**1. Is the request consistent with the Transparency Initiative's goals and purpose?**
Yes. The request is for a student dissertation research project.

**2. Are there real or potential conflicts of interest or anti-competitive concerns?**
No. The request is for a student dissertation research project.

**3. If IRB approval is required, has the approval been granted?**
Yes. IRB has already reviewed the request and deemed it to be not Human subject research. Please find the letter in the attachment.

**4. Does the data request contain the minimum information required?**
Yes. The researchers have requested only the minimum set of variables and observations required for the research.

**5. Does the request minimize the risk of re-identification of individuals?**
Yes. The data fields requested are the minimum necessary. The variables requested are not detailed enough to allow easy identification of patients.

**Project Description**

**Background**
The impact of Medicaid expansion mechanism on access to care for the newly enrolled individuals has been thoroughly studied. However, it is not know how the expansion approach impacts the access to care and utilization among the pre-existing Medicaid patients. The primary intent of the study is to assess the impact of Medicaid expansion Mechanism (traditional vs. premium purchase) on pre-existing Medicaid patient's realized access to preventative and ambulatory services. Further, the study will assess any differential impact among medically underserved communities. The study will compare Kentucky (State that expanded Medicaid in 2014 via traditional expansion) and Arkansas (State that expanded Medicaid in 2014 via premium purchase).

The study will use a longitudinal difference-in-difference design to measure the impact of the mechanism of expansion on the adult's access to preventative and ambulatory health services. The study will determine the changes in the number of ambulatory/ preventative care visits during years before expansion (2012, 2013) and years after expansion (2014,2015) and compare the changes across Kentucky and Arkansas. The study will further determine the changes in outcomes before (2012, 2013) and after (2014,2015) expansion across Kentucky and Arkansas, by stratifying the patients based on whether they live in a medically underserved area.

**Data**
This study will use Kentucky Medicaid data, Arkansas All-payer Claims Database (APCD) data and Area Resource File (ARF). The ARF is a publicly available dataset from U.S. Health Resources and Services Administration, Bureau of Health Professions. The Kentucky Medicaid data will be obtained from that will be obtained through collaboration with University of Kentucky and Kentucky Cabinet for Health and Family Services. The Arkansas APCD data will

be obtained from Arkansas Center for Healthcare excellence. Both datasets consist of two distinct populations and have no common identifiers for linkage. The data, however, will be combined for the analysis. The APCD consists of data from all the insurance carriers in the state of Arkansas including Medicaid. The study will utilize data from all the Medicaid enrollees from Arkansas. Both the data sets include information on the medical claims, pharmacy claims, and enrollment. The enrollment information consists of the patient's date of birth, gender, race, enrollment aid category, enrollment time, patient county. The enrollment files from will be linked with ARF to identify the medically underserved counties and other county-level characteristics such as unemployment rate, the county-level racial mix of county, county-level median income. The medical claims file contains information on the inpatient, outpatient and professional service claims with information on date, place of service, performed procedures (CPT), disease diagnosis (ICD-9-CM), provider identifiers, and spending information such as charge, allowed, and paid amount. The pharmacy claims information includes, National Drug Codes (NDC), date of medication dispensed, quantity dispensed, and estimated day's supply.

Study population

The study population will consist of four patient cohorts namely, pre-expansion traditional Medicaid (Kentucky) state, pre-expansion premium purchase expansion state (Arkansas), post-expansion traditional Medicaid states, post-expansion premium purchase states. The study period will allow a 24-month evaluation time window during the pre-expansion (01 Jan 2012-31 Dec 2013) and post-expansion period (01 Jan 2014-31 Dec 2015). The first six months of pre-expansion cohort entry will be used as a baseline period. All the medical and pharmacy claims during the baseline period will be assessed to determine patient's comorbidities, while the remaining 18 months will be used to measure the outcome in the pre-expansion period. Similarly, the first six months during the post-expansion period will be used to measures the patient's comorbidities, while the remaining 18 months will be used to measure the outcomes. To be included in the four cohorts, patients will be required to have continuous enrollment during cohort's 24-month time window and be between the ages of 21-64 during the study duration.

**Study outcomes**

All outcomes will be assessed for each of the cohorts during the outcome assessment period of 18 months using the medical claims file.

*1. Adult's access to Preventative and Ambulatory Health services:*

The study will use the measure previously defined in the Healthcare Effectiveness Data and Information Set (HEDIS) for the Measurement year 2016 produced by National Committee for Quality Assurance (NCQA). As per the HEDIS, an ambulatory and preventative care service will be defined as claims with CPT codes and Revenue codes specified in HEDIS Ambulatory Visit Value set and Other Ambulatory Visits Value set(Appendix 1). All claims with the same provider and same date of service will be counted as one visit, while claims with different providers with the same/different date of service will be counted as different visits.

*2. Annual screening for HbA1c levels among diabetes patients:*

The study will use the measure previously defined in the Healthcare Effectiveness Data and Information Set (HEDIS) for the Measurement year 2016 produced by National Committee for

Quality Assurance (NCQA). The measure will be defined as the proportion of patients with diabetes (identified using prescription or medical claims encounter) who had at least two HbA1c (Identified using HbA1c test value set- Appendix 1) measurements claims with different dates of service during the outcome assessment period.

**Analysis**

The count of preventative and ambulatory health service visits will be counted for each of two cohorts (pre-expansion and post-expansion) for each patient. Similarly, a 1/0 indicator will be created to indicate the receipt of 2 diabetes screens during the measurement periods (pre-expansion and post-expansion) for each patient. All four cohorts will be combined to create a final analytical file. The pre-expansion and post-expansion from Kentucky will constitute the 'Exposed' group while pre-expansion and post-expansion from Arkansas will constitute the 'Unexposed' group.

Multivariate regression analysis will be performed to estimate the impact of Medicaid expansion approach on the outcomes of interest. Due to the skewed nature of count data with excess-zeros, we will use a Poisson regression with gamma for analyzing utilization of ambulatory and preventative service visits. Logistic regression analysis will be used to assess the impact of expansion on the likelihood of diabetes patients receiving at least 2 HbA1c screenings. Both models will control for patient-level covariates such as specialty, and patient population severity and patient-level covariates namely patient's sex, age category, plan type, insurance product type, patient's comorbidities and pharmacotherapy measured during the year.
The study will employ a difference in difference indicator to measure the impact of Medicaid expansion on the outcome of interest. All the four cohorts previously described will be combined, a period indicator will be created (pre-expansion or post-expansion), and an expansion indicator (1 for Kentucky and 0 for Arkansas) will be assigned to this final cohort. An interaction term of period and expansion status will be created to measure the marginal impact of expansion using the conventional approach as compared to premium purchase. For the second part of our analysis; the study will further assess a Difference in Difference in Difference analysis with the third difference being the medically underserved area status of the county.

**Attach a separate document that identifies all key personnel who would be assigned to the project and**

Please find the CVs for Dr. Jacob Painter and Niranjan Kathe in the attachment

**For all key personnel, describe the experience, if any, with prior or current projects of comparable scope and complexity to this project**

Niranjan Kathe is a part of the Arkansas private option evaluation team and has experience working with Arkansas APCD and Medicaid data.

Dr. Jacob Painter has previous experience working with administrative claims data, and VA data.