DEPARTMENT OF HEALTH & HUMAN SERVICES
Centers for Medicare & Medicaid Services
7500 Security Boulevard, Mail Stop S2-25-26
Baltimore, Maryland 21244-1850

CENTERS FOR MEDICARE & MEDICAID SERVICES
CENTER FOR MEDICAID & CHIP SERVICES

State Demonstrations Group

August 24, 2023

Stephanie Azar
Commissioner
Alabama Medicaid Agency
501 Dexter Avenue
Montgomery, Alabama 36103

Dear Commissioner Azar:

The Centers for Medicare & Medicaid Services (CMS) completed its review of the "Institutions for Mental Disease Waiver for Serious Mental Illness" Evaluation Design, which is required by the Special Terms and Conditions (STCs) of the Section 1115 demonstration (Project No: 11-W-00371/4). CMS determined that the Evaluation Design meets the requirements set forth in the STCs and, therefore, approves the state's Evaluation Design.

The Evaluation Design is approved for the demonstration period through May 19, 2027, and is incorporated into the attached demonstration STCs as Attachment E. Per 42 CFR 431.424(c), the approved "Institutions for Mental Disease Waiver for Serious Mental Illness" Evaluation Design may now be posted to Alabama's Medicaid website. CMS will also post the approved Evaluation Design as a standalone document, separate from the STCs, on Medicaid.gov.

Please note that an Interim Evaluation Report, consistent with the approved Evaluation Design is due to CMS one year prior to the expiration of the demonstration or at the time of the extension application if the state chooses to extend the demonstration. Likewise, the state must submit to CMS a draft of the Summative Evaluation report within 18 months of the end of the demonstration approval period, consistent with this approved design.

We look forward to our continued partnership on the Alabama Institutions for Mental Disease Waiver for Serious Mental Illness Section 1115 demonstration. If you have any questions, please contact your CMS demonstration team.

Sincerely,

Paula M. Kazi -S

Digitally signed by Paula M. Kazi -S
Date: 2023.08.23 22:35:35 -04'00'

Paula Kazi
Acting Director
Division of Demonstration Monitoring and Evaluation

cc: Rita Nimmons, State Monitoring Lead, CMS Medicaid and CHIP Operations Group

Alabama 1115 Waiver Demonstration for Serious Mental Illness Evaluation Design

Document prepared by the Public Consulting Group: June 30, 2023

PUBLIC CONSULTING GROUP

TABLE OF CONTENTS

A. GENERAL BACKGROUND INFORMATION

1. DEMONSTRATION NAME AND TIMING

On May 20th, 2022, the Centers for Medicare and Medicaid Services (CMS) approved the Institutions for Mental Disease (IMD)[1] Waiver for Serious Mental Illness (SMI) for implementation in the five-year period starting on May 20, 2022, and concluding on May 19, 2027, under the authority of section 1115(a) of the Social Security Act. The new section 1115(a) demonstration grants federal expenditure authority for services provided to Medicaid beneficiaries during short term stays for acute care in IMDs and waives the statewideness provision in section 1902(a) of the Social Security Act in order to reimburse short term psychiatric stays in an underserved area of the state.

Historically, IMD stays have been excluded from the Medicaid program, but states have received federal expenditure authority for stays in IMDs through Section 1115 waivers. Most recently, in November of 2018, CMS issued guidance outlining how states could receive expenditure authority for short-term stays in IMDs for individuals with SMIs and SEDs.[2] Alabama previously participated in CMS's three-year Emergency Psychiatric Demonstration (MEPD), which provided funding for short-term stays in IMDs for eligible Medicaid beneficiaries. MEPD concluded in 2015. This 1115 demonstration is thus a continuation of the progress achieved through the MEPD program.

2. DEMONSTRATION GOALS

The main goal of this demonstration is to increase access to inpatient psychiatric services for Medicaid beneficiaries ages 21-64 diagnosed with SMI in the southwest region of Alabama, however Alabama residents across the state with SMI are eligible to access these services regardless of their county of residence. The southwest region includes Baldwin, Clark, Conecuh, Escambia, Mobile, Monroe, and Washington counties. Individuals residing in this area experience the largest gap in the care continuum and do not have reasonable access to inpatient care due to the lack of inpatient psychiatric units in medical hospitals. Beneficiaries residing in other counties have access to non-IMD psychiatric inpatient services through hospitals within their county of residence or are in close proximity to them. In 2017, the last psychiatric hospital providing services to adults in the southwest region began only serving geriatric patients, terminating care accessibility for the 21-64 age group. The closest hospital with an inpatient psychiatric unit and the closest IMD to Medicaid beneficiaries in the southwest region of the state are in Crenshaw County, which is a 3-hour drive away. Bryce Hospital in Tuscaloosa, Alabama's state psychiatric hospital, is also located several hours away from the southwest region, making inpatient psychiatric care virtually inaccessible.

The goals of the IMD 1115 waiver for SMI are to:

1. Reduce utilization and lengths of stay in emergency departments among Medicaid beneficiaries with SMI while awaiting mental health treatment in specialized settings.
2. Reduce preventable readmissions to acute care hospitals and residential settings.
3. Improve availability of crisis stabilization services, including services made available through call centers and mobile crisis units, intensive outpatient services, as well as services provided during acute short-term stays in residential crisis stabilization programs, psychiatric hospitals, and residential treatment settings throughout the state, participating counties.
4. Improve access to community-based services to address the chronic mental health care needs of beneficiaries with SMI, including through increased integration of primary and behavioral health care; and

[1] Section 1905(i) of the Social Security Act defines an IMD as a "hospital, nursing facility, or other institution of more than 16 beds, which is primarily engaged in providing diagnosis, treatment, or care of persons with mental diseases, including medical attention, nursing care, and related services."
[2] Medicaid's Institutions for Mental Disease (IMD) Exclusion (congress.gov)

5. Improve care coordination, especially continuity of care in the community following episodes of acute care in hospitals and residential treatment facilities.

3. DESCRIPTION

This 1115 waiver authorizes federal financial participation (FFP) for acute care services during short term stays in the two psychiatric hospitals qualifying as IMDs in Baldwin and Mobile counties, EastPointe Hospital and BayPointe Hospital. Currently EastPointe has 66 beds and BayPointe has 18 beds. The demonstration covers services provided to Medicaid beneficiaries ages 21-64 diagnosed with SMI who are being treated within these IMDs. Medicaid eligible adults will have access to a full range of SMI treatment services ranging from short-term acute care in inpatient settings for SMI, to perpetual, chronic care for SMI in cost-effective community-based settings. The state is taking a regional approach where the demonstration limits expenditure authority to inpatient services being provided within the two IMDs in Baldwin and Mobile counties, however Alabama residents across the state with SMI are eligible to access these services regardless of their county of residence. The state will concurrently implement other initiatives that expand access to community-based mental health care in order to achieve the demonstration goals on a statewide basis.

Concurrent initiatives include:

1. Expanding Alabama's "Stepping Up" initiative, which aims to reduce the number of individuals with SMI in jails and the emergency room through providing intensive care management services, to every county in the state.
2. Expanding the School-Based mental health collaborative, which increases access to mental health treatment for children in public schools through integrating mental health centers and public-school systems.
3. Implementing the Alabama Permanent Supportive Housing Strategic Plan, which is a five-year plan with action steps to maintain, increase and more efficiently use permanent supportive housing for individuals with SMI across the state.
4. Establishing crisis diversion centers throughout the state that can provide crisis stabilization services.
5. Establishing Certified Behavioral Health Clinics throughout the state.

4. POPULATION

The demonstration target population is Medicaid beneficiaries between the ages of 21-64 with an SMI diagnosis; approximately 214,000 individuals each year statewide[3]. Some groups receive limited Medicaid benefits, and these populations are excluded from the expenditure authority under this demonstration, and thus excluded from the evaluation target group. Excluded populations are: Limited Services available to certain aliens, Qualified Medicare Beneficiaries (QMB), Specified Low Income Medicare Beneficiaries (SLMB), Qualified Individual (QI) Program, Qualified Disabled Working Individual Program (QDWI), Family Planning—Authorized through Alabama's Plan First 11115 Family Planning Demonstration.

5. CONTEXT

In October 2012, Greil Memorial Psychiatric Hospital in Montgomery County and Searcy Hospital in Mobile County closed due to an initiative to promote community-based mental health care and reduce reliance on state operated beds. These hospitals combined housed 1,231 individuals with psychiatric diagnoses in FY 2011, and 90% of this population shifted into local communities. The state aimed to increase infrastructure in the southern region that offered behavioral health services given in Designated Mental Health facilities to replace services that were once provided in these state-run psychiatric hospitals. Following this initiative,

[3] https://www.nami.org/NAMI/media/NAMI-Media/StateFactSheets/AlabamaStateFactSheet.pdf

there was an increase in individuals diagnosed with SMI receiving treatment in community-based settings and an enhanced potential for psychiatric emergency. For individuals with SMI ages 21-64 who required inpatient care, it was difficult to find treatment since many private hospitals offering acute inpatient care either lacked the capacity to take on the patient or could not be reimbursed under Medicaid when serving this age group if they had more than 16 beds.

From July 2012 to March 2015, Alabama was selected to participate in the Medicaid Emergency Psychiatric Demonstration (MEPD), to test whether Medicaid programs could support higher quality care at a lower total cost by reimbursing private psychiatric hospitals for certain inpatient services where Medicaid reimbursement had typically been unavailable. It also tested whether Medicaid beneficiaries under psychiatric distress had quicker access to appropriate care when IMDs were reimbursed for emergency care. The state's goal, aligned with CMS, was to reduce psychiatric emergency department stays and provide better continuity of care between acute care and community providers.

In 2017, the last psychiatric hospital providing services to adults in the southwest region began only serving geriatric patients, terminating care accessibility for this age group. The closest hospital with an inpatient psychiatric unit and the closest IMD to Medicaid beneficiaries in the southwest region of the state are in Crenshaw County, which is a 3-hour drive away. Bryce Hospital in Tuscaloosa, Alabama's state psychiatric hospital, is also located several hours away from the southwest region, making inpatient psychiatric care virtually inaccessible. Alabama's intention through this 1115 demonstration is to regain and sustain the benefits achieved under its participation in the MEPD.

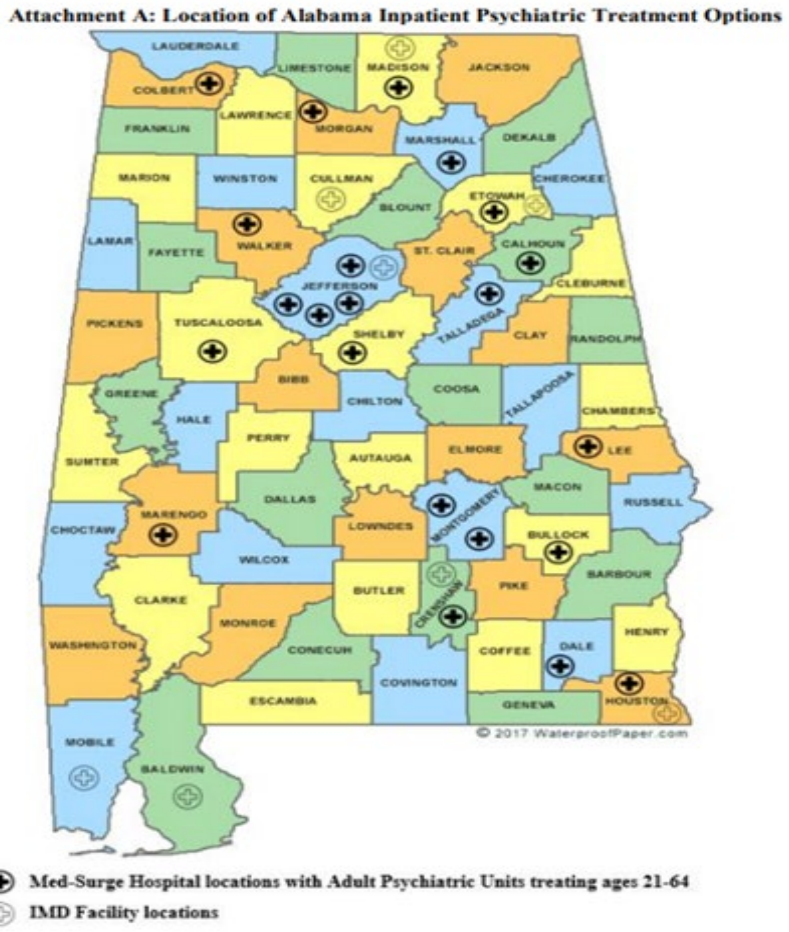

FIGURE 1. LOCATION OF ALABAMA INPATIENT PSYCHIATRIC TREATMENT OPTIONS

B. EVALUATION QUESTIONS AND HYPOTHESES

1. LOGIC MODEL

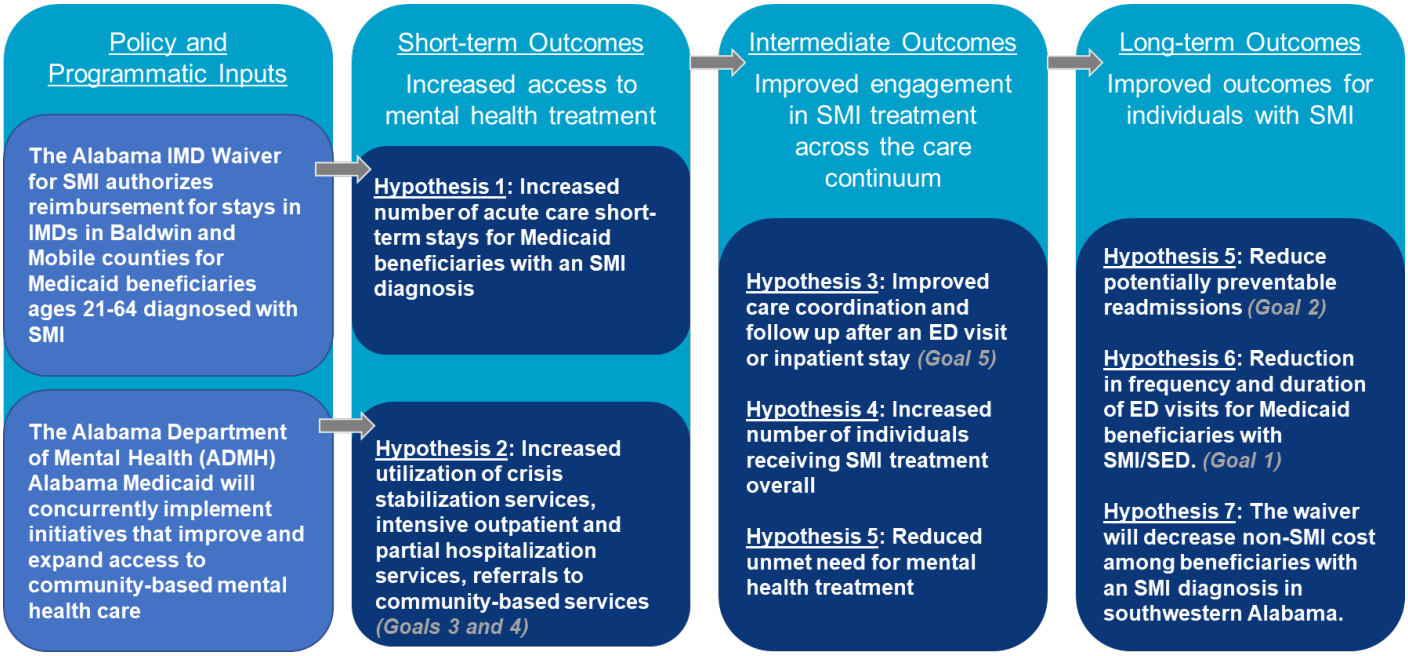

FIGURE 2. ALABAMA SMI DEMONSTRATION LOGIC MODEL

2. HYPOTHESES AND RESEARCH QUESTIONS

The overarching aim of the demonstration is to increase the number of Medicaid beneficiaries receiving treatment for SMI and reduce unmet needs for SMI treatment. The specific hypotheses and research questions are:

1. Hypothesis 1: The waiver will increase access to short-term stays in IMDs for adult Medicaid beneficiaries with an SMI diagnosis in the southwest region of Alabama.
    - Primary research question 1.1: Did the number of acute care short-term stays in IMDs for adult Medicaid beneficiaries with an SMI diagnosis increase in the southwest region of Alabama?
    - Primary research question 1.2: Did the waiver improve access to appropriate care for adult Medicaid beneficiaries with an SMI diagnosis in the southwest region of Alabama?
2. Hypothesis 2: The waiver will increase utilization of crisis stabilization services, intensive outpatient services and partial hospitalization services for adult Medicaid beneficiaries with an SMI diagnosis.
    - Primary research question 2.1: Did the number of beneficiaries receiving crisis stabilization services increase?
    - Primary research question 2.2: Did the number of beneficiaries receiving intensive outpatient services increase?
    - Primary research question 2.3: Did the number of beneficiaries receiving partial hospitalization services increase?

3. Hypothesis 3: The waiver will improve care coordination and follow up after an ED visit or inpatient stay.
    - Primary research question 3.1: Did the rate of follow up after ED visits increase?
    - Primary research question 3.2: Did the rate of follow up after inpatient stays increase?
    - Primary research question 3.3: Did the rate of medication continuance after inpatient stays increase?
    - Primary research question 3.4: Did referrals and overall care coordination improve for individuals with SMI?
4. Hypothesis 4: The demonstration will increase the number of Medicaid beneficiaries receiving treatment for mental health conditions and reduce unmet needs for mental health treatment.
    - Primary research question 4.1: Did the rate of Medicaid beneficiaries receiving treatment for mental health conditions increase in AL, compared to control states?
    - Primary research question 4.2: Did the prevalence of unmet needs for mental health treatment decrease in AL, compared to control states?
5. Hypothesis 5: The waiver will reduce the number of preventable readmissions to acute care hospitals and residential settings.
    - Primary research question 5.1: Did the rate of readmissions following psychiatric hospitalization decrease?
6. Hypothesis 6: The waiver will decrease the number of stays, and length of stays, in EDs for adult Medicaid beneficiaries with an SMI diagnosis in the southwest region of Alabama.
    - Primary research question 6.1: Did the number of stays in EDs for adult Medicaid beneficiaries with an SMI diagnosis in the southwest region of Alabama decrease?
    - Primary research question 6.2: Did the length of stays in EDs for adult Medicaid beneficiaries with an SMI diagnosis in the southwest region of Alabama decrease?
    - Primary research question 6.3: Did patient experience in the ED improve?
7. Hypothesis 7: The waiver will decrease costs among beneficiaries with an SMI diagnosis in southwestern Alabama.
    - Primary research question 7.1: Did total costs (dollars per beneficiary per month (PBPM)) for individuals with an SMI diagnosis in the southwest region of Alabama decrease?
    - Primary research question 7.2: Did cost per member for SMI treatment (dollars per beneficiary per month (PBPM)) for individuals with an SMI diagnosis in the southwest region of Alabama decrease?
        - *Subsidiary Research Question 7.2a*: What was the cost of IMD treatment for SMI services (in dollars per beneficiary per month (PBPM)) for individuals with an SMI diagnosis?
        - *Subsidiary Research Question 7.2b*: Did the cost of non-IMD inpatient treatment for SMI services (in dollars per beneficiary per month (PBPM)) for individuals with an SMI diagnosis decrease?
        - *Subsidiary Research Question 7.2c*: Did the cost of outpatient SMI treatment for SMI services (in dollars per beneficiary per month (PBPM)) for individuals with an SMI diagnosis decrease?

- Primary research question 7.3: Did non-SMI cost per member (dollars per beneficiary per month (PBPM)) for individuals with an SMI diagnosis in the southwest region of Alabama decrease?
    - *Subsidiary Research Question 7.3a: Did the non-SMI inpatient cost per member (in dollars per beneficiary per month (PBPM)) for individuals with an SMI diagnosis decrease (excluding IMD treatment)?*
    - *Subsidiary Research Question 7.3b: Did the non-SMI outpatient cost per member (in dollars per beneficiary per month (PBPM)) for individuals with an SMI diagnosis decrease?*

	Midpoint Assessment (Due Jul 16, 2025 to CMS)	Interim Report (Due May 17, 2026 to CMS)	Summative Report (Due Nov 17, 2028 to CMS)
Time period covered	May 20, 2022 – Nov 20, 2024	May 20, 2022 – Nov 20, 2025	May 20, 2022 – May 30, 2027
Data sources	• Administrative Data • Medicaid Encounters (MMIS)	• Administrative Data • Medicaid Encounters (MMIS)	• Administrative Data • Medicaid Encounters (MMIS) • CAHPS • NSDUH • Key Informant Interviews (KII)
Analyses	• Trend over time • Subgroup analyses	• Trend over time • Subgroup analyses	• Trend over time • Subgroup analyses • Interrupted Time Series • Difference in difference and SCM comparison to other states • Qualitative analysis
Approach	Descriptive	Descriptive	Quasi-experimental
Findings	Trends in utilization during the first two and a half years of the demonstration.	Trends in utilization during the first three and a half years of the demonstration.	Impact of demonstration

FIGURE 3. SUMMARY OF DELIVERABLES

C. METHODOLOGY

1. EVALUATION DESIGN

This mixed methods evaluation will employ quasi-experimental methods to investigate the impact of the demonstration. At the state level, results will be compared to national trends and comparison states using difference-in-difference (DiD) and synthetic control methods (SCM). Within the state, results from the southwestern region (Baldwin, Clark, Conecuh, Escambia, Mobile, Monroe, and Washington counties) will be compared to the rest of the state, and statewide results will be compared to pre-demonstration baseline using interrupted time series. To complement the quantitative results, Key Informant Interviews will be used to collect qualitative data about demonstration implementation and impact.

2. TARGET AND COMPARISON POPULATIONS

The target population for this demonstration is Medicaid eligible individuals aged 21-64 with SMI. While reimbursement for IMD stays will be limited to institutions in specific counties, residents of all counties who are treated at the facilities are eligible for coverage. PCG proposes to employ both in-state and out-of-state comparison strategies. Since a key aim of the demonstration is to address the lack of access specifically in the southwestern region of AL, in-state subgroup comparison by region will be essential to understand whether the demonstration increases access for residents of the southwestern counties (Baldwin, Clark, Conecuh, Escambia, Mobile, Monroe, and Washington counties). Claims data will be stratified by beneficiary county of residence, and grouped into regions. Additional stratification by demographic variables such as race/ethnicity will be used where appropriate.

	Estimated Number	% of Total
Individuals enrolled in Medicaid	474,673	100%
Individuals enrolled in Medicaid with SMI	15,212	3.20%
Of the individuals enrolled in Medicaid with SMI:		
Age*		
21-34	4,314	28.40%
35-44	3,815	25.10%
45-64	7,083	46.60%
Gender		
Male	8,795	57.80%
Female	6,401	42.10%
Other/NA	16	0.10%
Race/Ethnicity		
White	6,805	44.70%
Black	5,054	33.20%
Hispanic	103	0.70%
Other**	3,250	21.40%

**Age is reported as of April 30, 2023*
***Includes Asian, American Indian or Alaskan Native, other, and unknowns*

FIGURE 4. POPULATION DEMOGRAPHICS OF MEDICAID BENEFICIARIES

The IE will use national survey data from the National Survey on Drug Use and Health (NSDUH) to assess rates of SMI treatment received, and unmet need for SMI treatment. The full adult (aged 21-64) Medicaid population of AL will be the intervention group for this analysis and Medicaid beneficiaries in other states will be the controls. A three-year, pre-demonstration baseline will be used to determine the weights for the control states. The post-demonstration trend for AL will be compared to the calculated values for synthetic AL using linear regression.

3. EVALUATION PERIOD

The evaluation will include the full five years of the demonstration, from May 20, 2022 to May 19, 2027.

For interrupted time series analyses, two years of pre-demonstration claims data will be used to establish a baseline[4]. Three years of pre-demonstration data will be used to set a baseline for out-of-state comparisons.

4. EVALUATION MEASURES

The list of evaluation measures appears in the Evaluation Design Table, located in Section F.4 at the end of the document.

5.DATA SOURCES

The evaluation will use the following quantitative and qualitative data sources:

- Medicaid Administrative Data
- CAHPS Survey Data
- National Survey on Drug Use and Health (NSDUH)
- Key Informant Interviews

Medicaid Administrative Data

To analyze service utilization and related measures, PCG will use claims and other Medicaid administrative data, such as eligibility files.

The IE anticipates receiving claims and other Medicaid administrative data, such as eligibility files, from the state on an annual basis. Administrative data is expected to be of high quality, in terms of completeness and accuracy.

The IE and the state have worked together to assess the quality of Medicaid data and feasibility of the planned analysis, avoid confounding changes in data quality and completeness with changes in the outcomes of interest, and consider the framing of interpretations of evaluation evidence given any concerns with the data. Medicaid claims data will be based on FFS encounters and reported by providers. This data is reported biweekly, weekly, and monthly. The state's fiscal agent, Gainwell Technologies, runs the data through databases and the data goes through a cleaning process with the fiscal agent. To validate the data, the state's analytics team works with Gainwell Technologies and uses a four-point match system to merge records (Medicaid IDs), check for duplicates, and missing data. Once the data has been cleaned and validated by Gainwell Technologies and the state, the IE uses an additional

[4] In order to avoid confounding of the analysis by pandemic effects on utilization, trends for the baseline period will be modeled with and without the most affected months of 2020. This sensitivity analysis will help identify differential impacts. If the pattern changes observed in the first quarter of the PHE are similar for all subgroups, then confounding of the results by pandemic impacts is less likely.

process to validate population and service counts in Microsoft SQL Server and ensure that the data received from the state is complete and accurate.

Medicaid administrative data contains information such as gender, date of birth, age, and race. Approximately 88% of applications report racial data (self-reported by the applicant). This information is available in the eligibility file that can be linked to claims data. Alabama Medicaid Agency aligns with HRSA's definition of urban and rural geographic areas and uses these definitions to assign urban-rural county classifications in AMA data.

CAHPS Survey Data

To measure beneficiary experience, PCG will rely on aggregate data from the Consumer Assessment of Healthcare Providers and Systems (CAHPS®) surveys administered by plans or facilities.

The IE anticipates having access to aggregate CAHPS data collected by the health plans and reported to AMA. CAHPS data also be used to analyze differences in patient satisfaction over time, by county, and between subgroups. Because CAHPS data will be available only in aggregate, subgroup analysis will be limited to the available demographic stratifications: age, race (White and Other), ethnicity (Hispanic/ Not Hispanic), and gender.

National Survey on Drug Use and Health (NSDUH)

In order to contextualize changes that occur in AL, PCG will compare state trends to control states using national survey data. The National Survey on Drug Use and Health (NSDUH) tracks rates of substance use and mental illness, and treatment received for behavioral health conditions, at the national, state, and sub-state levels. NSDUH includes questions about receiving treatment for SMI, and about needing but not receiving treatment for SMI (unmet need) in the last 12 months. The data can be stratified by demographic, geographic, and socioeconomic factors, allowing for valuable analysis of disparities and subgroup patterns.

Key Informant Interviews

Qualitative data on program implementation will be gathered through key informant interviews (KIIs) with providers (hospital based providers, outpatient behavioral health and outpatient primary care providers) and state administrators. The IE will work with AMA to identify lists of each interviewee type. A random sample of names will be drawn from each list then reviewed for balance across region (replacements may be made to achieve balance). The IE will interview approximately 5-6 individuals for each type, yielding a sample of approximately 20-24 total interviews.

Semi-structured key informant interviews lasting 30-45 minutes per contact will be conducted by phone or videoconference, with privacy protections in accordance with CMS guidelines. Interviews will be recorded and transcribed. Interview guides will be developed by the IE in collaboration with AMA for providers, including clinicians and administrators, and for state employees involved in implementation of the waiver demonstration. Based on the interviewee's role, the interview guide and questions asked will be tailored accordingly. For example, state administrators will be invited to discuss the program rollout and feedback received from stakeholders, clinicians will be asked whether and how their experience of treating patients with SMI has changed during the demonstration, and staff at hospitals will be asked about processes for referral to community services post discharge. The IE anticipates interviewing approximately four participants from AMA staff, six from hospitals or residential treatment programs, including IMD facilities in Mobile and Baldwin counties, and six from community-based treatment providers. Interviewees at provider organizations will include both clinicians and staff involved in care coordination and referrals.

6. ANALYTIC METHODS

Quantitative Analysis

In order to provide robust conclusions, PCG will employ multiple analytic strategies to answer the research questions. PCG will utilize statistical software packages including SAS, SQL, and Stata to analyze the data, generating descriptive statistics and assessing significant differences in comparisons of interest. The IE will evaluate all measures in the Evaluation Table (Figure 9) in the Summative Report. Due to data availability, measures using data from the National Survey on Drug Use and Health (NSDUH), and qualitative measures relying on KIIs, will not be included in the midpoint or interim reports but will be included in the Summative Report.

Quantitative analysis will utilize descriptive statistics, trends over time, multiple linear regression, interrupted time-series analysis (ITS), difference-in-differences (DiD), and synthetic control methods (SCM). For most measures, the unit of analysis is number of beneficiaries submitting a claim for the service being evaluated (ex. ED, inpatient, outpatient, IMD services). For cost measures, the unit of analysis is dollars per beneficiary per month (PBPM). Hypothesis testing will be conducted for each hypothesis and associated quantitative research questions to assess statistical significance. Regression modeling (multiple linear regression) will use p-values generated as part of the regression output to assess statistical significance of results. Results will be reported at the $p<=.05$ level and include point estimates and confidence intervals. Covariates included in the regression models include age, gender, race, ethnicity, and urban-rural geographic classifications. However, urban-rural classifications will not be used as covariates when comparing southwest Alabama to other parts of the state in order to avoid collinearity. Inclusion and selection of covariates will depend on number of available observations; for example, if population group size is too small for including a specific demographic variable, this variable might need to be excluded from the list of covariates or collapsed into other categories.

Descriptive statistics

PCG will use descriptive statistical methods to generate summary tables of population size and characteristics, and outcomes for the three groups of demonstration participants. Data will be analyzed using standard tests such as rates, proportions, frequencies, and measures of central tendency (e.g., mean, median, mode). These tables will be used to develop a quantitative picture of the population, to describe raw trends, and to identify characteristics that will be included as covariates in regression modeling.

Service counts of IMD claims will determine the number and demographic characteristics of individuals receiving treatment, and the fraction of patients who come from inside or outside Mobile and Baldwin counties to receive IMD services. While residents of any county may be treated in any facility in the state, the state expects that most individuals needing treatment will seek care within the region where they reside, as previous observations have shown that long driving distance is a deterrent to seeking treatment.

Trend over time and linear regression modeling

Outcomes of interest will be plotted over time for the duration of the demonstration. Linear regression analysis will be used to evaluate trends over time (interrupted time series design). As the demonstration is intended to address access problems particularly in the southwest region of the state, the hypothesis for this analysis will be that outcomes improve more for beneficiaries residing in Mobile and Baldwin counties. Some individuals from bordering counties or elsewhere in the state may seek treatment in Mobile and Alabama counties, but the lack of access that motivated the demonstration is particular to the southwest corner of the state, where driving distance to any treatment facility is prohibitive; therefore, residents of these counties are expected to experience a proportionally greater benefit.

The null hypothesis will be that the groups (Mobile and Baldwin counties versus rest of state) have identical trends. Pre-demonstration trends across the entire state will be compared to post-demonstration trends across the entire state using interrupted time series. In addition, trends for Baldwin and Mobile counties will also be compared to the rest of the state during the demonstration using a difference-in difference analysis.

Subgroup comparisons

For subgroup comparisons, the trend for each evaluation group will be modeled using multivariate linear regression and compared. This regional subgroup analysis will use a comparative interrupted time series design. For comparison of regional changes, the reference group will be the non-southwestern counties.

In order to account for demographic characteristics such as age and gender that may differ among the groups PCG will use inverse probability of treatment weighting. Individuals in each group will be assigned weights based on the composition of the reference group, producing groups that are equivalent for measurable characteristics and allowing any difference in outcomes to be attributed to the intervention.[5]

Analyses will also partition participants by age, race/ethnicity and gender. Claims data and national survey data sets include demographics, although completeness and level of detail varies. Where possible, race will include White, Black, Asian, Latinx, and Native American populations for stratification. Due to the low prevalence of some subgroups, it may be necessary to combine non-white racial groups into an "Other" category. Ethnicity will be characterized as Hispanic/Not Hispanic. Subgroup analysis may also be conducted using geographic data; counties will be assigned either a "rural" or "urban" classification. Alabama Medicaid Agency uses HRSA (Health Resources and Services Administration) definitions of urban-rural classifications.

Regression Equation

The evaluation will use ITS analysis to test for different linear effects in the pre-demonstration and post-demonstration periods. The function for an example outcome C is presented below.

$$C = \beta 0 + \beta 1 * TIME + \beta 2 * POST + \beta 3 * (TIME * POST) + \beta i * COVAR + \varepsilon$$

In this function, TIME is a count variable that starts with the first quarter pre-demonstration period data and ends with the last quarter of post-demonstration period data. POST is an indicator variable that equals 1 if the month occurred on or after the demonstration start date. COVAR represents a set of covariates, such as age, gender, race, and month, for example.

The marginal effect and standard error for each term will be derived and reported. The average marginal effect of the interaction term, β3(TIME*POST), represents the apparent difference between the pre- and post-demonstration periods.

Difference-in-difference

In order to examine the impact of the demonstration on its overarching aim of improved access, PCG will conduct a stacked difference-in-difference (DiD) to model the effect of the demonstration in Alabama and

[5] Austin PC, Stuart EA. Moving towards best practice when using inverse probability of treatment weighting (IPTW) using the propensity score to estimate causal treatment effects in observational studies. Stat Med. 2015; 34(28):3661–79. Epub 2015/08/05. https://doi.org/10.1002/sim.6607 PMID: 26238958; PubMed Central PMCID: PMC4626409.

then compare Alabama to states with SMI/SUD waivers and states without SMI/SUD waivers. Furthermore, a stacked DID model can address the different timelines of different states. This model will help better understand how Alabama compares to states that didn't have an SMI/SUD waiver and how Alabama compares to states that did have SMI/SUD waivers. Stacked DiD models can help assess the impact of the overall effect versus the effect of the demonstration on Alabama. In a stacked DID model, datasets specific to each group are "stacked" in relative time, where a value of zero linear time represents the year exactly before implementation. A value of one represents the first year after implementation, a value of two represents the second year after implementation, and so on.

Regression Equation

Stacked DiD models recently originated in labor economics scholarship, with seminal papers produced by Cengiz et al. and Deshpande et al. in 2019.[6,7] A basic example of a DiD model fitted to stacked data may look like the below equation.[8] It should be noted that this is a general example, and the model will be modified to reflect the outcomes, covariates, and time periods specific to the analysis.

$$Y_{std} = \beta_0 + \beta_1 T_{sd} + \beta_2 P_{td} + \beta_3 (T_{sd} \times P_{td}) + \epsilon_{std}$$

In the above equation, d is the sub-experiment, s is the unit treated in the sub-experiment (d), and T_{sd} is a variable indicator for this. The term P_{td} represents an indicator demonstrating that t falls in the post-period in sub-experiment d.[8]

The key outcomes will be 1) receiving treatment for mental health in the last 12 months and 2) having an unmet need for mental health treatment in the last 12 months, as reported by respondents to the NSDUH survey. All other states will be included in the model, with an indicator variable designating those states that have implemented an SMI waiver demonstration. The first model will include covariates adjusting for demographic factors such as age, education, and income. The second model will employ inverse probability of treatment weighting (IPTW). Individuals in the treatment group (AL residents) will be assigned weights based on the composition of the reference group (residents of other states), producing comparison groups that are equivalent for measurable characteristics and allowing any difference in outcomes to be more confidently attributed to the intervention.[9] Characteristics for weighting, used in both models, include respondent age, education, employment status, household size, veteran status, sex, household income, homeownership status, presence of children in the household, survey month, and whether the survey was conducted via landline or cell phone.

---

[6] Cengiz, Doruk, Arindrajit Dube, Attila Lindner, and Ben Zipperer. "The effect of minimum wages on low-wage jobs." The Quarterly Journal of Economics 134, no. 3 (2019): 1405-1454.
[7] Deshpande, Manasi, and Yue Li. "Who is screened out? Application costs and the targeting of disability programs." American Economic Journal: Economic Policy 11, no. 4 (2019): 213-48.
[8] Wing, Coady. "Staggered Adoption Designs Stacked Did and Event Studies - Open Scholarship." Indiana University Bloomington Libraries, 22 Oct. 2021, scholarworks.iu.edu/dspace/bitstream/handle/2022/26875/2021-10-22_wim_wing_did_slides.pdf?sequence=1.
[9] Austin PC, Stuart EA. Moving towards best practice when using inverse probability of treatment weighting (IPTW) using the propensity score to estimate causal treatment effects in observational studies. Stat Med. 2015; 34(28):3661–79. Epub 2015/08/05. https://doi.org/10.1002/sim.6607 PMID: 26238958; PubMed Central PMCID: PMC4626409.

Synthetic control methods

In addition to DiD, PCG will use synthetic control methods (SCM) to estimate the association between implementation of the demonstration and the key outcomes of receiving mental health treatment and having an unmet need for mental health treatment. SCM have been employed to evaluate state-level policy impacts because they are particularly useful when estimating the impact of a policy change that affects a small number of treatment groups (i.e., a state).[10,11,12,13] These methods are a quasi-experimental approach similar to traditional difference-in-difference (DiD) estimation but require fewer assumptions to obtain estimates of association. DiD attempts to control for observed variables that may be associated with both treatment likelihood and the outcome of interest, and then assumes that any differential changes in outcomes between treated and control groups are attributable to the policy change. However, treatment and control groups may still differ in terms of outcome pre-trends and levels due to unobserved factors. This introduces potential selection issues, which may bias any estimates of association.

In contrast, SCM constructs a synthetic control from a pool of groups not exposed to the treatment of interest – in this case all other states. The synthetic control is constructed using a weighted average of the control groups, with weights chosen through a fully empirical process; weights for individual control units may range from 0 to 1 and are selected so the synthetic control is as similar as possible to the treated group in terms of outcome pre-trends. Unlike traditional regression, inclusion of covariates *is not required* to achieve equivalence between treated and control groups. The weighting process accounts for pre-demonstration differences among states, regardless of the underlying reason for the difference. That said, including covariates can help provide more reliable estimates[14].Therefore, the SCM will include covariates for "SMI/SUD waiver status" and "Medicaid Expansion status". A table will be prepared showing each state and their SMI/SUD waiver status, and Medicaid Expansion status, by date. This table will be used to compare other states' waiver and expansion status dates relative to the dates of Alabama's waiver and thus determine the correct status indicators for the covariates.

For each outcome of interest, PCG will use NSDUH data for other states for the three years prior to demonstration launch to construct a synthetic control representing AL's outcomes during the baseline period. [15] The weights derived empirically during this stage will allow PCG to generate a predicted outcome value for "synthetic Alabama" for each quarter during the demonstration period. This model will

---

[10] Abadie, A., 2012. *Synthetic control methods for comparative case studies: estimating the effect of California's tobacco control program. J Am Stat Assoc* 105(490):493-505. https://www.tandfonline.com/doi/abs/10.1198/jasa.2009.ap08746

[11] Rudolph, K.E., *et al.*, 2015. *Association between Connecticut's Permit-ti-Purchase handgun law and homicides. Am J Public Health* 105(8):e49-e54. https://ajph.aphapublications.org/doi/pdf/10.2105/AJPH.2015.302703

[12] Santella-Tenorio, J. *et al*., 2020. *Association of recreational cannabis laws in Colorado and Washington state with changes in traffic fatalities. JAMA* 180 (8):1061-1068. https://jamanetwork.com/journals/jamainternalmedicine/fullarticle/2767647

[13] Bhatt, A. *et al.* 2020. *Association of changes in Missouri firearm laws with adolescent and young adult suicides by firearms. JAMA Netw Open* 3(11). https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2772526

[14] Abadie, A. and Vives-i-Bastida, J. 2021. *Synthetic Controls in Action.* Whitepaper 9/17/21. https://economics.mit.edu/sites/default/files/publications/ESWC_Paper-1.pdf

[15] CMS White Paper, October 2020, "Selection of Out-of-State Control Groups and the Synthetic Control Method.

be used to find mean differences between actual AL outcomes and predicted outcome of the synthetic control during the demonstration period.

Subgroup Analyses

The evaluation will use the aforementioned data sources to understand how different subgroups of individuals with SMI are impacted by the demonstration. Analyses will partition participants by age, race/ethnicity and gender. Where possible, race will include White, Black, Asian, Latinx, and Native American populations for stratification. Due to the low prevalence of some subgroups, it may be necessary to combine non-white racial groups into an "Other" category. Ethnicity will be characterized as Hispanic/Not Hispanic. Using HRSA definitions, AMA currently designates 46 counties in Alabama to be rural counties and 21 counties to be urban counties; urban-rural classification of counties may also be used to stratify beneficiaries into subgroups.

Cost Analyses

The evaluation will utilize three levels of cost analyses: these levels are total costs, SMI versus non-SMI costs, and costs by source of treatment (see FIGURE 5 below).

Hypothesis 7 proposes that the waiver will reduce non-SMI costs among individuals with an SMI diagnosis; this hypothesis is broken down into three primary research questions. Costs are reported in dollars per beneficiary per month (PBPM).

Research Question 7.1 assesses total costs for individuals with an SMI diagnosis in southwestern Alabama. Research Question 7.2 assesses SMI costs for individuals with an SMI diagnosis and is broken down further into three subsidiary research questions that assess SMI costs for IMD treatment (7.2a), non-IMD inpatient treatment (7.2b), and outpatient treatment (7.2c).

Research Question 7.3 assesses non-SMI costs for individuals with an SMI diagnosis and is broken down into two subsidiary research questions that assess non-SMI costs for inpatient cost per member (excluding IMD treatment) (7.3a) and outpatient cost per member (7.3b).

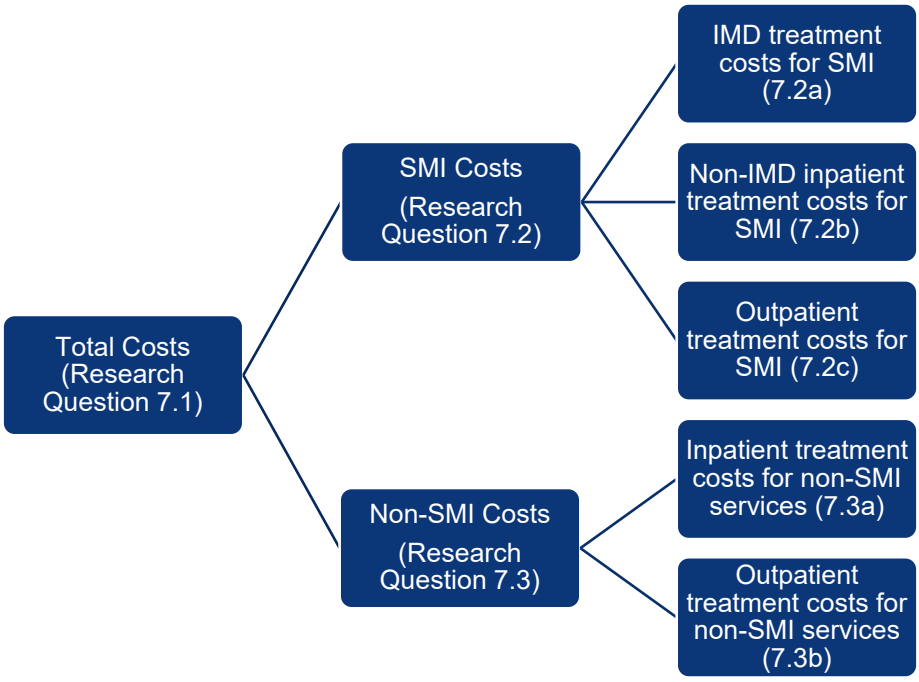

Figure 5 Levels of Cost Analysis

Sensitivity Analyses

In order to validate the use of regression models and increase confidence in estimates, the IE will conduct sensitivity testing. For difference-in-difference models, the IE plans to conduct an event study to show evidence of parallel trends and run unadjusted versus adjusted models, adding state-level linear time trends. The event study will use baseline and linear time trends, interacted by treatment status. If the interaction is significant, then a linear time trend interacted by treatment status can be fitted to the model to estimate deviation from the pre-trend. For the interrupted time-series models, the IE will conduct a similar event study to show pre-trends.

In order to conduct sensitivity testing on analyses using propensity score weighting, the IE will also explore changing the caliper width (how close of a match they have to be), the maximum number of control cases matched to each treated case, or iteratively leaving out variables from the prediction model to see how sensitive the model is to misspecification. The IE may also use inverse probability treatment weighting (IPTW) to estimate the likelihood of residing in a state with an SMI waiver in place.

For synthetic control analyses, the IE may run a variety of sensitivity analyses where certain states are excluded from the donor pool, such as states with pre-existing Medicaid income eligibility greater than or equal to 100% of the federal poverty line (FPL) prior to the ACA.

Qualitative Analysis

Qualitative analysis will be used for key informant interview transcripts. The research questions to be addressed, with corresponding example topics, are listed in Figure 6. Interviews will address these questions by probing for perspectives from providers and from administrators involved in implementing the demonstration. Thematic analysis using a coding tree derived from the demonstration logic model will be used to excerpt transcripts. Additional themes that arise during coding will be added to the analysis. Results will be stratified by interviewee role: hospital-based provider, outpatient behavioral health provider, outpatient primary care provider, and state administrator. Results of interviews will be used to add context to the quantitative findings regarding referral and care coordination processes, experience of care, beneficiary engagement, and barriers to engagement. Findings will address implementation and will inform the Evaluation Report chapter on Lessons Learned and Recommendations.

Research Question	Example topics
Was the demonstration implemented effectively?	• Perceived successes and challenges in implementation • Perceived steps towards integrating behavioral health with physical health services, e.g., screening and referrals in the ED and inpatient facilities
Primary research question 1.2: Did the waiver improve access to appropriate care for adult Medicaid beneficiaries with an SMI diagnosis in the southwest region of Alabama?	• Perceptions of barriers to access and participation in care • Management of SMI patients in the ED • Role of IMDs in the care continuum • Steps providers are taking to identify, understand, and address disparities in access and engagement
Primary research question 4.4: Did referrals and overall care coordination improve for individuals with SMI?	• Discharge planning and follow up processes • Communication among providers across the care continuum • Perceived changes in care coordination during the demonstration

FIGURE 6. RESEARCH QUESTIONS WITH EXAMPLE TOPICS

D. METHODOLOGICAL LIMITATIONS

This section provides detailed information on the limitations of the evaluation. This could include the design, the data sources or collection process, or analytic methods. The state should also identify any efforts to minimize the limitations. Additionally, this section should include any information about features of the demonstration that effectively present methodological constraints that the state would like CMS to take into consideration in its review.

1. **Lack of a true comparison group.** The target population of this demonstration is all individuals in AL in need of SMI treatment. As such, no true comparison group for this population exists. To mitigate this limitation, the IE plans to use both in-state comparison among counties, and out-of-state NSDUH data.
2. **Sample size.** Under the demonstration, a 5-year total of approximately 10,381 individuals are expected to receive services. However, the data set for specific outcomes may not have sufficient size statistical analysis on all subgroups of interest. In particular, the data may not support analysis by race/ethnicity for all outcomes. The IE will explore disparities in outcomes by race/ethnicity within the groups where numbers are sufficient. To further investigate health equity, KII interview guides will include questions about state and providers' efforts to identify and remediate disparities in access.
3. **Out-of-state comparisons.** The use of national survey data allows for out of state comparison groups but limits the ability to specifically identify individuals enrolled in the demonstration. An approximation will be achieved by using income and Medicaid enrollment and self-reported conditions to define a sample representing demonstration participants as closely as possible.
4. **Historic effects.** The impacts of the Covid-19 pandemic/PHE are expected to persist past the formal end of the PHE, and may include exacerbation of pre-existing clinician shortages, understaffing of hospitals and residential facilities, fluctuations in Medicaid enrollment, confusion and administrative challenges during PHE unwinding, and changes to participants' ability and willingness to make and keep appointments during infection surges. All of these factors could impact demonstration goals to improve outcomes for individuals with SMI. Sensitivity analysis and regression techniques described above will be used to minimize confounding.

E. ATTACHMENTS

1. INDEPENDENT EVALUATOR

Procurement for an evaluation contractor to assist the State in executing its 1115 demonstration evaluation plan was accomplished pursuant to the State of Alabama procurement guidelines with resulting agreement contingent upon approval from Alabama's Governor. The State retains responsibility for monitoring the demonstration activities and providing oversight of the evaluation design and overall approach for the contractor. To mitigate any potential conflict of interest, the evaluation contractor is responsible for:

- Conducting an evaluation compliant with all requirements specified in the demonstration's Special Terms and Conditions
- Developing the evaluation design;
- Leading the implementation of the evaluation and the evaluation itself;
- Conducting all analysis of the evaluation results in compliance with CMS timelines and deliverables;
- Ensuring the validity, reproducibility, and interpretation of the results;
- Collaborating with AMA through the implementation of the waiver and the duration of all evaluation activities; and
- Producing evaluation reports.

As part of the focused independent evaluation, the evaluator is responsible for final measure selection, identifying, if viable, other State systems that may serve as comparisons, conducting all data analysis, measuring change over time, and developing sensitivity models as necessary to address study questions.

The State issued one procurement for all evaluation activities and the production of required CMS reports. As the successful bidder, Public Consulting Group (PCG) demonstrated the following qualifications:

- Provision of an Evaluation Design Plan, inclusive of an initial logic model and evaluation timeline that reflects the evaluation deliverables and deadlines required by CMS.
- An ability to comply with CMS' evaluation requirements, including proposed evaluation methods for measuring the impacts and goals of the SMI waiver program;
- A cost proposal that included all proposed costs through 2028;
- A staffing plan that identified who would be responsible for the project components and who would be the project manager and point of contact for AMA;
- A proposed project management and communication approach that met the requirements set forth by AMA; and
- Prior experience with similar evaluations.

Consistent with the requirements of 42 CFR § 431.420, AMA selected and retained PCG as an independent evaluator to complete the independent evaluation of the demonstration required under 42 CFR § 431.424. AMA utilized the State of Alabama's procurement process to contract with this evaluator and promote an independent evaluation, through the general requirements for each state contractor as well as project-specific standards. AMA Procurement staff worked with the evaluator to identify and address concerns that might arise during the administration of the contract. By requiring initial satisfaction of these standards by the contracting party in order to be awarded the contract, as well as ongoing maintenance of the requirements during the term of service, AMA is in a position to receive an objective evaluation report that is the product of a fair, impartial, and conflict-free evaluation.

PUBLIC CONSULTING GROUP

Independent Evaluator No Conflict of Interest Statement

Before responding to any RFP or other opportunity, PCG conducts a conflict check. The check matches the potential services in the RFP against a database of all current and recent consulting and operations contracts performed by PCG and its employees, both in the RFP subject state and nationally. This conflict check includes determining if any employees associated with the potential project are former employees of the client or other stakeholder groups.

PCG does not submit proposals in cases where, in its judgment, the potential for conflict is beyond the limits of reasonable accommodations, which would otherwise not impair our ability to perform services to the satisfaction of a prospective client.

PCG applied this same protocol to the Alabama Medicaid Agency Serious Mental Illness procurement for an independent evaluator, with the resulting conclusion that the operation of this project will not create conflicts of interests.

Signed by: Aaron Holman, Manager

Signed on: 1/20/2023

Signature:

2. EVALUATION BUDGET

The estimated average budget for each year of the evaluation is $173,286.41. Qualitative and quantitative data collection and analysis represent a combined 25% of the budget and report generation represents 50% of the budget. Yearly fluctuations in actual expenses are anticipated based on the timing of deliverables and data collection activities.

Annual Total Estimated Cost		
Evaluation Activity	**Annually**	**% of Total**
Project Management	19,061.51	11%
Evaluation Design	24,260.10	14%
Key Informant Interviews, Data Collection, Cleaning and Analysis	8,664.32	5%
Quantitative Data-Collection, Cleaning and Analysis	34,657.28	20%
Midpoint Assessment Report Generation	25,992.96	15%
Interim Evaluation Report Generation	25,992.96	15%
Summative Evaluation Report Generation	34,657.28	20%
Annual Total	**173,286.41**	100%

FIGURE 7. ALABAMA SMI DEMONSTRATION EVALUATION BUDGET

3. TIMELINE AND MAJOR MILESTONES

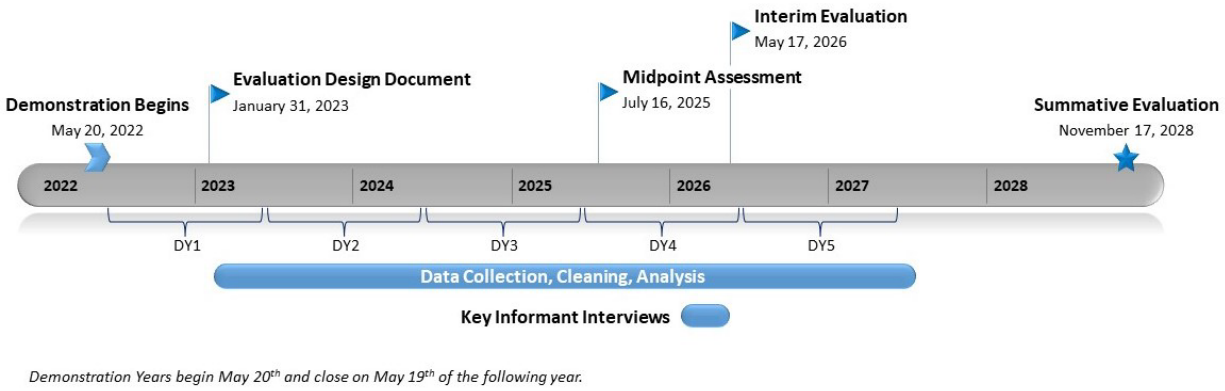

FIGURE 8. HIGH-LEVEL EVALUATION TIMELINE AND MAJOR MILESTONES

The demonstration began on May 20, 2022, and will conclude at the close of DY5 on May 19, 2027. The first major milestone is the State's submission of this document, the Draft Evaluation Design Document, to CMS on January 31, 2023. Data collection, cleaning and analysis activities take place throughout the majority of the demonstration period. Key Informant Interviews will be conducted from the fall to early winter of 2027. The results are documented in three reports, the submission of which constitute the remaining major evaluation milestones: the Midpoint Assessment, the Interim Evaluation, and the Summative Evaluation. The timeline for these deliverables is outlined in the demonstrations approved Special Terms and Conditions and shown in the figure above.

The cadence of evaluation report writing will follow the same pattern across all the three reports:

- PCG submits a draft report to AMA at least 30 days in advance of the CMS due dates.
- AMA conducts internal reviews and provides comments to PCG.

- Once the details of the report are endorsed by AMA, PCG completes any final edits and returns the final document to AMA at least 14 days prior to the CMS due date.

If CMS provides comments on a report which require a response, these steps will take place:

- Within 30 days of receipt of CMS comments, PCG prepares a response, including a revised report if applicable, and submits to AMA for internal review.
- AMA conducts internal review of the response and provides comments to PCG.
- Within 45 days of receipt of CMS comments, PCG completes any final edits and returns the response documents to AMA.
- Within 60 days of receipt of CMS comments, the State submits the response to CMS.

4. EVALUATION TABLE

AL Evaluation Design Table: SMI Waiver Demonstration				
Comparison Strategy	**Measure Name (Steward)**	**Measure Definition**	**Data source**	**Analytic Approach, Summative Report**
Hypothesis 1: The waiver will increase access to short-term stays in IMDs for adult Medicaid beneficiaries with an SMI diagnosis in the southwest region of Alabama.				
Primary research question 1.1: Did the number of acute care short-term stays in IMDs for adult Medicaid beneficiaries with an SMI diagnosis increase in the southwest region of Alabama?				
Demonstration period compared to Pre-demonstration baseline; Southwestern region compared to state	IMD stays (AMA)	IMD admissions (number of beneficiaries in the demonstration population who have a claim for inpatient or residential treatment for mental health in an IMD during the reporting year) Average length of stay in IMD (ALOS) among short-term stays (less than or equal to 60 days) for beneficiaries with SMI discharged from an inpatient or residential stay in an IMD	Claims Data (Annual)	Descriptive statistics, trend over time
Primary research question 1.2: Did the waiver improve access to appropriate care for adult Medicaid beneficiaries with an SMI diagnosis in the southwest region of Alabama?				
NA	Access	Qualitative perceptions of access to care	Key informant interviews	Qualitative analysis
Hypothesis 2: The waiver will increase utilization of crisis stabilization services, intensive outpatient services and partial hospitalization services for adult Medicaid beneficiaries with an SMI diagnosis.				
Primary research question 2.1: Did the number of beneficiaries receiving crisis stabilization services increase?				
Demonstration period compared to Pre-demonstration baseline; Southwestern region compared to state	Crisis stabilization services (AMA)	Number of individuals receiving services	Claims (Annual)	Descriptive statistics, trend over time (MY1 - MY5)

Primary research question 2.2: Did the number of beneficiaries receiving intensive outpatient services increase?				
Demonstration period compared to Pre-demonstration baseline; Southwestern region compared to state	Intensive Outpatient Services (AMA)	Number of beneficiaries in the demonstration population who used intensive outpatient services related to mental health during the measurement period	Claims (Annual)	Descriptive statistics, trend over time (MY1 - MY5)
Primary research question 2.3: Did the number of beneficiaries receiving partial hospitalization services increase?				
Demonstration period compared to Pre-demonstration baseline; Southwestern region compared to state	Partial hospitalization services (AMA)	Number of beneficiaries in the demonstration population who used partial hospitalization services related to mental health during the measurement period	Claims (Annual)	Descriptive statistics, trend over time (MY1 - MY5)
Hypothesis 3: The waiver will improve care coordination and follow up after an ED visit or inpatient stay.				
Primary research question 3.1: Did the rate of follow up after ED visits increase?				
Demonstration period compared to Pre-demonstration baseline; Southwestern region compared to state	Follow-Up After Emergency Department Visit for Mental Illness: Age 21-64 (FUM-AD)	Percentage of emergency department (ED) visits for beneficiaries ages 21-64 with a primary diagnosis of mental illness or intentional self-harm and who had a follow-up visit for mental illness. Two rates are reported: • Percentage of ED visits for mental illness for which the beneficiary received follow-up within 30 days of the ED visit (Numerator: Number of adult beneficiaries who had a follow-up visit with a mental health provider within 30 days of the ER visit for mental illness or intentional self-harm) • Percentage of ED visits for mental illness for which the beneficiary received follow-up within 7 days of	Claims (Annual)	Descriptive statistics, trend over time (MY1 - MY5)

		the ED visit (Numerator: Number of adult beneficiaries who had a follow-up visit with a mental health provider within 7 days of the ER visit for mental illness or intentional self-harm) Denominator (for both rates): Number of adult beneficiaries who were visited the ER for treatment of selected mental illness or intentional self-harm diagnoses		
Primary research question 3.2: Did the rate of follow up after inpatient stays increase?				
Demonstration period compared to Pre-demonstration baseline; Southwestern region compared to state	Follow-up After Hospitalization for Mental Illness: Age 21-64 (FUH-AD)	Percentage of discharges for beneficiaries ages 21-64 who were hospitalized for treatment of selected mental illness or intentional self-harm diagnoses and who had a follow-up visit with a mental health provider. <u>Two rates are reported:</u> • Percentage of discharges for which the beneficiary received follow-up within 30 days after discharge (Numerator: Number of adult beneficiaries who had a follow-up visit with a mental health provider within 30 days of discharge for mental illness or intentional self-harm) • Percentage of discharges for which the beneficiary received follow-up within 7 days after discharge (Numerator: Number of adult beneficiaries who had a follow-up visit with a mental health provider within 7 days of discharge for mental illness or intentional self-harm)	Claims (Annual)	Descriptive statistics, trend over time (MY1 - MY5)

		Denominator (for both rates): Number of adult beneficiaries who were hospitalized for treatment of selected mental illness or intentional self-harm diagnoses		
Primary research question 3.3: Did the rate of medication continuance after inpatient stays increase?				
Demonstration period compared to Pre-demonstration baseline; Southwestern region compared to state	Medication Continuation Following Inpatient Psychiatric Discharge (AMA)	Percentage of psychiatric patients admitted to an inpatient psychiatric facility (IPF) for major depressive disorder (MDD), schizophrenia, or bipolar disorder who filled a prescription for evidence-based medication within 2 days prior to discharge and 30 days post-discharge. Numerator: Number of psychiatric patients admitted to an inpatient facility for MDD, schizophrenia, or bipolar disorder who filled a prescription within 2 days prior to discharge and 30 days post-discharge Denominator: Number of	Claims (Annual)	Descriptive statistics, trend over time (MY1 - MY5)

		psychiatric patients admitted to an inpatient psychiatric facility (IPF) for MDD, schizophrenia, or bipolar disorder		
Primary research question 3.4: Did referrals and overall care coordination improve for individuals with SMI?				
NA	Care coordination	Qualitative perceptions of care coordination and referral processes	Key informant interviews	Qualitative analysis
Hypothesis 4: The demonstration will increase the number of Medicaid beneficiaries receiving treatment for mental health conditions and reduce unmet needs for mental health treatment.				
Primary research question 4.1: Did the rate of Medicaid beneficiaries receiving treatment for mental health conditions increase in AL, compared to control states?				
Alabama compared to national trends and comparison states	SMI treatment (NSDUH)	Percentage who report receiving SMI treatment in the last 12 months Numerator: Number of survey respondents indicating receiving treatment for SMI in the last 12 months Denominator: Total number of survey respondents	NSDUH (Annual)	Difference -in -difference; Synthetic Control Model
Primary research question 4.2: Did the prevalence of unmet needs for mental health treatment decrease in AL, compared to control states?				
Alabama compared to national trends and comparison states	Unmet need for treatment (NSDUH)	Percentage who report needing, but not receiving, SMI treatment in the last 12 months Numerator: Number of survey respondents indicating they were unable to receive needed SMI treatment in the last 12 months Denominator: Total number of survey respondents who report needing SMI treatment	NSDUH (Annual)	Difference -in -difference; Synthetic Control Model
Hypothesis 5: The waiver will reduce the number of preventable readmissions to acute care hospitals and residential settings.				
Primary research question 5.1: Did the rate of readmissions following psychiatric hospitalization decrease?				

Demonstration period compared to Pre-demonstration baseline; Southwestern region compared to state	30-Day All-Cause Unplanned Readmission Following Psychiatric Hospitalization in an Inpatient Psychiatric Facility (IPF)	The rate of unplanned, 30-day, readmission for demonstration beneficiaries with a primary discharge diagnosis of a psychiatric disorder or dementia/Alzheimer's disease. Numerator: Number of adult beneficiaries with a primary discharge diagnosis of a psychiatric disorder or dementia/Alzheimer's disease that were readmitted within 30 days of hospitalization in an IPF Denominator: Number of adult beneficiaries with a primary discharge diagnosis of a psychiatric disorder or dementia/Alzheimer's disease	Claims (Annual)	Interrupted time series; Multiple Linear Regression (MY1 – MY5)
Hypothesis 6: The waiver will decrease the number of stays, and length of stays, in EDs for adult Medicaid beneficiaries with an SMI diagnosis in the southwest region of Alabama.				
Primary research question 6.1: Did the number of stays in EDs for adult Medicaid beneficiaries with an SMI diagnosis in the southwest region of Alabama decrease?				
Demonstration period compared to Pre-demonstration baseline; Southwestern region compared to state	ED visits (EDU)	The rate per 1,000 of beneficiaries in the demonstration population who had emergency department (ED) visits during the measurement year. Numerator: The number of observed ED visits in the adult demonstration population Denominator: The number adult beneficiaries in the demonstration population	Claims Data (Annual)	Interrupted time series; Multiple Linear Regression (MY1 – MY5)
Primary research question 6.2: Did the length of stays in EDs for adult Medicaid beneficiaries with an SMI diagnosis in the southwest region of Alabama decrease?				

NA	EDU Visit Duration	Qualitative perceptions of stay in ED	Key informant interviews	Qualitative analysis
Primary research question 6.3: Did patient experience in the ED improve?				
Demonstration period compared to Pre-demonstration baseline; Southwestern region compared to state	Patient satisfaction (CAHPS)	Self-report survey response	CAHPS survey (Annual)	Descriptive statistics, trend over time (MY1-MY5)
Hypothesis 7: The waiver will reduce non-SMI costs for individuals with an SMI diagnosis in the southwest region of Alabama.				
Primary research question 7.1: Did total costs (dollars per beneficiary per month (PBPM)) for individuals with an SMI diagnosis in the southwest region of Alabama decrease?				
Demonstration period compared to Pre-demonstration baseline; Southwestern region compared to state	Total Costs Associated With All Services Among Beneficiaries With SMI/SED	Total costs for beneficiaries with an SMI diagnosis Numerator: Total costs for all individuals with SMI diagnosis Denominator: Number of beneficiaries with SMI	Claims Data (Annual)	Descriptive statistics, trend over time, multiple linear regression and ITS (MY1- MY5)
Primary research question 7.2: Did cost per member for SMI treatment (dollars per beneficiary per month (PBPM)) for individuals with an SMI diagnosis in the southwest region of Alabama change?				
Demonstration period compared to Pre-demonstration baseline; Southwestern region compared to state	Per Member Costs Associated With SMI Services Among Beneficiaries With SMI/SED	Per member cost for SMI treatment for beneficiaries with an SMI diagnosis Numerator: Total cost for SMI treatment for beneficiaries with an SMI diagnosis Denominator: Number of beneficiaries with an SMI diagnosis	Claims (Annual)	Descriptive statistics, trend over time, multiple linear regression and ITS (MY1- MY5)
Subsidiary Research Question 7.2a: What was the cost of IMD treatment for SMI services (in dollars per beneficiary per month (PBPM)) for individuals with an SMI diagnosis?				

Demonstration period compared to Pre-demonstration baseline; Southwestern region compared to state	Cost of IMD treatment for SMI services	Cost of IMD treatment for SMI services in beneficiaries with an SMI diagnosis (proportion) Numerator: Cost of IMD treatment only for SMI services in beneficiaries with an SMI diagnosis Denominator: Cost of all SMI services in beneficiaries with an SMI diagnosis	Claims (Annual)	Descriptive statistics, trend over time, multiple linear regression and ITS (MY1- MY5)
Subsidiary Research Question 7.2b: Did the cost of non-IMD inpatient treatment for SMI services (in dollars per beneficiary per month (PBPM)) for individuals with an SMI diagnosis change?				
Demonstration period compared to Pre-demonstration baseline; Southwestern region compared to state	Cost of non-IMD inpatient treatment for SMI services	Cost of non-IMD inpatient treatment for SMI services in beneficiaries with an SMI diagnosis (proportion) Numerator: Cost of non-IMD inpatient treatment for SMI services in beneficiaries with an SMI diagnosis Denominator: Cost of all SMI services in beneficiaries with an SMI diagnosis	Claims (Annual)	Descriptive statistics, trend over time, multiple linear regression and ITS (MY1- MY5)
Subsidiary Research Question 7.2c: Did the cost of outpatient SMI treatment for SMI services (in dollars per beneficiary per month (PBPM)) for individuals with an SMI diagnosis change?				
Demonstration period compared to Pre-demonstration baseline; Southwestern region compared to state	Cost of outpatient SMI treatment for SMI services	Cost of outpatient SMI treatment for SMI services (proportion) Numerator: Cost of outpatient SMI treatment for SMI services Denominator: Cost of all SMI services in beneficiaries with an SMI diagnosis	Claims (Annual)	Descriptive statistics, trend over time, multiple linear regression and ITS (MY1- MY5)
Primary research question 7.3: Primary research question 7.3: Did non-SMI cost per member (dollars per beneficiary per month (PBPM)) for individuals with an SMI diagnosis in the southwest region of Alabama decrease?				

Demonstration period compared to Pre-demonstration baseline; Southwestern region compared to state	Per Member Costs Associated With Non-SMI Services Among Beneficiaries With SMI/SED	Per member cost for non-SMI services for beneficiaries with an SMI diagnosis Numerator: Total cost for non-SMI treatment for beneficiaries with an SMI diagnosis Denominator: Number of beneficiaries with an SMI diagnosis	Claims (Annual)	Descriptive statistics, trend over time, multiple linear regression and ITS (MY1- MY5)
Subsidiary Research Question 7.3a: Did the non-SMI inpatient cost per member (in dollars per beneficiary per month (PBPM)) for individuals with an SMI diagnosis decrease (excluding IMD treatment)?				
Demonstration period compared to Pre-demonstration baseline; Southwestern region compared to state	Cost of inpatient treatment (excluding IMDs) for non-SMI services	Cost of inpatient treatment for non-SMI services among beneficiaries with an SMI diagnosis Numerator: Total cost for non-SMI treatment for beneficiaries with an SMI diagnosis Denominator: Number of beneficiaries with an SMI diagnosis	Claims (Annual)	Descriptive statistics, trend over time, multiple linear regression and ITS (MY1- MY5)
Subsidiary Research Question 7.3b: Did the non-SMI outpatient cost per member (in dollars per beneficiary per month (PBPM)) for individuals with an SMI diagnosis decrease?				
Demonstration period compared to Pre-demonstration baseline; Southwestern region compared to state	Cost of outpatient treatment for non-SMI services	Cost of outpatient treatment for non-SMI services among beneficiaries with an SMI diagnosis Numerator: Cost of outpatient treatment for non-SMI services in beneficiaries with an SMI diagnosis Denominator: Number of beneficiaries with an SMI diagnosis	Claims (Annual)	Descriptive statistics, trend over time, multiple linear regression and ITS (MY1- MY5)

FIGURE 9. EVALUATION DESIGN TABLE