



RESEARCH ARTICLE

# Mixed-Methods Evaluation of Continuous Improvement Efforts for a County Mental Health and Addiction Recovery Board

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## ABSTRACT

**Introduction:** Ohio has a behavioral health system of county operated and state-supervised boards that plan, fund, and evaluate mental health and addiction services. This research evaluates the continuous improvement initiatives at Stark County Mental Health and Addiction Recovery Board (StarkMHAR). We examined the following research questions: (1) Were the process improvement initiatives effective in moving the organization(s) toward its goals? (2) Were the productivity initiatives effective in improving productivity across the organizations? (3) Were the workforce development initiatives effective in moving the organization(s) toward its goals? (4) What was the impact of the leadership initiatives on those who participated?

**Methods:** A multifaceted mixed-methods evaluation was conducted from August 2020 to December 2023. We collected quantitative data over 4 state fiscal years (SFY) to measure process improvement, productivity, and workforce development. We used survey methods with open and closed-ended questions to evaluate leadership initiatives.

**Results:** The findings for the 4 focus areas are as follows: (1) Process Improvement: met the goal of reducing clinician documentation error to 3%; showed improvement in other measures but did not meet goals. (2) Productivity: met goals of increase show rate, increasing planned discharges by 2% per agency; some agencies met wait time goals. (3) Workforce Development: met 3 of the 4 goals; did not meet reducing staff turnover. (4) Leadership: participants responded very positively to leadership initiatives.

**Conclusion:** Results indicate that many of the initiatives were successful in moving the agency toward the goals. COVID-19 had a major impact on the continuous improvement efforts.

**Keywords:** Evaluation; Mixed-methods; Behavioral health; Continuous improvement; Outcomes

## INTRODUCTION

Mental health and substance use disorders are among the leading causes of disease burden and reduced health worldwide, significantly impacting individuals, families, and communities.<sup>1</sup> In the United States, approximately 22.8% of adults, equivalent to 57.8 million adults, are experiencing mental health disorders.<sup>1</sup> Despite the high prevalence rates and enduring consequences, mental health has historically received less public policy commitment and funding compared to other health issues.<sup>2</sup>

The State of Ohio oversees a system of 51 behavioral health authorities or boards.<sup>3</sup> County mental health and recovery boards are important in addressing the above listed challenges. These boards organize and fund community mental health and addiction services. They deliver policies and programs that meet the unique needs of their communities, ensuring access to care, promoting safety, and aiming to improve overall mental health outcomes.<sup>4</sup> Continuous quality improvement (CQI) programs in behavioral health are essential for enhancing the quality and





effectiveness of mental health services. Continuous quality improvement refers to an ongoing, practical approach that uses data to regularly evaluate and improve how care is delivered, with the goal of better meeting the needs of patients and strengthening overall service quality. Continuous improvement methodologies, such as plan-do-study-act (PDSA) cycles, Lean, and Six Sigma, are widely used in health care to enhance service quality.<sup>5,6</sup> Integrating program evaluation with CQI strategies can offer valuable insights for practitioners and policymakers seeking to improve mental health care delivery. Research suggests that implementing CQI can improve service delivery and program effectiveness in community substance use programs.<sup>7</sup> For instance, the Prompt Mental Health Care (PMHC) program in Norway, based on the CQI framework, has demonstrated improved customer satisfaction and compliance with guidelines.<sup>8</sup>

Additionally, utilization of CQI methods within federally qualified health center (FQHC) settings has proven to yield substantial improvements in both efficiency and access to behavioral health services. Maragakis and colleagues<sup>9</sup> conducted a case study that showed CQI interventions increased productivity and decreased patient no-shows at behavioral health centers. The case study was conducted at an FQHC and focused on 2 behavioral health externs. The authors implemented a quality improvement program that involved analyzing productivity and no-show rates over time. They created a process map to identify areas for improvement and implemented targeted interventions such as reductions in appointment times from 30 to 20 minutes and the introduction of reminder calls. The result was a mean increase in productivity from 0.85 to 1.52 patients per hour for one extern and from 0.82 to 1.22 patients per hour for another. For one of the externs, their number of no-shows decreased by 5%, which is direct evidence that the reminder calls work. This indicates that CQI processes establish a very important role in fostering organizational culture responsive to change, becoming proactive, and continually improving ways of providing services to meet changing patient needs.

Program evaluation is an important part of assessing the impact and effectiveness of mental health interventions.<sup>10</sup> Theories of change developed for complex workplace mental health interventions provide a framework for evaluating the outcomes of such programs and emphasize the importance of a systematic approach to evaluation.<sup>11</sup> Furthermore, integrating behavioral health into primary care services has been shown to address barriers to mental health services, highlighting the need for continued exploration of referral strategies and pathways emphasis on participation.<sup>12</sup>

Within this framework, the purpose of this study is to conduct a mixed-methods evaluation of ongoing improvement efforts for a county mental health and addiction recovery board with a focus on the impact of those efforts on service quality, delivery, and client outcomes.

## BACKGROUND

Stark County Mental Health and Addiction Recovery Board (StarkMHAR) in Ohio is charged with ensuring accessibility to publicly funded behavioral health programs to Stark County residents (population

374 000 in 2020). Behavioral health programs typically cover a range of services from prevention to treatment and recovery for mental health and substance use disorders.<sup>13</sup> The StarkMHAR was awarded a local multiyear multifoundation grant aimed at continuous improvement efforts. The 4 focus areas of the continuous improvement efforts were process improvement, productivity, workforce development, and leadership. The StarkMHAR implemented multiple initiatives (Table 1), targeted at specific goals for each improvement-focused area. To assess the impact of the initiatives in these focus areas, StarkMHAR established outcome-focused measures. These measures are designed to capture specific improvements or changes from pre-intervention and post-intervention. These interventions were applied systemwide with the focus on the largest agencies—referred to as “the Big 3.” This research evaluates how continuous improvement initiatives have promoted strategic system efficiency, workforce capacity, the efficiency of service delivery, and improved the quality of mental health and addiction services.<sup>7,9</sup>

In assessing the impact of the continuous improvement efforts, the evaluation team examined the following 4 research questions: (1) Were the process improvement initiatives effective in moving the organization(s) toward its goals? (2) Were the productivity initiatives effective in improving productivity across the organizations? (3) Were the workforce development initiatives effective in moving the organization(s) toward its goals? (4) What was the impact of the leadership initiatives on those who participated?

## METHODS

A multifaceted mixed-methods evaluation was conducted from August 2020 to December 2023 to assess the continuous improvement efforts of a county mental health and addiction recovery board. The evaluation incorporated both quantitative and qualitative data to assess progress across 4 key domains: process improvement, productivity, workforce development, and leadership. Based on responses to the online institutional review board review determination module at Kent State University, our project was determined to be exempt and did not meet the criteria of human subject research.

### Quantitative Data Collection and Analysis

Quantitative data were collected quarterly across 4 state fiscal years (SFY 2020 to 2023) to measure outcomes in process improvement, productivity, and workforce development. The focus areas and outcome indicators are displayed in Table 1.

#### Process Improvement

Data sources included pillar reports (insurance claims and payment data) and revenue cycle reports. Key performance indicators included 60 days cash-on-hand, reduced clinician documentation error rate (target: <3%), Medicaid Managed Care Organizations (MCO) claims denial rate (<3%), commercial payer denial rate (<5%), reduced accounts receivable (AR) >120 days (target: <15%), and increased systemwide Lean Six Sigma (LSS) certifications. The process improvement measures were applied only to Agency 2, except for the LSS certifications.

**Table 1. Stark Mental Health Addiction and Recovery Board Continuous Improvement Initiative Focus Areas**

Focus area	Initiative	Data source	Outcome indicators
Process improvement*	Application of Lean Six Sigma (LSS) DMAIC (Define, Measure, Analyze, Improve, and Control) Lean Six Sigma black belt training Fund LSS training and software cost	Pillar reports Revenue cycle reports 2020 to 2023	Cash-on-hand for 60 days Reduce clinician documentation error to 3% Claim denials to 3% or below for Medicaid Managed Care Organizations (MCO) and commercial denial to 5% Accounts receivable over 120 days to 15%. Increase Lean Six Sigma certifications systemwide
Productivity	Training and education for clinical staff focused on engagement and treatment planning. Funding to support appointment reminder systems. Implementation of medication therapy management (MTM) services.	Quarterly reports 2020 to 2023 Waitlist reports 2019 to 2023	Increase show rate to 80% Increase planned discharges by 2% per agency Reduce diagnostics assessment appointment wait time to same day systemwide Reduce psychiatric appointment wait time to 5 business days or less systemwide
Workforce Development	Implementation of retention incentives initiative (extra funding, training, and support) Funding for training and certifications	Retention reports 2020 to 2023 Gallup survey	Reduce staff turnover systemwide to 7% Increase number of licensed individuals by 20 Increase evidence-based practice (EBP) certification systemwide by 15 Improve employee engagement
Leadership	Leadership workshop and training to behavioral health system leaders and board leaders	Participant survey results	Leadership workshop participation across levels, agencies, and boards Leadership coaching participation

\*Outcome indicators are for Agency 2 only, with the exception of Lean Six Sigma certifications.

### Productivity

Quarterly reports were provided by StarkMHAR. Productivity indicators included show rate (target: 80%), increase in planned discharges (target: +2% per agency), and appointment wait times (target: same day for diagnostic assessments and <5 business days for psychiatric appointments).

### Workforce Development

Retention reports were provided by StarkMHAR. Workforce metrics included annual turnover rate (target: 7% systemwide), increases in the number of licensed professionals and certified peer supporters (+20 individuals), and an increase in evidence-based practice (EBP) certifications (+15 individuals). Additionally, Gallup employee satisfaction survey results were provided by StarkMHAR and were used to assess employee satisfaction.

Descriptive statistics (percentages) and year-over-year comparisons were used to evaluate performance across all metrics. No inferential statistical analysis was conducted. All quantitative analyses were performed using Microsoft Excel (version 14).

### Qualitative Data Collection and Analysis

Qualitative data were collected through open-ended and closed-ended survey questions to assess the leadership development initiatives. The authors developed surveys using Qualtrics survey software and administered to participants after their training in leadership workshops,

group coaching sessions, and individual coaching engagements. Table 2 presents a summary of leadership initiatives and participant feedback, which was thematically analyzed to identify common themes, perceived benefits, and areas for improvement. These qualitative findings provided context for interpreting the outcomes and assessing the overall impact of leadership development efforts.

## RESULTS

### Process Improvement

The first focus area of our study was process improvement. We analyzed various outcome measures from SFY 2020 to SFY 2023. The process improvement initiatives were exclusively applied to Agency 2 through the implementation of the Lean Six Sigma DMAIC (Define, Measure, Analyze, Improve, and Control) process. Results indicate that several process improvement interventions met grant goals at Agency 2 (see graphs in Appendix).

#### Clinician Document Error

The target for clinician documentation errors was set at 3%. Initially, in SFY 2019, the error rate was 14%. However, by August 2020, the error rate had decreased to below 1%, surpassing the target of 3% or lower. Since December 2022, the documentation error rate has consistently remained below 1%.



**Table 2. Summary of Leadership Initiatives and Emerging Leaders Training Feedback**

Aspect	Leadership Initiatives (2020)	Emerging Leaders Training (SFY2021–SFY2023)
Participants surveyed	70 surveyed 22 responses received 31% response rate	51 surveyed 43 responses received 84% response rate
Participation types	Attended all 3 components: 27% Workshops only: 27% Workshops + individual coaching: 18% Workshops + reunions: 14%	Group sessions only: 65% Both individual coaching and group sessions: 35%
Key improvements reported	Enhanced professional and personal development New ideas and strategies for agency growth Peer learning and shared challenges Tools for needs assessment, employee engagement, and change identification	Improvement in leadership skills 60%–92% found training extremely helpful in: time management navigating difficult conversations engagement and retention communication skills team leadership managing change
Suggestions for improvement from participants	Refresher course yearly Consistently scheduled activities should be offered Offer individual coaching Offer new structured topics	Have icebreaker at beginning Scripted role-playing for difficult conversations New ideas with a refresher course for leadership skills 6-12 months Assigned seating should be avoided to improve networking Headshot of each participant with an introduction

Abbreviations: SFY, state fiscal year

**Cash-on-Hand**

The target for cash-on-hand was set at 60 days. At the start of SFY 2020, the cash-on-hand was only 15 days. However, since April 2020, this measure has consistently exceeded the 60-day target. The measure for cash-on-hand to 60 days or more showed improvement from July (15 days) through March 2023 (64.4 days), with a high of 125 days in June 2021.

**Claim Denials**

We analyzed claim denial rates for Medicaid MCO and commercial insurance. The target denial rates were set at 3% for Medicaid MCO and 5% for commercial insurance. For Medicaid MCO, denial rates started at 9% in June 2019, increased to 16% in August 2020, and then remained below 5% until February 2022. From June 2022 to April 2023, the rate rose again, peaking at 26% in February 2023 before decreasing to 9% by April 2023. For commercial insurance, denial rates have been higher and more variable, ranging from a low of 6% to a high of 35% between October 2020 and April 2023.

**Accounts Receivable**

We analyzed the pillar reports for accounts receivable from SFY 2020 to SFY 2023. The target for accounts receivable was set at 15%. In SFY 2020, accounts receivable was 68%. Since then, it has been reduced from 68% to 37%, with several instances falling below 30%. Although the target has not been met, the rates have been steadily improving and were projected to reach the goal by February 2024 for Agency 2.

**Lean Six Sigma Course and Certifications Across the System**

The last process improvement goal was to increase the number of Black Belt certifications across the system. In SFY 2021, the Six Sigma Black Belt course was completed by 9 individuals, and 7 individuals completed the Green Belt course. By SFY 2023, Black Belt certification had been earned by 4 individuals, and 2 individuals had earned Green Belt certification.

**Productivity**

The second focus area of our study was productivity. We analyzed various outcome measures from SFY 2020 to SFY 2023. The productivity initiatives were applied to the Big 3 combined, including MTM services, and training and education of clinical staff focused on engagement and treatment planning. The MTM service is an appointment reminder system.

**Show Rate**

The first productivity measure aimed to increase the show rate to 80% across all agencies, which means clients keep 80% of their scheduled appointments. This goal was set prior to the discovery of data reporting issues, which will be reviewed in the discussion section. We analyzed the productivity reports from SFY 2020 to SFY 2023 that have biannual data reporting. At the beginning of SFY 2020, the show rates were as follows: Agency 1: 80%, Agency 2: 87%, Agency 3: 82%. Over time, the show rate of Agency 1 remained steady, while Agencies 2 and 3 had more than 80% show rate. By SFY 2022, all 3 agencies had met the target show rate of 80% with 1 agency surpassing that at 89% (see graphs in Appendix).



**Planned Discharges**

The second productivity goal was to increase planned discharges by 2% across the Big 3. We analyzed the quality assurance (QA) reports for planned discharges from SFY 2020 to SFY 2023. Planned discharges were reported quarterly in the QA reports. At the beginning of SFY 2020, planned discharges at Agency 1 were at 85% and remained stable throughout the period. For Agency 2, planned discharges improved significantly by 25% from SFY 2020 to SFY 2022, rising from 79% at the start of SFY 2020 to 99% by the end of SFY 2022, reaching 100% by SFY 2023. At Agency 3, planned discharges were 59% at the beginning of SFY 2020 and decreased slightly to 58% by the beginning of SFY 2023, with the rate remaining mostly steady except for 1 noticeable fluctuation.

**Diagnostic Assessment Average Waiting Time**

The third productivity measure aimed to schedule diagnostic assessment appointments on the same day and reduce waiting time to 0 across the Big 3. We analyzed the waitlists reports for waitlist time from SFY 2019 to SFY 2023. The average waiting days for diagnostic assessment at Agency 1 is 0 from SFY 2019 to SFY 2023. In contrast, the average waiting days at Agency 2 and Agency 3 (adults and adolescents) increased from SFY 2019 to SFY 2022. At the beginning of SFY 2018, the average waiting time at Agency 2 was 13 days. This was reduced to 6 days in SFY 2019 but then increased again to 16-20 days from SFY 2020 to SFY 2022, ending at 15 days in SFY 2023. At Agency 3, the average waiting time started at 4 days in SFY 2018, increased to 13-20 days from SFY 2019 through SFY 2022, and achieved the target of 0 waiting days by SFY 2023 for both adults and adolescents. Only Agency 1 consistently met the goal of 0 waiting days for same-day diagnostic assessments. Agency 3 reached this goal in SFY 2023 (Figure 1).

**Med/Som (Psychiatric) Average Waiting Time**

The third productivity measure aimed to reduce the average waiting time for Med/Som (psychiatric) appointments to less than 5 days across the Big 3. We analyzed the waitlist reports for psychiatric appointment average waiting time from SFY 2019 to SFY 2023. Med/Som average waiting times were reported monthly.

For Agency 1, the average waiting time was 16 days for SFY 2019. Wait times increased to 21-26 days for SFY 2020 to SFY 2021. Wait times decreased to 15-13 days for SFY 2022 to SFY 2023. For Agency 2, the Average waiting time ranged between 10-15 days. For Agency 3, the average wait time for serving adults ranged from 39 to 49 days during SFY 2019 to SFY 2022 and was reduced to 20 days in SFY 2022 to SFY 2023. For adolescents, the average wait time ranged from 35 to 54 days during SFY 2019 to SFY 2022 and decreased to 21 days in SFY 2022–2023. None of the Big 3 achieved the goal of reducing psychiatric appointment waiting times to less than 5 business days (Figure 2).

**Workforce Development**

The workforce development initiatives were implemented across the largest agencies and the other smaller agencies. The initiatives included additional licensing and training opportunities. The measures were employee turnover rate and employee engagement. We analyzed the systemwide retention reports from SFY 2020 to SFY 2023.

**Staff Turnover Rate**

The objective was to reduce the annual staff turnover rate to 7% for Agency 1, Agency 2, and Agency 3 with the ultimate goal of achieving systemwide reduction across all agencies, which includes the Big 3 and the other agencies. We analyzed the quarterly retention reports spanning SFY 2020 to SFY 2023, focusing on direct service staff, leadership staff, and all employee turnovers.

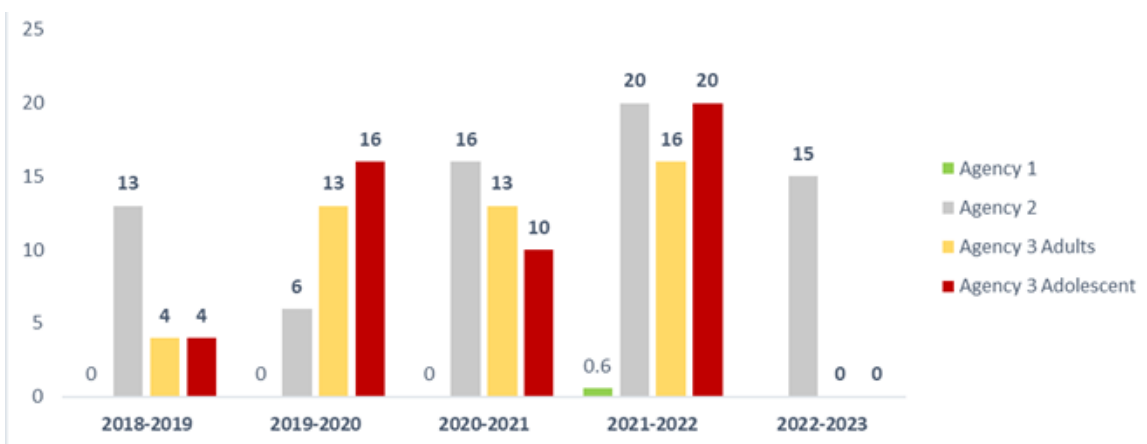
*Agency 1*

The annual employee turnover rate fluctuated between 29% and 45% from SFY 2020 to SFY 2023. The annual turnover rate for leaders ranged from 0% to 22%. The annual turnover rate for direct service staff fluctuated between 36% and 48% from SFY 2020 to SFY 2023.

*Agency 2*

The annual employee turnover rate varied from 25% to 33%, and the turnover rate for leaders fluctuated between 0% and 29% from SFY 2020 to SFY 2023. While the direct service staff rate ranged from 20% to 40%.

**Figure 1. Bar Chart of Average Waiting Days from State Fiscal Year (SFY) 2019 to SFY 2023 (Goal: Same Day Assessment)**





*Agency 3*

The annual employee turnover rate ranged from 30% to 56%, and the direct service staff rate is 34% from SFY 2022 to SFY 2023. The leadership turnover rate was 11% in SFY 2022 and 26% in SFY 2023.

*Big 3 Combined Annual Turnover Trends*

The total employee turnover rate was 47% in SFY 2020 and decreased to 32% in SFY 2023. The direct service staff turnover was 37% in SFY 2020 and reduced to 33% in SFY 2023. The annual leadership staff turnover was 0% in SFY 2020 and increased to 19% in SFY 2023.

*Systemwide Annual Turnover Rate*

The total employee turnover rate was 43% in SFY 2020 and reduced to 29% in SFY 2023 (see Appendix). The annual direct service staff turnover was 33% in SFY 2020 and reduced to 30% in SFY 2023. The annual leadership staff turnover was 2% in SFY 2020 and increased to 19% in SFY 2023.

*Increased Licensed Individuals*

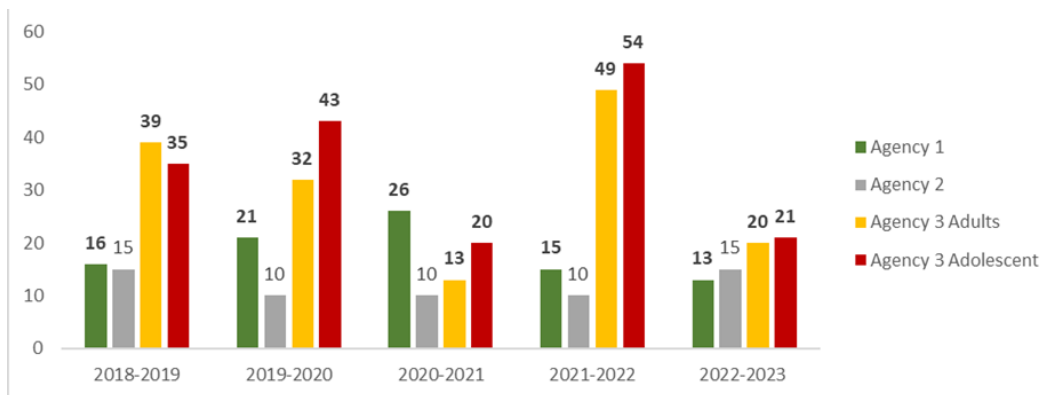
The objective was to increase the number of licensed individuals by 20 across all agencies systemwide, including the Big 3 and other agencies

(see Appendix). To achieve this goal, agencies implemented retention plans that included incentives and access to training. We analyzed the quarterly retention reports from SFY 2020 to SFY 2023, focusing on new additions of licensed individuals. Agency 1 had an increase of 10 licensed individuals. At Agencies 2 and 3, the number of licensed individuals decreased from SFY 2020 to SFY 2023. There was an overall increase of 31 licensed individuals systemwide. The breakdown of these licensed individuals from SFY 2022 to SFY 2023 is as follows: LISW (licensed independent social worker: 7, LSW (licensed social worker) to LISW: 2, LSW/MSW (Master of Social Work degree): 21, LPCC (licensed professional clinical counselor: 1 (Figure 3).

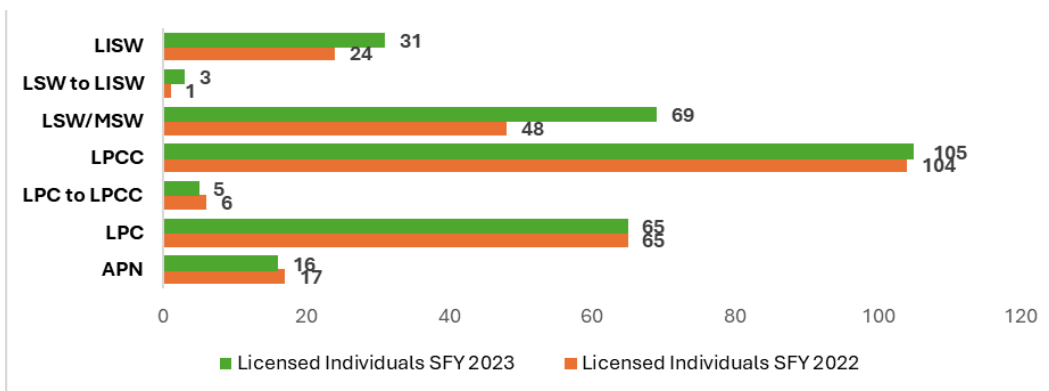
*Evidence-Based Practice (EBP) Certification*

The goal was to increase the number of EBP certifications among health care professionals systemwide by 15 individuals with new certifications. We analyzed quarterly reports from SFY 2020 to SFY 2023, focusing on new EBP certifications. In 2023, 18 new individuals earned EBP certification. As a result, the total number of certified individuals across the system reached 63.

**Figure 2. Bar Chart of Med/Som (Psychiatric) Average Waiting Days from State Fiscal Year (SFY) 2019 to SFY 2023 (Goal: 5 Days)**



**Figure 3. Bar Chart Comparison of Licensed Individuals from State Fiscal Year (SFY) 2022 to SFY 2023 (Goal: 20 Licensed Individuals)**



Abbreviations: LISW, licensed independent social worker; LSW, licensed social worker; MSW, Master of Social Work degree; LPCC, licensed professional clinical counselor; LPC, licensed professional counselor; APN; advanced practice nurse.



## Improvement in Employee Engagement

The objective was to increase employee engagement systemwide, measured using the nationally recognized Gallup Poll. Employee engagement surveys were administered in 2021 and again in 2023, comprising 12 questions related to job satisfaction, expectations, encouraging situations at work, and work relations. The 12 questions represent elements of employee engagement that have been consistently linked to better business outcomes. The questions include things like “I know what is expected of me at work” and “in the last seven days, I have received recognition or praise for doing good work.” Respondents rate the statement on a Likert scale ranging from strongly disagree to strongly agree.

In 2021, a total of 217 individuals responded to the survey. In 2023, the response count increased to 395 individuals. The 2023 survey results showed significant improvements in engagement, with 4 out of 12 questions achieving scores in the 75th to 89th percentile range. These high-percentile scores were for questions related to opportunities to excel at work, an encouraging work environment, and the sense of job importance. In comparison, the same questions were rated in the 50th to 74th percentile range in the 2021 survey. Higher percentile scores reflect stronger performance in these areas. The engagement index from the Gallup Poll showed an increase in employee engagement over time. In 2021, 40% of employees were classified as engaged, while this figure rose to 46% in 2023. Conversely, the percentage of employees who were not actively engaged decreased from 49% in 2021 to 44% in 2023. The demographics of the respondents were 79% female, 18% male, 80% White, 10% Black/African American, 2% Native American or Alaskan Native, and 8% did not report.

### Leadership

The training sessions for leadership initiatives targeted leaders from behavioral health systems and board members across various agencies in the service area. The evaluation team created a survey to gather feedback from workshop attendees. The surveys were administered through Qualtrics, an online platform. In SFY 2020, we surveyed 70 participants who had received first-time leadership coaching, and we received 22 responses, resulting in a 31% response rate.

Of the respondents, 27% attended all 3 leadership initiatives: the leader workshop, the leader reunion, and individual coaching. Another 27% participated in the leader workshops, while 18% attended both the workshops and individual coaching. Additionally, 14% took part in the workshops and reunions. The responses indicated that participants experienced improvements in both professional and personal development (Table 2).

From SFY 2021 to SFY 2023, a total of 3 emerging leaders training sessions were held. Among the participants, 65% attended the group sessions, and 35% engaged in both individual coaching and group sessions. We surveyed 51 participants and received 43 responses, leading to an 84% response rate. Respondents reported that the leader workshops equipped attendees with tools and resources to enhance their skills in

needs assessment, employee engagement, and identifying areas for change.

Participants reported different levels of helpfulness across various training topics and perceived some topics as more helpful than others. A high proportion of participants rated the training as extremely helpful in the areas of navigating difficult conversations (88%), time management (88%), engagement and retention (87%), communication skills (77%), managing change (77%), team leadership (77%), team building (66%), and enhanced networking skills (60%). In contrast, 12% to 40% of participants rated these areas as very helpful. The highest “very helpful” rating was observed for enhanced networking skills (40%), while the lowest was for time management and engagement and retention (12%, 13%).

## DISCUSSION

### Process Improvement

As previously stated, Agency 2 made progress toward or achieved several of their process improvement targets. The clinician documentation error target was not only met, but surpassed. The agency put many processes in place to achieve these improvements. A clinical review specialist was added, fewer options were included in the electronic health record (EHR) system to reduce errors, and group or one-on-one training sessions were provided as needed.<sup>14</sup> Once the target was met and maintained consistently at less than 1%, the agency stopped tracking this metric. The cash-on-hand measure has fluctuated over time. It reached a high of 125 days (goal 60 days), but this number included the COVID relief funds, so this undoubtedly influenced the results. The denial rates for both Medicaid MCO (3% target) and commercial insurance (5% target) have not been stable. Several factors, including the varying coverage of behavioral health services by commercial insurance, contribute to these fluctuations.<sup>15</sup> The majority of the agency’s clients are covered by Medicaid MCO, which accounts for over 50% of the service revenue. Commercial insurance contributes 11%, while the remainder is covered by StarkMHAR, school subsidies, grants, and contracts. Some commercial insurance plans do not cover behavioral health services, which further contributes to the disparity in denial rates.<sup>15</sup> The Medicaid MCO denial rates did drop to 3% at several points in time but shifted back to the double-digit range near the end of the grant period. Commercial insurance showed a much greater flux for all of the reasons stated above, with denial rates ranging from a low of 6% to a high of 35% in some months. The accounts receivable target of 15% was not achieved, but it has been on an overall downward trend and was forecasted to reach the goal by February 2024. Finally, the process improvement goal to increase the number of Black Belt certifications across the system showed promise. This target was not just for Agency 2, but for all agencies across the system. By SFY 2021, the Six Sigma Black Belt course was completed by 9 individuals, and 7 individuals completed the Green Belt course. By SFY 2023, Black Belt certification had been earned by 4 individuals, and 2 earned Green Belt certification. During the final quarterly presentation of the evaluation results, agencies



discussed other process improvements that were achieved. One agency leader specifically pointed out that earning even Yellow Belt certification was helpful and should be considered an achievement.

The productivity focus area centered on increasing the show rate of clients, increasing planned discharges, and reducing client wait times. Improving these metrics would not only enhance productivity but would potentially also improve the client experience and outcomes. The metric to improve show rate, the percentage of clients who show up for their planned appointments, was added after the evaluation began. The target of 80% of clients showing up for their planned appointments was set, and early data analysis indicated that the show rate was being measured and reported differently across the agencies. Once the measurement definition was made consistent, it was obvious the set target was too low. However, agencies still worked on improving their show rate by implementing appointment reminder systems across the Big 3 with the help of allocated funding. The next productivity measure was to increase planned discharges by 2% for the Big 3. To achieve this goal, training and education for clinical staff were implemented, focusing on engagement and treatment planning. All three of the agencies improved, with one agency improving by 25% in the first quarter and then remaining at or above 99% for the remainder of the tracking period (SFY 2021 fourth quarter through SFY 2023 third quarter). This agency made several policy changes including having a point-person who reviewed the data and addressed any issues, questions, and definitions with the staff. Agency 3 showed some improvement overall but had the lowest planned discharge numbers and the most fluctuation across time as compared to the other agencies. Their leadership reported that this is due to the makeup of their clientele, which often includes court ordered treatment and clients with significant substance use disorder. This is consistent with research related to treatment for these groups.<sup>16</sup> Other productivity metrics are to reduce diagnostic assessment average waiting days to the same day (zero) and to reduce psychiatric waiting days down to 5 days. Reducing wait times for behavioral health treatment can lead to improved patient outcomes.<sup>17</sup> To achieve this goal, MTM services and SDA (same day access) analysis were implemented across the Big 3. By SFY 2023 Agencies 1 and 3 had their same-day assessment down to zero. Agency 2 still showed waiting time of approximately 15 days and had not yet implemented the just-in-time intervention. Their leadership reported that much of their longer wait time is due to patient preference given that their clients are minors and have to rely on adults for scheduling and transportation. The psychiatric assessment waiting times were much lower in SFY 2022 to SFY 2023 than the previous years across all of the agencies. However, none of the agencies met the goal of 5 days, and they reported that this was in part a result of the very high demand for services.

Workforce development initiatives were implemented systemwide across the Big 3 and the other smaller agencies. The initiatives to address employee turnover included employee-focused retention incentives such as additional funding, training, and licensing opportunities. High turnover rates are a major issue in the behavioral health workforce.<sup>18</sup> Decreasing employee turnover to the goal rate of 7% proved challenging,

particularly for the direct service staff. The turnover rate across all agencies was much higher for direct staff than for leadership. High turnover, especially for direct staff, remains a concern needing more effective retention strategies. The 7% target was not reached by any of the Big 3 agencies, or systemwide across the smaller agencies. The next goal of increasing the number of licensed individuals across the system by 20 was exceeded by 11 with a total of 31 licensed individuals. The category with the greatest number was LSW to MSW (17). The original EBP certification goal initially had very limited types of certifications available. Due to the COVID-19 pandemic, several certification options became available virtually and were then included. This helped surpass the goal of 15 certifications among health care professionals, with the final total reaching 63. Finally, a Gallup Poll to measure employee engagement was sent out in 2021 (217 respondents) and again in 2023 (395 respondents). The results indicated employees had stronger feelings of job satisfaction in 2023. The overall engagement index also rose from 40% (2021) to 46% (2023). This potentially reflects the overt efforts and interventions aimed at workforce development.

Leadership was the fourth focus area for the evaluation. A leadership expert was contracted to provide training and support for employees systemwide. Providing training and workshops are often used by organizations as ways to impact employee satisfaction<sup>18</sup> and to develop future organizational leaders.<sup>19</sup> There was individual coaching, leadership workshops, and reunion sessions for people who participated in previous workshops. The workshops in SFY 2022 to SFY 2023 were for emerging leaders. Results of the leadership surveys indicate that the leadership training was well received, and participants found it relevant and helpful in professional development. The training fostered new ideas and strategies for agency growth, facilitated learning from peers, and allowed them to discuss shared challenges. Respondents reported improvement in communication skills and strategic perspective. Overall, the emerging leaders training offered valuable new ideas, strategies, tools, and resources. Participants gained insights into how people respond to change and received guidance through the ADKAR (awareness, desire, knowledge, ability and reinforcement) model for project implementation, as well as a framework for managing challenging conversations. Participants also provided suggestions for improvement. They appreciated the insights from the instructor and requested refresher courses to be scheduled regularly. They expressed a desire for more group activities, role-sharing opportunities within agencies, and practical methods for building professional networks. The combination of individual coaching and emerging leaders group sessions improved leadership skills. Continued investment in leadership will foster more effective organizational cultures.<sup>19</sup>

## PUBLIC HEALTH IMPLICATIONS

Evaluation is essential to public health interventions.<sup>20</sup> Behavioral health program evaluations that focus on continuous quality improvement often focus on patient level treatment.<sup>7,10</sup> This evaluation was focused on continuous improvement at the agency level. Evaluations highlight what the agencies are doing well and assess areas for improvement. There are



51 mental health and addiction recovery boards across the state of Ohio.<sup>3</sup> Mental health and addiction recovery boards across Ohio counties would benefit from program evaluation. The Ohio Association of County Behavioral Health Authorities (OACBHA) has developed a “Culture of Quality” program (<http://www.oacbha.org>). It was designed to increase accountability and public trust by promoting efficiency, effectiveness, consistency, and quality in practices and service delivery across the county board system. Improving quality is a clear goal for the Ohio Department of Mental Health and Addiction Services.

There are several important takeaways from the evaluation findings. The Big 3 did not implement the planned interventions at the same rate; therefore, outcome measures are not directly comparable. Each of the agencies has a different client base, and this had an impact on some of the initiatives, particularly the productivity measures. Due to many factors, Agency 2 made the most progress in implementing process improvement interventions. As was the case nationwide, COVID-19 had a major impact on all agencies, from employment to training sessions to client appointments.<sup>21</sup> This should not be minimized. In conducting the evaluation, it was imperative to have a main point-of-contact at the agency who was directly involved in the continuous improvement efforts. This was invaluable with regard to clarification of outcome goals, the meaning behind some of the findings, and in making necessary course corrections.

### Conclusion

Overall, interventions have been effective in meeting outcome goals. These successes highlight the potential of quality-improvement strategies to significantly enhance the functional efficiency of mental health service delivery. Productivity projects have been very successful in achieving many of the associated goals, such as increased show rates and planned discharges, though work remains in reducing wait times for

psychiatric appointments. The Big 3 implemented the planned interventions at different times; therefore, outcome measures are not directly comparable. All the agencies were greatly impacted by COVID-19. As stated, Agency 2 has made the most progress in implementing process improvement interventions. Other focus area measures demonstrated improvement over time. The interventions show clear progress across the agencies, although there is variation depending on the specific outcome of measure. Finally, these results provide an excellent model for other mental health and addiction recovery boards. Future efforts should build on this success and address remaining challenges as strategies evolve to meet the community's changing needs.

### AUTHOR CONTRIBUTION

Bethany Lanese contributed to the conception and design of the project, full manuscript drafting and editing. Reema Kousar conducted data analysis and interpretation, manuscript drafting, and editing. Kiyam Shadmani assisted with the data analysis consultation/interpretation and manuscript editing. Jen Richeson contributed to manuscript drafting and editing. All authors reviewed and approved the final version.

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### DECLARATION

The data were provided by StarkMHAR for the evaluation and are not publicly available. The authors report no conflict of interest. Jen Richeson is employed by StarkMHAR but was not involved in data analysis. This project was determined to not be human subject research.

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APPENDIX – Supplemental Graphs and Charts

