Example Outcomes for Population Health and EMS Flex Program Activities

In Flex Year 5, FORHP will support states in increasing emphasis on program outcome measures through a phased approach. States should consider adding two or three outcome measures to incorporate in their year 5 work plans to demonstrate the impact that the Flex Program has on CAHs. To assist State Flex Programs (SFPs) with incorporating outcome measures into their work, the Flex Monitoring Team (FMT) provides these examples of outcome measures and theories of change for Population Health and EMS Activities. FORHP aims to expand the states' capacity to incorporate outcome measures that can demonstrate impact of the Flex Program. State Flex Programs are encouraged to use these or other outcome measures that best fit their individual program activities. Additionally, the FMT has identified a identified a project timeline that connects the activity categories under the population health and rural EMS improvement areas into a strategic process across the funding cycle. The timeline is comprised of the following four overarching components:

1. Assessment and action planning: The first step involves assisting participants with assessing capacity and resource needs to engage in relevant interventions as well as action planning. The purpose is to identify needs common to participants and their communities, identify gaps in their capacity to undertake relevant interventions based on those needs, and recruit participants based on their needs and vulnerabilities, ideally using a shared collaborative/cohort learning model. Work in Step 1 supports the subsequent steps in this process but cannot be directly linked to measurable program outcomes.

2. Educational Events and Programs: Educational events, trainings sessions, and other skill-building programs follow from the initial assessment and action planning and should prepare participants to engage in planned interventions. Changes in knowledge and the use of knowledge gained through the educational event can be measured and support engagement in planned interventions and/or a share learning collaborative/cohort. Educational programs, particularly one-time ("one off") educational or training programs that do not support a planned intervention are difficult to link to measurable outcomes.

3. Shared Learning Collaboratives/Cohorts: The third step engages participants in the implementation of a common intervention in which they meet regularly to share their successes, challenges, and strategies. It involves securing agreement on common metrics that will be collected and reported by all participants. As with the earlier steps, no direct outcomes can be attributed to this work. The outcomes will be driven by the interventions selected. It is important to monitor output and process measures for the collaborative to assess and manage the level of engagement and the satisfaction of cohort/collaborative participants (Table 1).

Table 1: Example Output Measures for Share Learning Collaboratives/Cohorts
Theory of Change: Collaborative learning cohort initiatives provide a foundation for the implementation of SFP initiatives by encouraging shared learning, identification and sharing of best practices, implementation of a common intervention, and identification and reporting of common metrics at various stages of the program. Outcomes will be driven by the interventions selected. The implementation of cohort-based projects can expand a State Flex Program's reach and conserve scarce resources by engaging in shared interventions.
• # and % of CAHs that participate in programs and activities of the shared learning collaborative/cohort • # and % of CAHs that report satisfaction with participation in the shared learning collaborative/cohort • # and % of CAHs and the # of their staff participating at each meeting and/or event • # and % of CAHs sharing best practices and the # of best practices shared • # and % of CAHs that have implemented the identified intervention • # and % of CAHs that report data on project implementation and outcomes throughout the project

4. Development and Implementation of Interventions: This is the stage of the strategic process that generates measurable outcomes driven by the chosen interventions. In the final stage of the process, participants will implement planned interventions and measure the outcomes specific to the interventions.

Program Area 3: Population Health Improvement (optional)

Program Area 3 focuses on building the capacity of CAHs to improve and achieve measurable improvements in the health outcomes of their communities using available assessments and tools (e.g., community health needs assessments

and population health readiness assessments). Tables 2 and 3 describe population health capacity building initiatives. Table 4-8 describe interventions commonly identified in rural hospital CHNAs.

Building Capacity to Improve Population Health

Table 2: Outcome Measures for Utilizing Patient Registries to Build Capacity to Address Chronic Conditions	
Theory of Change: Patient registries are associated with improved outcomes for patients with chronic diseases by allowing clinicians to efficiently monitor and manage panels of patients by tracking clinical diagnoses, targeting quality improvement efforts, assessing medication efficacy and patient compliance with treatment recommendations, and identifying patients at risk for overutilization.	
Short-term Outcomes (implementing registries)	**Intermediate Outcomes (use of the registries)**
• # and % of staff reporting increased understanding of the value of patient rosters and how to use them as part of the care management process • # and % of CAHs that have implemented a patient registry for one or more chronic conditions	• # and % of patients whose chronic conditions are being managed through a patient registry

Table 3: Outcome Measures for Building Collaborative Community Partnerships
Theory of Change: Organizing community stakeholders and partnerships to address identified community health needs provides a foundation to identify priority needs and strategies, share resources and expertise, and implement agreed upon strategies utilizing the strengths of each partner.
Short-term Outcomes
• # of participating organizations partnering with CAHs (and changes over time) • Increase in # and % of CAHs meeting regularly with partners to create action plans • Increase in # and % of partnerships implementing action plans to address one or more community needs

Direct Population Health Interventions

Table 4: Outcome Measures for Chronic Care Management Program (CCM)		
Theory of Change: Chronic care management programs can improve quality of care and patient outcomes by offering patients monthly check-ins and 24/7 access to their care team; care coordination with other providers and community-based services; and management of care transitions, referrals, and follow up. Patients receive a comprehensive care plan to track progress towards disease control and health management goals including cognitive, psychosocial, functional, and environmental factors.		
Short-term Outcomes	**Intermediate Outcomes**	**Long-term Outcomes**
• # and % of patients with 2 or more chronic conditions at risk of death, acute exacerbation, decompensation, or functional decline registered in CCM program • # and % of patients receiving self-management education and support specific to their condition • # and % of patients participating in CCM interventions (e.g., keeping blood pressure or glucose logs, setting weight loss/exercise goals) • # and % of patient interactions including coordination of care	• Increase in # and % of patients receiving monthly check-ins, regular lab testing, and early medical attention for complications • Reduction in # and % of low patient satisfaction survey scores • Reduction in # and % of patients non-compliant with treatment regimen • Reduction in the # and % of patients with poor control of key biometrics (specific to diseases)	• Reduction in the rate of readmission after discharge from the hospital for all cause readmissions (NQF 1789)[19] for participating patients

Table 5: Outcome Measures for Diabetes Prevention and Management Programs

Theory of Change: Diabetes prevention and management programs directly intervene in this condition by focusing on patient behavior change, improved quality of care, and compliance with treatment and medication plans. Patient outcomes are improved through regular monitoring of the patient's behavior and compliance with their treatment and medication plans, ongoing management of the patient's diabetes, and the provision of resources and materials to change patient behavior and reduce health burdens. Patients receive a comprehensive care plan to track disease control and health management goals including cognitive, psychosocial, functional, and environmental factors.

Short-term Outcomes	Intermediate Outcomes	Long-term Outcomes
• # and % of diabetic patients registered in CCM program • # and % of pre-diabetic patients registered in prevention program • # and % of patients receiving diabetic education • # and % of patients participating in diabetes interventions (e.g., blood glucose logs, weight loss goals) • # and % of patient interactions including coordination of care	• # and % of patients receiving regular HbA1c testing, eye exams, and medical attention for complications • Reduction in the # and % of pre-diabetic patients developing Type 2 diabetes • Reduction in the # and % of patients with poor control of daily blood glucose level • Reduction in # and % of patients with a BMI>25 kg/m^2 • Reduction in the # and % of patients with hemoglobin A1C levels with poor control (NQF 0059)[19]	• Reduction in rate of unnecessary hospital admissions due to complications of diabetes (for participating patients) • Reduction in emergency department use due to complications from diabetes (for participating patients) • Reduction in rate of participating patients with diabetic complications (e.g., cataracts, glaucoma, or blindness; nerve damage, amputations, etc.)

Table 6: Outcome Measures for Substance Use Treatment and Prevention

Theory of Change: CAHs can play a role in addressing SUDs through the development of SUD prevention, treatment, and recovery programs, including medication-assisted treatment (MAT) for opioid use disorders; screening patients for SUDs in primary care and ED settings; implementing prescribing guidelines for opioids and benzodiazepines, developing responsible pain management practices to reduce opioid use; and working with community members to implement SU prevention and recovery program.

Short-term Outcomes	Intermediate Outcomes	Long-term Outcomes
Prevention: • Increase in # and % of CAHs participating in community prevention partnerships, programming, and education • Increase in # and % of CAHs implementing prescribing guidelines Treatment: • Increase in # and % of CAHs screening for SUDs in primary care and ED settings • Increase in # and % of CAH providers offering MAT • Increase in # and % of CAHs developing SUD treatment services	Prevention: • Reduction in % of underage alcohol, marijuana, and prescription SU in the community • Increase in # and % of patients in primary care and ED screened for SUDs • Increase in # and % of patients receiving brief interventions after screening for SUDs Treatment: • Increase in # and % of patients receiving MAT and wrap-around treatment such as counseling • Increase in # and % of patients referred for specialty SUD treatment	• Reduction in rates of SUDs in the patient population or in the community • Reduction in rates of substance misuse-related emergency department visits • Reduction in rates of hospitalization for SUD or overdose • Reduction in opioid or other substance-related overdoses • Reduction in substance misuse-related mortality

Table 7: Outcome Measures for the Integration of Behavioral Health Services at CAH-owned RHCs		
Theory of Change: The integration of behavioral health (BH) and primary care services in hospital-owned clinics can improve the health and wellbeing of patients through greater attention to BH issues, increased access to BH services, reductions in stigma, closer collaboration between providers, increased patient engagement, and better adherence to treatment plans.		
Short-term Outcomes	**Intermediate Outcomes**	**Long-term Outcomes**
• Increase in # and % of CAH-based RHCs developing an action plan to implement integrated BH services • Increase in # and % of CAH-based RHCs participating in learning collaboratives on the development of integrated BH services	• Increase in # and % of RHC operating integrated BH services • Increase in # and % of patients receiving services in CAH-based RHC integrated units • Increase # and % of RHC patients reporting satisfaction with integrated BH services • Increase in # and % of participating patients reporting greater quality of life	• Increase # and % of CAH-based RHCs that have sustained and/or expanded integrated BH services • Reduction in rate of unnecessary ED use by participating patients • Reduction in rate of unnecessary hospital admissions by participating patients

Table 8: Outcome Measures for CAH Workplace Wellness Program		
Theory of Change: Workplace health promotion and disease prevention programs have a positive impact on employee health behaviors (e.g., physical activity, diet, smoking, and alcohol consumption), biometric measures (e.g., blood pressure, cholesterol, blood glucose, BMI), and employer's financial measures (e.g., health care utilization, worker productivity, retention). Development of a hospital focused workplace wellness program also provides a service that CAHs can market to local employers.		
Short-term Outcomes	**Intermediate Outcomes**	**Long-term Outcomes**
• Increase in # and % of CAH workplace wellness programs (e.g., fitness, nutrition, smoking cessation, stress reduction) • Increase in # of CAH incentives to encourage staff participation (participation prizes, monetary awards, discounts, etc.) • Increase in # and % of CAH employees enrolled in workplace wellness programs • Increase in # and % of CAH employees participating in workplace wellness programs	• Increase in # and % of participating employees with high satisfaction scores • Reduction in # and % participating employee absenteeism • Increase in # and % of participating employees who exercise at least 30 minutes/day, five days/week • Increase in # and % of participating employees who eat 2-3 cups of vegetables/day	• $ reduction in costs associated with injury and illness • Reduction in # and % of employees with chronic conditions • % Increase in employee retention • % decrease in employee absenteeism • Increase in savings for employee health premiums • Increase in # of employers in the community using the CAH's workplace wellness model

Program Area 4: Rural EMS Improvement (optional)

Program Area 4 focuses on activities to improve the organizational capacity, financial stability, and quality of rural EMS through either statewide or agency-level assessments using standardized tools such as the Attributes of a Rural Ambulance Service survey. Interventions under Activity Category 4.3 Rural EMS Operational Improvement can assist vulnerable agencies with organizational, administrative, and operational transformation. Initiatives under Activity Category 4.4 Rural EMS Quality Improvement can help to integrate EMS with the wider healthcare delivery system and/or improve the quality of patient care. The following are examples of EMS performance improvement initiatives and related outcome measures that target known rural EMS vulnerabilities and/or capacity needs and align with the Medicare Rural Hospital Flexibility Program Structure for FY 2019 – FY 2023 (Tables 10-12).

Table 10. Example Outcome Measures for Billing Improvement Initiatives (Capacity Building)

Theory of Change: A key element of EMS sustainability involves ensuring that EMS agencies have the capacity to bill for and collect revenues generated by their operations by improving their billing and coding capacity, ensuring that each agency has an appropriate billing system in place (directly or through a contracted billing service), improving their collection of demographic, insurance, and service information and data, and improving their ability use financial and billing data for performance improvement. Improving revenue cycle capacity can reduce denied claims, increase revenue, and avert unintentional violations of ambulance-service billing standards.

Short-term Outcomes	Intermediate Outcomes	Long-term Outcomes

• # and % of agencies with appropriate billing and collection capacity
• # and % of agencies able to bill third party payers and patients for services rendered
• % improvement in the number of runs for which all appropriate billing, demographic, and insurance information was collected
• % reduction in errors in financial and billing data collected for each run
	• % reduction in time of processing claims
	• % reduction in denied claims (# of claims denied/aggregate # of claims submitted)
	• % reduction in days to collection
	• % increase of clean claims rate (claims paid on the first pass/claims submitted)
	• % reduction in registration errors as a percent of total registrations (total registration errors/total registrations)
		• # and % of EMS agencies with improved financial stability based on key financial indicators:
		  • Improvement in the % of expenses covered by patient/transport revenues
		  • Reductions in the % of expenses covered by other revenue sources (e.g., local tax revenues, grants, revenues)

Table 11. Outcome Measures for Improvement in TCD Times and Patient Survival (Improving Systems of Care)

Theory of Change: Improvement in TCD response times and patient survival requires a comprehensive EMS system with personnel trained in best practice guidelines and dispatch protocols, proper equipment, familiarity with the receiving hospital services, and an understanding of systems resources and capacity. Examples of initiatives to improve TCD systems of care include implementing national guidelines for STEMI, stroke, and trauma; creating protocols for routine evaluation of compliance to those standards; building communication loops between tertiary hospitals and EMS to improve system performance by debriefing after TCD events; establishing and implementing EMS prehospital treatment and transfer protocols; and establishing and monitoring system performance targets (e.g., optimal time frames for successful treatment and transport).

Short-term Outcomes	Intermediate Outcomes	Long-term Outcomes
• # and % increase in EMS agencies equipped to acquire 12-lead EKGs and diagnose STEMIs • # and % increase in number of staff with training on recognition of STEMI and stroke • # and % increase in number of staff with training on trauma/field triage protocols for all ages • # and % increase in number of agencies using the American Heart Association's Mission (AHA): Lifeline Guidelines (STEMI)	• # and % increase in regional protocols to improve early notification times • # and % increase in patients receiving percutaneous coronary intervention within 90 minutes from first contact for STEMI • # and % decrease in median time to transfer for acute coronary intervention • # and % increase in patients arriving at hospital within 120 minutes of stroke onset and receiving fibrinolytic therapy within 180 minutes	• # and % agencies functioning as part of an integrated system of emergency care • # and % reduction in inpatient mortality rate of patients treated for TCD by agency

Table 12. Outcome Measures for Improvements in Data Reporting and Quality of Reporting (Capacity Building and Quality Improvement)

Theory of Change: Under most state regulations, EMS agencies are required to submit run reports documenting the results of all ambulance transports and activities. Despite this requirement, many rural EMS agencies have trouble submitting timely run reports. Many agencies also have difficulty submitting accurate reports. These gaps in the accuracy and timing of run reports hamper the ability of state EMS authorities to oversee the scope and quality of EMS activities, expose rural EMS agencies to legal liability for patient care and transports, and compromise their ability to document services for reimbursement and quality improvement purposes. Initiatives to improve EMS data capabilities include assessing the gaps in EMS data capacity, training and technical assistance to improve the data accuracy of EMS provider, ongoing feedback on the accuracy of run reports, and assisting EMS agencies with using run reports for quality improvement purposes. Additional initiatives include connecting and standardizing data systems and reporting platforms (e.g., health information exchanges or the National EMS Information System) as well as promoting the sharing of data between rural EMS agencies and hospitals.

Short-term Outcomes	Intermediate Outcomes	Long-term Outcomes
• Increased in the # and % and of EMS agency providers, medical directors, and administrators trained on state-level run reporting system. • # reductions in the number of errors in submitted run data • Increase in the # of data sharing arrangements between EMS providers and CAHs and rural hospitals and their Emergency Departments) • # of data bridges established between EMS data systems and state or national initiatives (e.g., health information exchanges or the National EMS Information System)	• Increase in the # and % of rural EMS agencies submitting accurate run reports and data for 100% of required transports and encounters • Increased # and % of state EMS authorities submitting run report data consistently to NEMSIS • Increased # and % of EMS agencies utilizing EMS data for quality and performance improvement	• # and % of rural EMS agencies exhibiting improved quality performance based on agreed upon quality metrics