Evaluation of the Use of CAH Cohorts for Quality Improvement Activities

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KEY FINDINGS

- Variability exists in ways that State Flex Programs (SFPs) implement, monitor, and evaluate Critical Access Hospital (CAH) cohorts in quality improvement (QI) initiatives.

- SFPs struggle with evaluating the impact of cohort activities involving primarily education or peer learning on CAH quality.

- Successful SFP cohort initiatives actively engage CAHs in implementing a shared QI project, provide opportunities for shared learning, and establish a clear data reporting process.

- Cohort initiatives with good program planning, clear participation expectations, and ongoing evaluation throughout the project lifecycle are more likely to meet the Federal Office of Rural Health Policy's expectations for cohorts including the efficient use of Flex funding and maximization of program impact.

INTRODUCTION

In the Notice of Funding Opportunity for the Fiscal Year 2019 Medicare Rural Hospital Flexibility (Flex) Program,[1] applicants were encouraged to fund cohorts of Critical Access Hospitals (CAHs) with similar challenges. The intent was to encourage the efficient use of Flex funding, target CAHs with the greatest need, and maximize program impact. Applicants were asked to describe how projects were organized to achieve economies of scale by working with cohorts of CAHs with similar needs. To support cohort initiatives within the Flex Program, the Flex Monitoring Team (FMT) at the University of Southern Maine developed a conceptual framework to assess the use of cohorts by State Flex Program (SFP) grantees in quality improvement (QI) projects during the FY19-23 funding cycle. In this policy brief we examine how SFPs use cohorts in their QI initiatives, the benefits and challenges of utilizing CAH cohorts, and the ways in which SFPs are assessing the impact of their cohort initiatives. Finally, we discuss opportunities to enhance the use of cohorts in Flex Program initiatives. The findings from this study of QI cohorts can also inform efforts to use cohorts in other Flex Program Areas.

BACKGROUND

To support this study, it was necessary to begin with a common definition of a cohort. The definition of a cohort used in this study was a group of subjects, in this case CAHs, banded together and/or treated as a group with a common QI need. SFPs typically use the term cohort to describe a set of CAHs with similar QI issues such as those scoring lower than other CAHs on one or more measures of interest, or to describe groups of CAHs engaged in projects to address a common QI goal.

A review of the literature on quality improvement collaboratives (QICs) provided insight for developing our framework to assess the use of cohorts in SFP QI initiatives. QICs are a common strategy to facilitate group learning across organizations to improve processes of care and clinical outcomes.[2,3] The QIC structure involves a series of meetings focused on a targeted QI area, where participants learn best practices and share implementation experiences. At the beginning of the initiative, participants establish baseline data, set measurable targets, and collect data to track implementation and report improvement throughout the initiative. Between meetings, participants are expected to implement what they have learned and share their challenges and successes.[4] Based on the results of a series of systematic studies of QICs, we identified the following features associated with effective QICs:[4-8]

- Multi-professional teams committed to improving a focused clinical or administrative QI issue;
- Evidence of large variations in care or gaps between current and best practices;
- Development of a shared knowledge base through a review of QI methods, evidence for improvement, change concepts, and practical evidence-based change strategies;
- Periodic meetings to report changes and results and share experiences with cohort members;
- A performance monitoring process grounded in baseline data, measurable targets, and regular data reporting;
- Testing methods to plan, implement, and evaluate numerous small changes in rapid succession (e.g., the Plan-Do-Study-Act model from the Institute for Healthcare Improvement[9]); and
- Support provided by organizers between meetings through site visits, emails, and calls.

Based on these best practices, we developed a conceptual framework (Figure 1) to assess the cohort projects proposed by SFPs and the extent to which they are likely to contribute to improved QI performance by the participants. This framework represents a series of sequential steps in the use of cohorts to support Flex Program QI efforts. Some SFPs may implement individual elements of this framework to support their QI interventions by comparing and grouping CAHs and targeting meetings or webinars to meet their needs. A more advanced use of cohorts incorporates all these elements to actively engage groups of CAHs in collaborative QI initiatives that result in shared learning through the implementation of a common QI project.

FIGURE 1. Framework for the Use of Cohorts in Flex Program Quality Improvement (QI) Initiatives

- Identify a population of CAHs with a common QI challenge or issue (the intervention cohort) using MBQIP and other available data.
- Design a project to address the common QI needs of the cohort population and identify process measures as well as short, intermediate, and long-term outcome measures specific to the proposed initiative to create an evidence-based chain of outcomes.
- Recruit participants, outline clear expectations, establish baseline measures of interest, and identify a minimum acceptable improvement target for each participant.
- Implement educational programs and technical assistance to support cohort participants.
- Engage cohort members in the intervention, and monitor and assess their participation.
- Use the measures and the chain of outcomes to assess improvements in quality performance of the participants at appropriate time intervals throughout the intervention.

METHODOLOGY

To identify SFPs for this evaluation, the FMT examined the 2019 Flex Program grant applications and identified SFPs that described the use of cohorts in Program Area One: Quality Improvement. We then developed a data extraction tool to summarize information from the applications on how SFPs proposed to: 1) identify the QI needs of their CAHs; 2) implement a cohort project to address shared QI needs; 3) identify CAHs most in need of the QI project; and 4) engage cohorts in the QI project. Twenty-one of the 45 SFPs proposed using cohorts in their QI activities.

In addition, we conducted interviews via Zoom with six SFPs (California, Georgia, Kansas, Michigan, Minnesota, and Oklahoma) from August to October of 2020. States were chosen based on an advanced use of cohorts in their QI projects.[†] These interviews were conducted using a semi-structured interview protocol and sought to understand challenges to the implementation of QI cohorts, how these challenges were overcome, the benefits realized by SFPs and CAHs through the use of a cohort strategy, how SFPs are monitoring the impact of their cohort activities, and how states assessed the effectiveness of their cohort strategies.

SUMMARY OF FLEX PROGRAM GRANT APPLICATIONS
Assessment of CAHs' QI Needs

SFPs assessed CAH QI needs using quantitative and qualitative data from multiple sources (Figure 2).

FIGURE 2. Sources Used to Assess CAHs' Quality Improvement Needs (n=21)

Note: SFPs could report more than one source of data to assess quality improvement needs

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[†] "Advanced use" was determined through an assessment of the extent to which they appeared to incorporate the full range of elements identified in our conceptual framework.

Common Quality Improvement Focus Areas

Table 1 summarizes the Medicare Beneficiary Quality Improvement Project (MBQIP) areas that SFPs identified for cohort interventions.

TABLE 1. Medicare Beneficiary Quality Improvement Focus Areas for Cohort QI Activities

State Flex Program	1.1 Core Patient Safety/Inpatient Measures	1.2 Core Patient Engagement Measures	1.3 Core Care Transition Measures	1.4 Core Outpatient Measures	1.5 Additional Patient Safety Measures	1.6 Additional Patient Engagement Measures	1.7 Additional Care Transition Measures
Arizona		X	X	X			
California	X	X	X	X	X	X	X
Colorado	X	X	X	X			
Georgia	X				X		
Illinois		X	X	X			
Kansas		X					
Michigan	X	X	X	X	X	X	X
Minnesota	X	X	X	X	X	X	X
Mississippi	X	X	X	X			
Montana	X	X	X	X	X	X	X
Nebraska					X		X
North Dakota						X	X
Oklahoma		X		X			
South Carolina	X	X	X	X	X	X	X
South Dakota	X	X	X	X			
Tennessee					X		
Texas*							
Utah	X	X	X	X			
Vermont	X	X	X	X	X		
Washington		X					
Wisconsin	X	X	X	X	X		X

Note: None of the SFPs proposed cohort activities to address issues under area 1.8 – Additional Outpatient Measures

* In lieu of focusing on a specific MBQIP measure, Texas planned to offer a cohort of high-performing CAHs the opportunity to participate in a twelve-month QI fellowship program to prepare staff for the Certified Professional in Healthcare Quality exam
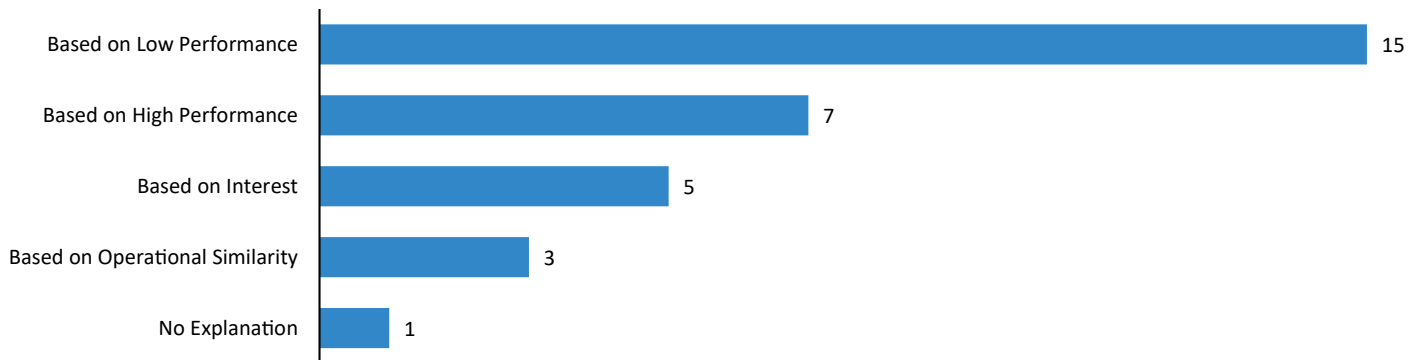
Further information on the projects implemented by the six study states can be found in the Appendix.

Selection of CAHs for Cohort Projects

Most SFPs identified one or more criteria to target CAHs for participation in their cohort project (Figure 3). SFPs with fewer CAHs were more likely to include all their CAHs in the cohort. Although not all the SFPs provided criteria for how they identified high and low performing CAHs, low-performing CAHs generally fell below a target set by the SFP, most often an MBQIP, state, or national benchmark, whereas high performing CAHs often scored above the target. Many of the SFPs reported individual CAH baselines for relevant MBQIP measures in their QI needs assessment, although some used other data sources unique to their states or Flex Programs.

FIGURE 3. CAH Selection (n=21)

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Based on Low Performance	15
Based on High Performance	7
Based on Interest	5
Based on Operational Similarity	3
No Explanation	1

Note: SFPs could report multiple strategies to select CAHs for participation in their cohorts

Strategies Used to Engage CAHs in Cohort Activities

SFPs used a variety of strategies to engage CAHs in their cohort projects (Figure 4):

- **One-on-one support**: SFPs and/or contractors offer technical assistance, resources, or consultative services directly to an individual CAH within the cohort.
- **Subject matter expert-directed education**: Subject matter experts (SMEs) provide education to cohort CAHs, in-person or through webinars. Time is typically set aside for participants to share best practices and lessons learned.
- **Peer learning**: CAHs meet collectively to discuss comparative data, share best practices and lessons learned. Learning sessions may be led by a high-performing CAH.
- **Mentoring relationships**: High-performing CAHs mentor low-performing CAHs with similar electronic health records (EHRs), system affiliations, and/or quality resources.

FIGURE 4. Engagement Strategies (n=21)

One on One Support	21
SME Directed Education	19
Peer Learning	11
Mentorship Relationships	3
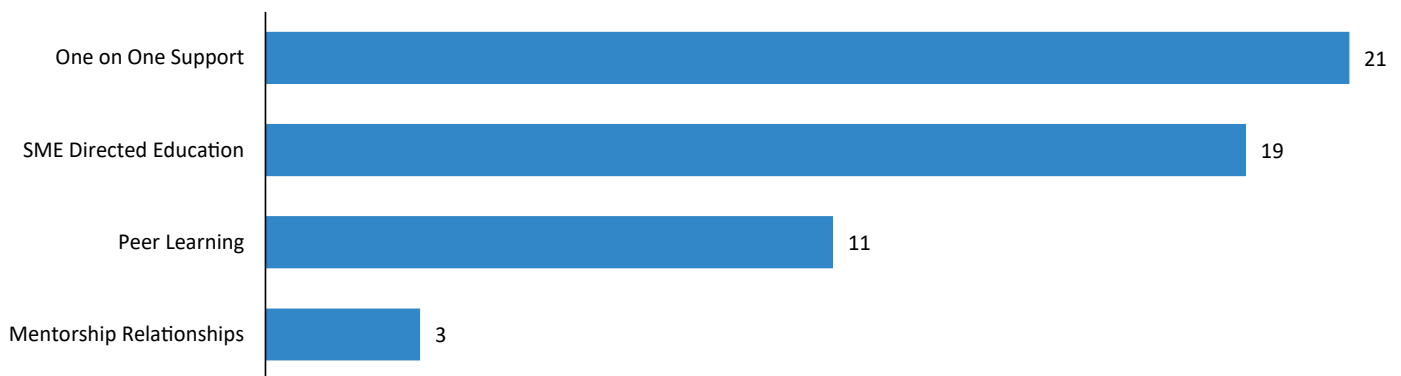
Note: SFPs could report more than one strategy to engage CAHs in their cohort initiatives

FINDINGS FROM INTERVIEWS

Interviews with six SFPs provided insight into the benefits and challenges of the use of cohorts by SFPs as well as promising cohort strategies. Interviewees identified the following benefits to the use of cohorts:

- **Means for targeting a subset of CAHs**: Kansas, which has 83 CAHs, utilized cohorts as a means of targeting resources and working with a manageable subset of their CAHs on projects.
- **Peer learning**: California conducts monthly EDTC cohort "huddles"[†] where challenges are discussed, encouragement given, and solutions identified.[10] The California Flex team reported that huddle participation was associated with improvements in EDTC scores. In Minnesota, high-performing CAHs share successful strategies with low-performing CAHs.
- **Peer networking**: Oklahoma noted that cohort participants tend to reach out to one another after the structured activity is over.
- **Mentoring opportunities**: Georgia and Michigan found that pairing high- and low-performing CAHs in a mentoring relationship was an effective way for low-performing CAHs to learn strategies to make meaningful improvements in their facilities.
- **Helpful strategy for piloting new programs**: Oklahoma used feedback from high-performing CAHs to inform development of an initiative to move CAHs from a focus on quality reporting to improving performance.
- **Achieving economies of scale**: Although study participants had not evaluated the economies of scale associated with their use of cohorts, they believed cohorts were an effective strategy to efficiently use Flex Program resources.

Study participants described the following challenges to the use of cohorts and discussed their strategies to overcome these challenges:

- **CAH recruitment for cohort projects**: Several states noted the challenge of recruiting lower performing CAHs for cohort activities, even when the cohort project would be of clear benefit to those CAHs. For example, in the past, Kansas reached out to low-performing CAHs without much success. As a result, they switched their strategy to offer the cohort opportunity to all CAHs on a first come first serve basis.

  California's Flex Coordinator and QI contractor build rapport with cohort CAHs through site visits and regular communication with CAHs who may be reluctant to participate. California benchmarks quality data to identify potential participants. For example, CAHs that scored below the 90th percentile on any EDTC measure were invited to join California's "EDTC Huddle" cohort.

  Michigan invites quality managers from low-performing CAHs to join one of its quality network strategy groups and participate in curriculum development. Michigan's Flex Coordinator noted that it was easier to recruit CAHs with performance issues to participate in small group projects where they could develop a level of comfort and rapport with other participants.

- **Monitoring and Evaluating Cohort Projects**: SFPs identified the challenge of linking cohort engagement strategies to improvements in MBQIP or other quality measures. While SFPs routinely utilize pre/post meeting questionnaires to assess changes in knowledge or skills, it is equally important

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† Huddles are short, "stand-up" meetings focused on clinical, quality, and patient issues. Huddles engage teams in managing evolving quality issues and process improvements activities.

to track the extent to which participants have put this new knowledge to work by implementing changes at their hospitals. This extra step was not implemented by all our study SFPs.

The California Flex team reports that they follow up with CAHs after participation in a Flex QI training to ask what they plan to work on and the changes they plan to make. Flex staff follow up afterwards to determine what, if any, changes were made and the impact of those changes. California also developed a tracking tool to monitor CAH engagement in cohort activities and implementation of related QI strategies. The Flex Coordinator reports that this contact is important as initial impacts may be structural or cultural changes necessary to support QI (e.g., development of QI teams, senior leadership or board buy-in, or EHR modifications) rather than immediate improvement on relevant quality metrics.

Kansas's evaluation strategy focused on the implementation of the first three evidence-based elements of the Center for Medicare and Medicaid Services' Person and Family Engagement strategy: 1) admission checklists, 2) bedside shift reports, and 3) patient-family engagement liaisons. Kansas also monitors participation in project meetings, conducts on-site visits, and surveys cohort participants. To compensate for the time lag in Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) reporting, Kansas uses a brief patient discharge survey to solicit feedback from patients and families. Kansas also contacts cohort participants biannually following program completion to monitor implementation. Kansas Flex staff reported that CAHs that maintained fidelity to the Person and Family Engagement strategy typically demonstrated measurable improvement in HCAHPS performance.

Georgia's Antibiotic Stewardship Program (ASP) builds on past patient safety efforts by using an ASP dashboard based on the National Healthcare Safety Network Annual Facility Survey. The dashboard highlights three to four common domains in need of improvement with cohorts organized around each domain. Participants are expected to focus on select metrics for improvement within their chosen domain. In addition to tracking the metrics, Georgia plans to meet annually with staff from each participant's management, pharmacy, infection prevention, QI, and informatics teams to assess the extent to which the CAH has met the seven core ASP elements.

- **Delays in MBQIP reporting**: SFPs reported challenges in the use of MBQIP reports (previously created by a contractor, now created by the FMT) to monitor program impact. Depending on the MBQIP measure, there can be a lag of 12 to 18 months from the encounter period to the distribution of reports. As an alternative, California uses EDTC data from Quality Health Indicators (QHi) monthly benchmarking reports for 15 CAHs reporting through QHi.[11†] The remaining 17 CAHs are asked to forward relevant data directly to the Flex Coordinator. Michigan also requests that CAHs forward their HCAHPS directly to the Flex Coordinator upon receipt of the data from their HCAHPS vendors.

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† The Quality Health Indicators (QHi) Project is a web-based quality benchmarking program for small rural hospitals and rural health clinics to compare selected quality measures with other similar hospitals and clinics. Participating hospitals and clinics benchmark against self-defined peer groups in four categories of measures: Clinical Quality, Workforce, Financial and Operational, and Patient Satisfaction. QHi is currently being used by 223 small rural hospitals and 119 clinics in 10 states: California, Colorado, Kansas, Louisiana, Michigan, Minnesota, New Mexico, Utah, Washington, and Wyoming.

DISCUSSION

The 21 SFPs varied in their use of cohorts as part of their QI strategies. In the grant applications and in our interviews, most SFPs described a process by which they identified CAHs with common QI issues using MBQIP and other quality data to define their cohorts and recruit participants. Once SFPs defined their cohorts, they implemented a variety of interventions to address identified QI needs as well as different strategies to engage CAHs in these interventions. Often these interventions involved strategies to engage cohort participants in peer learning through quarterly meetings of CAH Directors of Nursing and/or Quality Improvement, in-person or web-based trainings, and/or mentoring relationships. An important element of these interventions involved the engagement of participants in learning from one another through the sharing of QI strategies, experiences, and lessons learned, and by exploring ways to overcome common challenges. Although these initiatives are designed to improve the knowledge base of participants with the expectation that they will use this new knowledge to address QI issues in their hospitals, they do not directly engage the participants in specific QI activities.

Evaluating the impact of the use of cohorts to assess and target CAH QI needs and promote shared learning on CAH quality can be challenging. While pre/post intervention surveys can be helpful in assessing changes in knowledge and obtaining information on how participants plan to use their new knowledge, these types of surveys frequently do not collect data on actual changes taking place at the CAH level. However, these types of cohort-based learning and information disseminations activities can be useful SFP QI strategies. They can also form the foundation for more advanced collaborative cohort activities.

A more advanced use of cohorts involves the direct engagement of participants in shared QI initiatives such as California's EDTC huddles, Georgia's antibiotic stewardship program, or Kansas's Patient Satisfaction Learning Community. Study participants noted that setting clear expectations for participation and defining the elements of participation are critical elements of their cohort strategies. Consistent with our framework, these three projects:

- Targeted an important need among a group of CAHs;

- Developed an intervention with an evidence-based chain of outcomes;

- Defined clear expectations for interested CAHs that included participation and reporting requirements, establishment of baseline measures, and setting facility-specific targets;

- Engaged participants in specific QI activities;

- Monitored program implementation; and

- Measured impact at different stages of the program.

To illustrate this, Figure 5 describes the Kansas Patient Satisfaction Learning Community program.

FIGURE 5. Kansas Flex Program's Patient Satisfaction Learning Community Program[12]

Cohort: CAHs seeking to implement the Patient and Family Engagement (PFE) Program to improve Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) scores.

Expectations of Participants:
- Nursing leadership will attend kick-off meeting and be an active part of the hospital team.
- Participants will attend meetings, participate in site visits, and complete assignments between events including the development of a sustainability plan.
- Baseline measurement of patient satisfaction will be taken at start of program.
- Participants will routinely report on implementation challenges and progress towards goals.

Nine-Month Engagement:
- Subject Matter Expert educates participants about how a PFE program can impact patient safety and improve patient and staff satisfaction; and how to implement first three elements.
- Subsequent learning sessions involve peer learning and sharing of challenges and successes.
- Two site visits include a mock patient survey and bedside shift report.
- Monthly touch-base calls and emails.

Key Chain of Process and Outcome Measures:
- Participation by CAH cohort members in program activities.
- Participant surveys that measure understanding of PFE metrics, how to implement and why.
- Percent of completed admission checklists per CAH.
- Percent of completed bedside shift reports per CAH.
- Percent of liaison engagements with patients and families per CAH.
- Pre-discharge patient satisfaction survey results tallied monthly to inform program modifications and measure performance per CAH.
- Improvements in HCAHPS scores by CAH.

The effective use of cohorts in SFP QI activities requires strong program planning and management including: development of a logic model; a reliance on timely data; a sound underlying theory of change; clear expectations of participants; and regular program monitoring to support program management and measure improvements in CAH quality performance throughout the project lifecycle. The conceptual framework presented in this brief lays out a roadmap for the use of cohorts to efficiently allocate scarce Flex resources, target CAHs in need of improvement, and maximize program impact. The elements of this framework can be used as building blocks that can be implemented individually based on SFP resources and capacity or together as part of a more advanced collaborative QI strategy.

CONCLUSION

Cohort initiatives afford SFPs the opportunity to work with a select group of CAHs on QI initiatives through structured programs including education, technical assistance, defined benchmarks and improvement targets, implementation of common interventions, peer networking and shared lessons learned, and data collection and reporting. A key factor in successful collaborative cohort initiatives involves the accountability of cohort members to engage in specific activities, share their lessons learned among their peers, and report on changes implemented as a result of their participation. Effective cohort initiatives are based on the use of logic models to identify appropriate process and outcome measures that establish a chain of outcomes to document fidelity to program implementation and quantify program impact.

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APPENDIX. DESCRIPTION OF STATE FLEX PROGRAM COHORT ACTIVITY

California contracts with Rural Health Solutions to conduct statewide networking and cohort activities for its 34 CAHs. Fifteen CAHs report data through QHi's benchmarking portal, the remaining 19 submit their Stratis Health reports to the Flex Coordinator. California has implemented EDTC huddles as one of its cohort activities. CAHs that fall below 90 percent on any EDTC measure are invited to a monthly "huddle" where challenges are discussed, encouragement given, and solutions identified. Baseline measures and targets were established to monitor progress over time. California developed a tracking tool to measure engagement and monitor the implementation and impact of CAH-identified strategies.

Georgia implemented a CAH Antibiotic Stewardship Program and dashboard using data from the National Healthcare Safety Network Annual Facility Survey. The dashboard monitors three to four domains in need of improvement with the cohorts organized around each domain. CAHs choose a domain based on their needs and select metrics to improve over the next 6-12 months. After the kick-off meeting, Georgia's quality advisor meets monthly with each cohort and quarterly with all cohorts to identify best practices, discuss challenges, and report progress. The quality advisor plans to meet annually with staff from each CAH's relevant departments to assess their progress. To support new CAH QI staff in their roles, the SFP pairs them with mentors, experienced QI staff at CAHs using the same electronic health records. The quality advisor connects weekly with new QI staff for up to eight weeks to review relevant topics and answer questions.

Kansas, which has 83 CAHs, utilizes cohorts to maximize resources. Cohorts are established on a first-come, first-served basis. Cohorts focus on improving patient-family engagement through the Patient Satisfaction Learning Community. The nine-month program involves a kick-off meeting, first month site visit, mid-point meeting, site visit with a mock bedside shift report, and a wrap-up meeting. During cohort meetings, participants network, engage in peer coaching, share challenges and successes, and develop sustainability plans. Impact is determined by improvement in participants' HCAHPS scores. Surveys collect data on patient engagement and feedback to inform program modifications. SFP staff evaluate the cohort program through pre/post surveys and information collected during site visits. After completion, CAHs are surveyed biannually to monitor implementation and staff turnover.

Michigan organizes cohorts based on MBQIP quartiles to encourage networking between CAHs with similar challenges. To support peer learning, high-performing CAHs are paired with lower-performing CAHs and share best practices during quarterly CAH Quality Network meetings. To enhance peer learning, Michigan plans to pair CAHs in the future based on common characteristics. To increase engagement, Michigan invites quality managers from lower-performing CAHs to join one of the quality network's strategy groups and participate in curriculum development. Michigan evaluates changes in performance using MBQIP data. To assess the impact of peer learning, Michigan conducts post-event surveys after quarterly quality network meetings and asks CAHs to apply new learning to their facilities.

Minnesota's cohort activity focuses on improving CAH performance on EDTC and inpatient/outpatient patient safety measures. Stratis Health, the state's QI consultant, uses quarterly MBQIP reports to identifying high and low-performing CAHs and monitor changes in performance. Staff from cohort CAHs are interviewed to understand the challenges to reporting. Cohort CAHs are invited to participate in targeted training and share best practices. The trainings are evaluated through post-event surveys.

Oklahoma piloted a regional QI cohort project in partnership with the Oklahoma Foundation for Medical Quality in 2019. Five high-performing CAHs were selected to participate in the cohort. Through in-person training, webinars, and team-building activities, CEOs and Quality Directors developed plans to improve performance on specific MBQIP measures. They identified benchmarks, established baseline measures, and improvement targets. MBQIP data is used to assess project impact. Participant feedback is positive. Oklahoma plans to follow up in 6-12 months to assess longer term impact.