who do not use insulin compared to patients who do use insulin

Methods

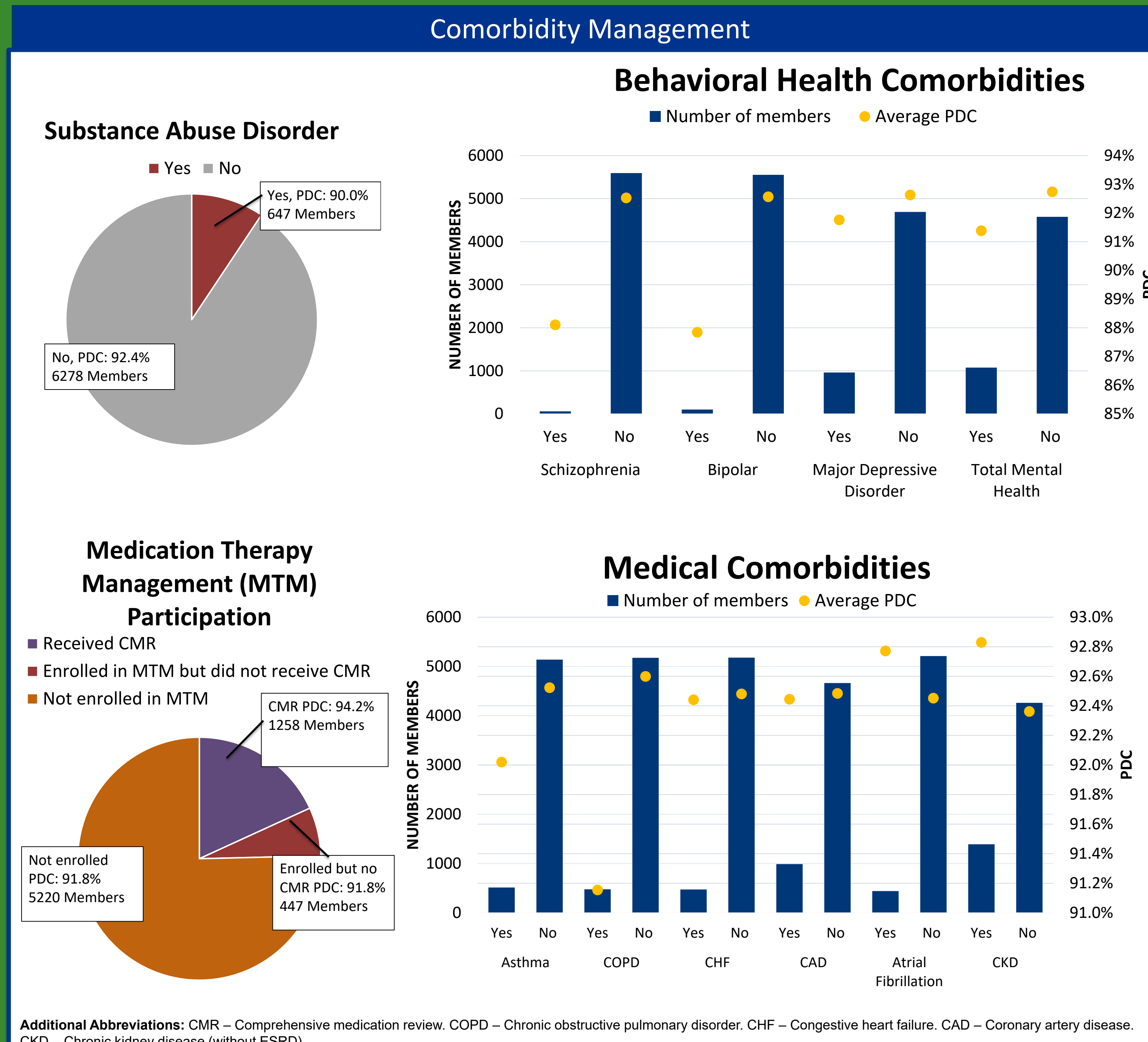
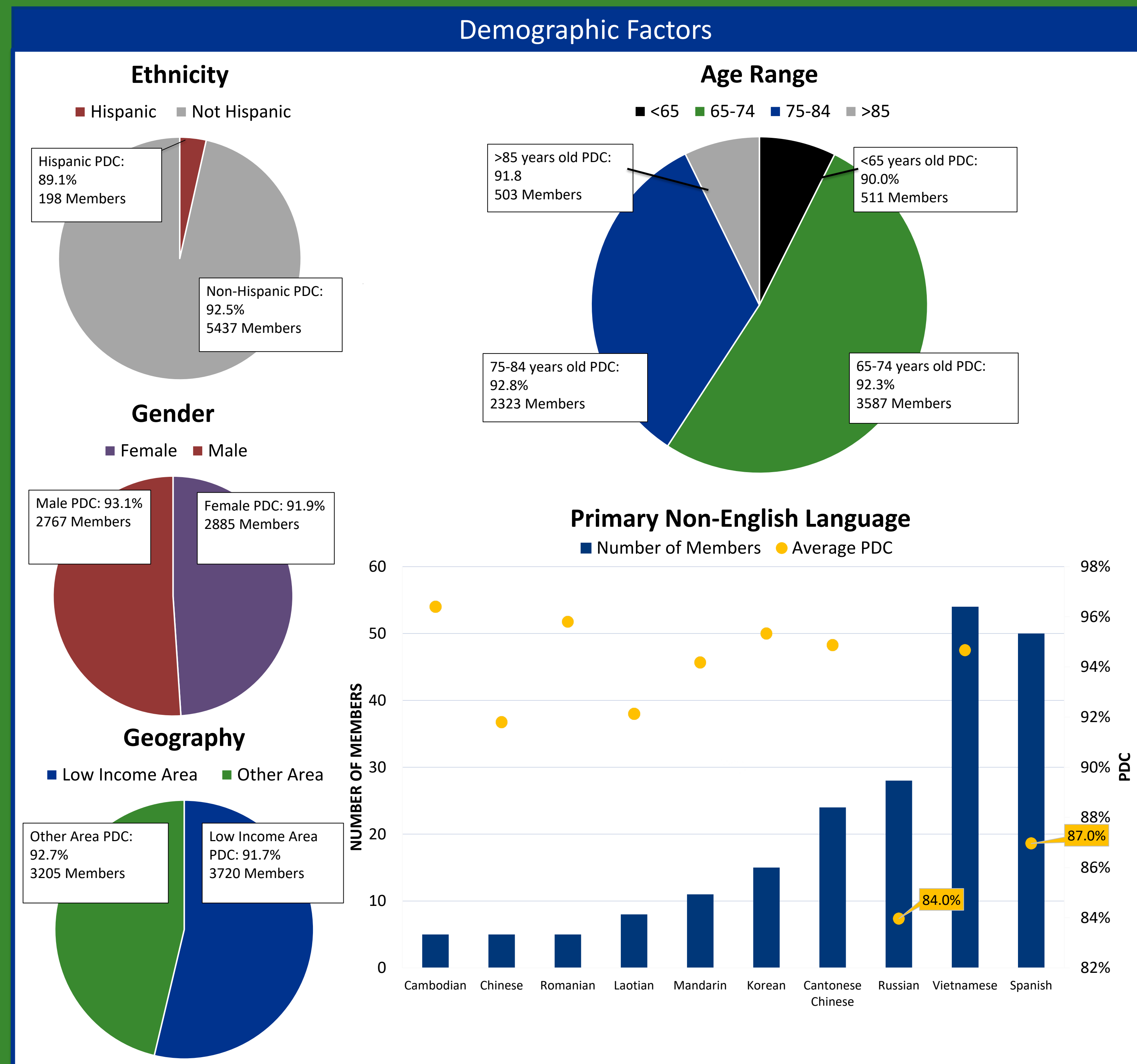
IRB Exempt

Study design

- Retrospective claims analysis
 - Data collected: ICD-10 codes, PDC and diabetes drug fill history, sociodemographic information, last available A1C in 2022
- Study period: January 1, 2022-December 31, 2022
- Inclusion criteria**
 - Medicare members with a pharmacy benefit
 - Diabetes diagnosis in 2022 with an ICD-10 code starting with E08, E09, E10, E11, E13
 - Filled diabetes drug prescriptions on 2 dates or more
 - First fill of diabetes medication occurred at least 91 days before end of 2022
- Exclusion criteria**
 - In hospice or using hospice services in 2022
 - End stage renal failure diagnosis in 2022
 - Members 66 years of age and older as of December 31 and enrolled in an Institutional SNP (I-SNP)

Statistical Analysis

- Conducted in Excel to calculate correlation coefficients, p values, and two-tailed t tests
- Alpha of 0.05 was used to determine statistical significance



Discussion

Results

Primary outcomes

Groups with statistically significant differences:

Group with Lower Adherence	Comparison Group
Russian or Spanish primary language	English primary language
Hispanic	Non-Hispanic
Female gender	Male gender
Low-income area	Other area
Age under 65 years old	Age 65-74
Substance disorder diagnosis	No diagnosis of substance disorder
Diagnosis of schizophrenia, bipolar disorder, or major depressive disorder	No diagnosis of one or more of these conditions
Physical disability	Not flagged as having this disability

Group with Higher Adherence	Comparison Group
Received comprehensive medication review in MTM program	Not enrolled in MTM program or did not receive CMR

Groups without statistically significant differences:

Group of Interest	Comparison Group
Ages 75-84 or 85 and older	Age 65-74
Developmental disability	Not flagged as having this disability
Diagnosis of asthma, COPD, CAD, CHF, CKD, atrial fibrillation	No diagnosis of one of these conditions
Enrollment in Care Management service	Enrolled in Care Management service but could not be contacted or was not enrolled in Care Management

- Presence of asthma, COPD, CAD, CHF, or developmental disability was associated with lower adherence than those without

Secondary outcomes

- Lower PDC was not correlated with lower A1C
- Insulin use was correlated with lower adherence to non-insulin diabetes medications

Study Limitations

- Retrospective study design
- Results only representative of population with enrollment in Medicare Advantage plan in 2022
- ICD-10 codes are known to be under-coded and were used to identify diagnoses
- A1C not submitted for all patients in 2022. Singular A1C used may not be representative of patient's typical health
- Drug regimens, number of drugs used, opioid use, healthcare services utilization, and benefit design were not evaluated

Going Forward

- Expand data collection and analysis to evaluate effect of brand name drug use and polypharmacy on adherence
- Complete subgroup analysis on patient groups identified to have lower average adherence
- Propose increased collaboration between the Behavioral Health and Pharmacy teams to increase adherence in patients with mental health diagnoses
- Examine benefit design and member services for potential improvements to support adherence

References

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