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# A coordinated AOT model to address behavioral health disparities through social determinants of health: A case study

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**ABSTRACT**

Fragmented service delivery across behavioral health, physical health, and justice systems often leads to poor outcomes for individuals with serious mental illness. This case study describes a community mental health (CMH) program in the southwest region of State of Michigan–implemented an integrated assisted outpatient treatment (AOT) model supported by a four-year substance abuse and mental health services administration grant. The multidisciplinary team provided intensive case management, psychiatric services, peer support, and health care advocacy to individuals under AOT court orders, prioritizing those with high service utilization. Standardized tools, including the brief psychiatric rating scale, patient health questionnaire-9, and generalized anxiety disorder-7, were used to assess clinical outcomes, while social determinants of health (SDOH) such as housing, food security, transportation and social connectedness were incorporated into treatment planning. Results showed substantial improvements: psychiatric inpatient days decreased by 81.5% (from 768 to 142 days), arrests dropped to zero (from 12 at baseline; 100% reduction), 82.6% of participants (n = 38/N = 46) maintained stable housing, and 89.5% (n = 41/46) adhered to medication adherence protocols. The program fostered formal partnerships with legal and healthcare entities to improve cross-sector coordination and continuity of care. Although the findings of this study are promising, the descriptive case study design necessitates cautious interpretation, as conclusions must be considered within the inherent limitations of the methodology. These findings support the value of integrated, SDOH-informed care models in reducing high-cost service use and improving outcomes for individuals with complex behavioral health needs. Future efforts should enhance data collection, family engagement, and quality-of-life measurement to further strengthen system impact.

**Keywords:** assisted outpatient treatment, AOT, community mental health, CMH, social determinants of health, SDOH, health equity, health disparities, integrated care

## INTRODUCTION

Serious mental illness (SMI) remains a significant public health challenge, with individuals often experiencing cyclical hospitalization, incarceration, and homelessness due to fragmented care systems and limited community-based support [1]. Nationally, about 20-25% of adults experiencing homelessness live with SMI [2], and an estimated 15-20% of jail inmates meet criteria for SMI [3]. Substance abuse and mental health services administration (SAMHSA) reports that nearly 44% of individuals in jail and 37% in prison have *a mental illness* of any severity [4]. Assisted outpatient treatment (AOT) is a legal mechanism designed to address this cycle by mandating outpatient psychiatric treatment for individuals with SMI who have demonstrated difficulty engaging voluntarily in services. Grounded in civil court oversight, AOT programs aim to enhance treatment adherence, reduce acute service utilization, and improve overall outcomes for individuals at high risk of psychiatric crises.

AOT is a legal process that allows courts to order individuals with SMI to adhere to outpatient treatment plans while living in the community. It is designed for individuals who, due to their mental illness and history of treatment noncompliance, are unlikely to survive safely without supervision. The legal foundation for AOT is primarily found in state laws, with New York's Kendra's law (enacted in 1999) serving as a prominent model. Codified in New York mental hygiene law § 9.60, Kendra's law permits court-ordered outpatient treatment for individuals with a history of hospitalizations, incarcerations, or dangerous behavior resulting from untreated mental illness (New York mental hygiene law § 9.60). At the federal level, the 21st century cures act of 2016 supports AOT by authorizing grants through the SAMHSA for state programs. Specifically, section 9016 of the Act provides funding for AOT implementation and expansion across the country (public law no: 114-255, § 9016). This federal support is codified in 42 US code § 290bb-36d, which outlines the criteria and funding mechanisms for AOT initiatives administered by SAMHSA (42 US code § 290bb-36d). Together, these legal frameworks provide a comprehensive basis for states to implement AOT programs aimed at improving public safety, reducing hospitalizations, and supporting individuals with chronic mental illness in the community.

Social determinants of health (SDOH) are critically important in shaping mental health outcomes because they

encompass the conditions in which people are born, grow, live, work, and age–factors that profoundly influence psychological well-being and access to care. To align with study focus, disparities emphasized here include housing stability, food access, transportation, and justice involvement. These determinants encompass economic stability (e.g., job insecurity, legal involvement, limited housing options, and food insecurity), social and community context, and access to health care and reliable transportation. For example, individuals living in poverty or unstable housing situations are more likely to experience chronic stress, trauma, and limited access to mental health services, all of which contribute to a higher risk of developing mental health conditions [5, 6]. Similarly, lower educational attainment can reduce health literacy, limiting one's ability to seek or understand treatment options [7]. Discrimination, social isolation, and community violence can further compound emotional distress and contribute to long-term mental health challenges. In contrast, supportive environments, stable employment, strong community networks, and access to culturally competent care can serve as protective factors that promote resilience and recovery [8]. Addressing SDOH is therefore essential not only for preventing mental illness but also for achieving equitable mental health outcomes across populations through upstream, multisectoral action [9].

The integration of AOT with SDOH-informed care is rooted in the recognition that mental health outcomes are shaped not only by clinical factors but also by broader social and structural influences [10, 11]. AOT offers a legal and clinical framework to ensure adherence to treatment for individuals with SMI, especially those with histories of hospitalization or treatment noncompliance. However, without addressing the underlying social and environmental conditions that contribute to mental health instability–such as homelessness, unemployment, food insecurity, or social isolation–AOT alone may be insufficient for sustainable recovery.

While AOT has demonstrated effectiveness in stabilizing clinical symptoms and reducing hospitalizations [12], it often operates independently of broader public health strategies that address the SDOH–the non-clinical factors such as housing stability, food security, income, education, and social support that profoundly shape health trajectories [5, 13]. For individuals with SMI, unmet social needs can be both a cause and consequence of mental health crises, creating a vicious cycle that legal interventions alone cannot break [8, 9, 14].

Integrating SDOH-focused strategies into AOT programming offers a promising path forward. By addressing both clinical and structural determinants of health through a coordinated, community-based approach, service systems can more effectively promote recovery, autonomy, and community reintegration. Integrated models ensure that individuals under AOT receive not just mandated care, but also supportive, person-centered services that address the root causes of mental health deterioration. Ultimately, this leads to more humane, effective, and sustainable treatment systems that align with principles of recovery and public health [15, 16].

Prior to the implementation of the integrated intervention model, service delivery across key community systems operated largely in silos. Stakeholders such as the county jail, community corrections programs, probate court, physical health care providers, and emergency departments functioned independently, with limited or no cross-sector communication or collaboration. Although individual programs routinely identified client needs–including access to housing, food security, transportation needs, medical care, and social support–these concerns rarely triggered coordinated responses with community-based providers. Consequently, efforts remained fragmented, and critical service gaps emerged. For example, jail and corrections staff were often unaware of available outpatient behavioral health supports, while emergency department personnel lacked knowledge of community housing initiatives or case management programs. This systemic disconnect hindered both advocacy efforts and the continuity of care. The absence of shared infrastructure or collaborative protocols contributed to inefficiencies, duplicated efforts, and suboptimal outcomes for individuals navigating multiple complex systems.

To enhance service delivery and improve outcomes for individuals with complex behavioral health needs, an integrated team model was proposed to facilitate coordination among behavioral health, physical health, and justice system stakeholders. This model emphasized regular interdisciplinary case review meetings designed to identify service gaps and promote continuity of care. These meetings enabled collaborative treatment planning and timely information-sharing across sectors such as outpatient therapy, primary care, medication management, and legal supervision. Within this coordinated framework, client care plans were expanded to systematically incorporate SDOH, including housing stability, food security, transportation, and access to supportive relationships. In addition, formal partnerships were developed with institutional stakeholders to uphold high standards of clinical practice and service quality. These efforts were aimed at reducing fragmentation and ensure that services were both comprehensive and responsive to the full spectrum of client needs.

This manuscript presents a case study of a dedicated service program that combines AOT with a comprehensive SDOH intervention model. The program, implemented in Calhoun County (MI) leverages multidisciplinary care teams, strong community partnerships, and client-centered planning to deliver wraparound services. The program was made possible through a four-year grant from the SAMHSA.

## METHODS

The community mental health (CMH) program serving Calhoun County (MI) developed and implemented an AOT program supported by a four-year grant from the SAMHSA [12, 17]. The primary objective of this initiative was to establish a dedicated multidisciplinary team tasked with delivering comprehensive care to individuals under court-ordered AOT–a model consistent with national SAMHSA demonstration program guidance and best practices in community behavioral health integration [17].

The program's core clinical team comprised two care managers, one health care advocate, and a peer support specialist. This structure reflects evidence indicating that small, multidisciplinary teams promote continuity, engagement, and reduced hospitalization rates for individuals with SMI. The team was designed to serve between 40 and 50 clients, prioritizing those with the highest behavioral health needs to ensure targeted and intensive intervention–a caseload ratio supported by prior AOT demonstration projects and CMH best-practice guidelines [12, 17, 18].

### Evaluation and Tools

A combination of standardized instruments and clinical assessments was used to evaluate participant outcomes throughout the study. The brief psychiatric rating scale (BPRS) [19] was introduced in the second year and administered monthly to assess changes in psychiatric symptoms. The patient health questionnaire-9 (PHQ-9) was administered monthly to all participants. For participants with a documented anxiety disorder, the generalized anxiety disorder-7 (GAD-7) [20] was administered monthly as needed. In addition, clinicians conducted a comprehensive biopsychosocial assessment to inform treatment planning.

### Study Design

The current study employed a descriptive case study design without the use of a control group. Participant enrollment was ongoing throughout the study period which occurred between August 2020 and July of 2024. Throughout the course of the study participants were accepted as criteria for inclusion were met based on criteria outlined within participants' section. Results of the study were based on continuous ongoing monitoring at the intervals noted within the evaluation and tools section above.

### Intervention

The minimum suite of services included case management, peer support, health care advocacy, and psychiatric medical services. Case management involved coordinating care across multiple providers and resources with contact at least monthly and ideally biweekly. Peer support services were typically delivered weekly to foster engagement and empowerment. Health care advocacy assisted individuals in navigating the healthcare system and addressing barriers to access. Psychiatric medical services, including medication management and clinical evaluations, were provided at least quarterly, with additional assessments as needed. Additional services included community living support, outpatient therapy, nursing services, and substance use programming. From the second year forward, behavioral health screening tools were completed monthly. Weekly contact from a team member ensured ongoing engagement and timely response to needs. As part of evaluation, partnerships with Central Michigan University and Wayne State University supported outcome review and systems-level improvements, including development of standardized tools and navigation resources.

### Participants

Participants were adults residing in Calhoun County (MI), diagnosed with SMI, receiving case management and at least two behavioral health services, and with ≥ 2 psychiatric inpatient hospitalizations in the prior 24 months. All participants were under an AOT order at the point of enrollment within the study. Program referrals were processed through CMH access program and accepted based on capacity. All individuals requiring services received programming, though not all within the dedicated AOT team. Throughout the duration of the four-year study, a total of 46 participants (N = 46) engaged in the treatment program. Participant consent was obtained in accordance with the standards outlined in the SAMHSA program proposal. Consent for grant-related reporting was not a prerequisite for receiving services under the program. Because the study was descriptive in nature and results were reported in aggregate, no additional consent was required for inclusion in this evaluation.

## RESULTS

A fourth-year evaluation of the intervention revealed clinically and socially meaningful gains across multiple outcome domains. Criminal-legal involvement, monitored through participant self-report corroborated by the county jail services team, declined from 12 arrests in the 24 months prior to intervention to zero during the evaluation period (100% reduction). Acute psychiatric utilization also fell markedly: cumulative inpatient days decreased from 768 in the 24-month pre-intervention baseline to 142 during year 4–an 81.5% reduction. Despite the economic vulnerability of the cohort (≈ 50% reported annual income < US $5,000), 82.6% of participants (n = 38/46) maintained stable housing. Medication adherence remained robust, with 89.5% (n = 41/46) of clients meeting predefined adherence criteria verified through pharmacy refill coordination and self-report. Pre-treatment rates of medication adherence was not monitored and as a result is not available for comparison with treatment conditions. Symptom burden, assessed with the BPRS, PHQ-9, and GAD-7, indicated predominantly mild-to-minimal severity ranges at follow-up. Program infrastructure was strengthened by formal partnerships with Probate Court and an embedded, multi-sector care team that facilitated coordinated discharge planning and continuity of care. Although consumer and family perspectives were incorporated into select treatment plans, engagement of natural support remained limited, underscoring a priority area for future quality-improvement cycles. Overall, the findings support the intervention's potential to reduce high-cost service use and improve clinical stability among adults with SMI under AOT orders.

## CONCLUSION

The program outcomes demonstrate substantial strides in promoting health equity through the intentional integration of SDOH into care delivery. By embedding SDOH domains such as housing stability, food security, transportation needs and access to care into treatment planning, the intervention directly targeted structural barriers that disproportionately affect individuals with SMI, particularly those experiencing poverty or system involvement. Despite nearly half of participants reporting annual incomes below $5,000, over 82% achieved and maintained stable housing–an essential factor in mental health recovery and a key indicator of equitable service access. Medication adherence rates reached 89.5%, supported by health care advocacy and coordinated pharmacy access. The elimination of arrests and an 81.5% reduction in inpatient psychiatric days suggest diversion from high-cost, crisis-driven services toward stable, community-based care. These outcomes reflect a shift from reactive to preventive models of care that are person-centered and equity-focused. Furthermore, cross-sector partnerships with courts, hospitals, and housing services reduced fragmentation that often perpetuates inequity [21].

### Program Limitations

Although no formal quality of life (QoL) survey was administered during the study period, a social connectedness

survey was introduced in year four and social connectedness was measured, via self-report, within the scope of the annual psychosocial assessment. It is recommended that validated QoL instruments such as the DLA-20 be integrated into programs for future use. Physical and dental health access was supported through AOT monitoring ensuring primary care and pharmacy services; however, standardized health status metrics such as body mass index and vital signs were not systematically tracked to evaluate health outcomes. Insight into illness was assessed only through informal clinical observations, with no use of structured instruments like the schedule for the assessment of insight. Despite the critical importance of suicidal ideation and self-harm as outcome indicators, explicit tracking of these variables, through a structured tool, was absent. Due to lack of control group, causal relationships are not able to be demonstrated. As a result, findings in this study are subject to confounding factors such as selection bias and regression to the mean. Additional evaluation would benefit from greater control.

Furthermore, cost-benefit analysis was not conducted, leaving economic impact and cost-effectiveness unexamined. While some basic assumptions could be used to demonstrate financial benefits (e.g., reduction in hospital days a, reduction in jail days) a more refined evaluation would be required to substantiate claims or recommendations for a sustainable program model. Substance use frequency and impact were not distinctly measured in year four outcome data, and self-reported substance use was notably lacking.

### Recommendations for Programming

Replication of the AOT model is highly feasible, particularly within larger service systems that can support a dedicated, multidisciplinary team. AOT's structure–built around intensive coordination among behavioral health, physical health, and justice partners–requires a specialized team focused on continuity of care, proactive engagement, and integration of social services. The model aligns naturally with existing standards of care found in programs like certified community behavioral health clinics (CCBHCs) [22], making it suitable for broader implementation. Leveraging CCBHC infrastructure can offer both the operational structure and enhanced Medicaid funding needed for sustainability. To scale the model effectively, it is critical to standardize practices, utilize validated outcome measures, and build workforce capacity through ongoing training in integrated care delivery. Given AOT's court-mandated framework, it serves as a powerful tool for embedding SDOH screening and services systematically, ensuring that both behavioral health and social needs are addressed as part of treatment.

To promote the expansion and sustainability of AOT and similar integrated care efforts, supportive policy and funding mechanisms are essential. Embedding AOT and SDOH-targeted care within federal and state programmatic standards–particularly through CCBHC demonstration guidelines–can institutionalize integrated care as a core component of behavioral health systems. Policymakers should consider establishing dedicated, publicly funded roles–such as care coordinators or justice liaisons–to facilitate service integration, similar to the veteran coordinator role in CCBHC programs. Training in integrated care models and standards of practice should be required across behavioral health and justice systems to ensure fidelity and equity in service delivery. Courts should also be empowered to include SDOH-related needs as part of AOT oversight, using the "black robe effect" to ensure individuals receive support not only for clinical symptoms but also for housing, food security, transportation, and other structural challenges. Together, these policy strategies would reinforce AOT as a scalable, equity-focused approach to complex behavioral health care.

### Recommendations for Implementation and Sustainability

To enhance the effectiveness and sustainability of behavioral health interventions, it is essential to systematically integrate SDOH into both treatment planning and program evaluation. Core domains such as housing stability, income and employment, transportation access, food security, and social connectedness should be routinely assessed and addressed. For example, income source and stability can be included in standard assessments, while transportation barriers, missed appointments, and mobile service usage should be documented as part of routine care coordination. Social connectedness and isolation may be measured using brief surveys that assess the size and adequacy of support networks, frequency of social contact, and participation in community or faith-based organizations. Similarly, food and housing security can be evaluated through structured check-in questions and direct coordination with housing support staff.

A robust outcomes framework should be implemented to monitor both clinical and social progress over time. Recommended domains include arrests and jail days, psychiatric hospitalizations and length of stay, symptom severity, housing stability, medication adherence, substance use, QoL, crisis service utilization, employment, and engagement with natural support. These should be captured using a combination of administrative data, validated instruments (e.g., the BPRS, PHQ-9, GAD-7, and WHO-QoL-BREF), and self- or provider-reported tools, with assessments conducted monthly or quarterly depending on the domain. Outcome data should be routinely reviewed in collaborative meetings among clinical, administrative, and quality improvement staff to identify trends, disparities, and barriers–particularly those linked to SDOH–and to develop targeted action plans to improve care delivery.

Efforts to strengthen consumer engagement and incorporate natural support are also essential. Peer-led support groups and psychoeducation for families can improve client outcomes, while training clinical teams in strategies to engage informal support networks may enhance adherence and reduce service fragmentation [23, 24]. Incentives for completing assessments and soliciting participant and family feedback during program reviews can further improve data quality and inform individualized treatment. Cost-benefit analyses should also be embedded into program evaluation. Pre- and post-program comparisons of hospital days, jail time, and crisis encounters–combined with local cost data–can demonstrate potential savings. Employment and volunteer engagement may also be quantified to estimate gains in productivity and community participation.

Beyond program limitations, the inherent constraints of the case study design must be acknowledged. Case studies rely on context-specific, often small-sample data, which limits generalizability and introduces potential threats to internal and external validity [25]. Variability in data collection procedures, reliance on self-report, and the absence of control groups can affect reliability and causal inference [26]. Using case study methodology, it is therefore not possible to

conclude that embedding SDOH domains such as housing stability, food security, transportation needs, and access to care directly caused the outcomes reported in the current project. Instead, findings should be interpreted as exploratory evidence illustrating how integrated approaches can operate in real-world behavioral health systems [1, 27].

Research consistently shows that addressing SDOH is critical to improving mental health outcomes and reducing disparities. Factors such as housing instability, unemployment, and lack of social support are strongly associated with increased psychiatric hospitalizations, poor treatment adherence, and reduced QoL [1, 10]. Moreover, integrating SDOH into behavioral health care has been shown to improve recovery outcomes and promote sustained engagement in services [27]. Given this evidence, embedding SDOH as a core component of treatment is not only best practice–it is essential for ensuring equitable, effective, and person-centered care.

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**AI statement:** The authors stated that, during the preparation of this work, the authors used ChatGPT to assist with identification of research literature and refining language. The AI-generated content was thoroughly reviewed, edited, and approved by the authors, who take full responsibility for the final publication's accuracy and content.

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**Data sharing statement:** Data supporting the findings and conclusions are available upon request from the corresponding author.

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