Community Summary of the Improving Health Care Delivery Project

Utilization of Education, Case Management, and Advanced Practice Pharmacy Services by American Indian and Alaska Native Adults with Diabetes and Patient Outcomes Associated with Use of These Services

June 2019

American Indians and Alaska Native (AI/AN) peoples are more likely to have diabetes than the United States general population. The Indian Health Service (IHS) and Tribal health programs provide education, case management, and advanced practice pharmacy (ECP) services for patients with diabetes to improve their health outcomes. The first goal of this analysis was to describe utilization of ECP services by AI/AN adults with diabetes. The second goal was to describe relationships between using ECP services and patient health status and hospital service utilization.

The analyses include data for AI/AN adults with diabetes who used IHS or Tribal health services and lived in 12 geographic locations located throughout the United States; the data were extracted from the IHS National Data Warehouse. The IHS Cherokee Service Unit, which includes facilities that serve members of the Eastern Band of the Cherokee Indians, was one of the 12 locations.

We first describe use of ECP service by 32,995 AI/AN adults with diabetes during fiscal year 2013 (that is October 2012 to September 2013). During this fiscal year, 41% of adults with diabetes used ECP services. Those who used ECP services averaged 2.6 visits during the 12-month period. Females, compared to males, were more likely to use ECP services. Older adults and adults with more diabetes-related complications, such as cardiovascular disease (CVD), were also more likely to use ECP services. For example, nearly 50% of adults with diabetes and CVD used ECP services. They had, on average, 3.3 visits during the year. About 38% of adults with diabetes but not CVD used ECP services. They had, on average, 2.3 visits during the year. Persons who lived further away from services were less likely to use ECP services.

We next analyzed data on ECP use during fiscal year 2012 (that is October 2011 to September 2012) and compared the health status and health service utilization of adults with diabetes who used and did not use ECP services. This analysis included data for 28,578 adults with diabetes. Since patients who use and do not use ECP services may differ, we adjusted for these differences using a statistical approach referred to as propensity score models.[1]

Among adults with diabetes, those who used ECP in fiscal year 2012 appeared to be more likely to experience health improvements during the following fiscal year (2013) than the adults with

diabetes who did not use ECP services during that year. ECP users were less likely to have high systolic blood pressure and high cholesterol than non-users. The odds ratio for high systolic blood pressure was 0.85 (less than 1.0, $p<0.001$). In addition, there was a relationship between ECP use and lower onset of CVD and end-stage renal disease. Among adults with diabetes but not CVD during fiscal year 2012, the percentage who had onset of CVD during fiscal year 2013 was 1.5% lower ($p<0.05$) among those who had 3 or more ECP visits than that among adults who had no ECP visits. Finally, ECP use was associated with a lower likelihood of having a hospital admission.

Information about which adults with diabetes use ECP services and patient outcomes associated with use of ECP services may inform decisions about how to provide ECP services to meet the needs of AI/AN adults with diabetes.

The two papers that describe this work are: *Utilization of education, case management, and advanced practice pharmacy services by American Indian and Alaska Native adults with diabetes* by J O'Connell, J Rockell, K Harty, M Reid, and S Manson. *Patient outcomes associated with utilization of education, case management, and advanced practice pharmacy services by American Indians and Alaska Natives with diabetes* by J O'Connell, M Reid, J Rockell, K Harty, M Perraillon, and S Manson. The information in these papers was included in the report to the Patient-Centered Outcomes Research Institute, the organization that funded the majority of the work. For more information about either manuscript or the report, please contact Joan O'Connell, PhD, at Joan.OConnell@ucdenver.edu.

[1] The propensity score models control for differences between ECP users and non-users in age, gender, health status, and other characteristics.