**Connecting Patients to Prescriptions Assistance Programs (PAPs)   
for Antihyperglycemics: Effects on Clinical Outcomes**

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**Background**: Cost can be a major barrier for patients to obtain their medications with nearly 1 in 4 Americans expressing difficulty affording their medications. Various strategies have been implemented in an attempt to help uninsured and underinsured patients afford their prescription medications, including the use of prescription/patient assistance programs (PAPs). PAPs are provided by various manufacturers with name brand medications, with over 375 PAPs in operation in the United States. Each PAP has certain eligibility requirements that the patient must meet in order to qualify and apply for the program which can be confusing and time consuming, leading to involvement by healthcare professionals to help complete and submit applications. Considering the extensive time spent for healthcare professionals, such as pharmacists, to complete, submit, and follow-up on these PAP applications, there is a need to determine if connecting patients to medications through PAP contributes to improved clinical outcomes.

**Objective**: Evaluate the impact on clinical outcomes of connecting patients to PAPs for antihyperglycemics, by a pharmacist embedded in a primary care clinic.

**Methods**: This was a multi-center, retrospective chart review evaluating the effect on clinical outcomes associated with connecting patients to PAPs for antihyperglycemics, primarily change in A1c. Patients receiving medications through a PAP were identified at five Novant Health primary care offices and a random number generator was used to select 150 patients for evaluation. Patients were eligible for inclusion if they were connected to a PAP, by an embedded pharmacist, for an antihyperglycemic for type 2 diabetes mellitus. Patients must have been enrolled in PAP, received, and initiated at least one antihyperglycemic medication from the PAP between 06/01/2018 and 05/01/2021. Patients were excluded if they did not have at least one A1c measurement before and after initiating the antihyperglycemic from the PAP or if they were receiving only non-antihyperglycemic medications through a PAP. Additional outcomes evaluated include change in number of antihyperglycemics, percent of patients placed on American Diabetes Association (ADA) 2021 guideline-directed therapy as a result of enrollment in the PAP, percent of patients who achieved an A1c < 7%, time spent following up on PAP applications, and change in urine albumin-to-creatinine ratio (uACR). Outcomes evaluated before and after PAP enrollment utilized the first available measure before starting the antihyperglycemic obtained through PAP and the first measure at least six months after starting the medication. Wilcoxon signed-rank tests were used to test for statistical significance of relevant endpoints and descriptive statistics were used for the remaining endpoints.

**Results**: Of the 194 patients identified to be receiving medications through a PAP via one of the five Novant Health primary care offices studied, 150 patients were randomly selected for review via a random number generator. Of the 150, 98 met inclusion criteria and were included in the analysis. The average patient at baseline was 68 years old with an A1c of 8.9%, a uACR of 104.3mg/g, and taking two antihyperglycemics. The average change in A1c was a decrease of 1.3% (p < 0.001) with an average A1c of 7.6% after PAP enrollment. The average number of antihyperglycemics increased to three (p < 0.001). 49% of patients evaluated were placed on ADA 2021 guideline-directed therapy as a result of enrollment in a PAP. Only 11% of patients were at an A1c of < 7% prior to PAP enrollment, compared to 42% of patients after PAP enrollment. The average uACR decreased to 39.1mg/g (p = 0.127). The average amount of time spent following up on a PAP application for a single patient by the medication management specialists was 30 minutes.

**Conclusion**: Based on these results, we concluded that enrolling patients in PAPs for antihyperglycemics, by a pharmacist embedded in a primary care office, led to a decrease in A1c, increased number of patients reaching an A1c < 7%, and increased access to guideline-directed medications. There are some limitations to note, including the retrospective nature of the study, timing and availability of lab values before and after PAP enrollment, the use of alternative means to obtain PAP medication(s) before PAP enrollment, and the unidentifiable impact of a pharmacist’s intervention on clinical outcomes. The benefit of PAP enrollment for antihyperglycemics to manage T2DM is undeniable and could most likely benefit other disease states as well. However, the extensive amount of time to follow-up on PAP applications raises the concern of how pharmacists are expected to do their normal day-to-day activities and follow-up on these applications for a multitude of patients. The use of medication management specialists at some clinics for this task has shown beneficial and should be explored further.

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