THE UNIVERSITY OF KANSAS HOSPITAL

Kansas Delivery System Reform Incentive Payment (DSRIP) Pool

Supporting Personal Accountability and Resiliency for Chronic Conditions (SPARCC)

December 16, 2014

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Executive Summary

The University of Kansas Hospital (TUKH) has actively pursued and developed successful programs internally to address heart failure. It will now use the DSRIP initiative to extend this program addressing heart failure to new populations. This quality improvement project will enhance the delivery of healthcare across the state; reduce the disparity of care for heart failure, especially in small rural communities, and their hospitals, while at the same time addressing one of the major contributors to hospitalization. This project is timely since CMS has stated that reducing hospitalizations is a major public health goal.

Supporting Personal Accountability and Resiliency for Chronic Conditions (SPARCC) will focus on heart failure patients around the state, with an emphasis on those counties having highest incidence of heart failure admittance to hospitals. A key goal of the SPARCC model is building heart failure patients' ability to care for themselves and be resilient in the face of their chronic condition. SPARCC will address the medical management alongside the psychosocial elements of heart failure. This goal ties directly to the major goal for the DSRIP SPARCC initiative: reduce hospital readmission from heart failure though improved self-care.

To more broadly disseminate SPARCC training for heart failure patients, the SPARCC model rests on a train-the-trainer foundation. Carefully selected health professionals with appropriate credentials, skills and attributes are trained by SPARCC faculty in a two and half-day intensive session with significant follow-up.

Once trainees are sufficiently prepared, they conduct four weekly two-hour sessions for heart failure patients and their care givers. This evidence-based heart failure program promotes personal responsibility strategies and resiliency skills that involve patients, their family members and multidisciplinary health professionals.

The goal of this project is to decrease heart failure hospital re admissions. This will be accomplished by implementing this evidence-based heart failure program promoting personal responsibility strategies and resiliency skills, combined with medical aspects associated with heart failure. The program is a combination of tested and validated teaching/learning modules, four weekly group sessions including a provider assessment, and resilience training proven to decrease anxiety, depression and overall distress.

Kansas Delivery System Reform Incentive Payment (DSRIP) Pool
Hospital DSRIP Plan

Hospital Demographics Information

Date:	09/25/2014
Hospital Name:	The University of Kansas Hospital
Medicaid Number:	Outpatient: 100099470A Inpatient: 100103330A
Contact Person:	Terry Rusconi, Vice President for Performance Improvement
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Background

Summary of Hospital's Community Context:

With a population of 2,853,118 and 105 counties, the sixth highest total of any state, Kansas faces similar challenges to those of other states with sparse inhabitants in their rural and frontier counties—challenges that include health disparity and access to care, too few healthcare providers, loss of population, an aging population, and growing numbers of children and families living in poverty.

Though ranking 15th in land mass, population wise, Kansas ranks only 33rd in the nation. County population ranges from 1,247 in Greeley County on the Colorado border to 544,700 in Johnson County on the Missouri border. It is noteworthy that 68 counties in Kansas have fewer than 10,130 people with only 10 counties having populations greater than 55,000.

According to a 2014 report published by Kansas Department of Health and Environment, 36 Kansas counties are classified as frontier with the number of people per square mile ranging from 1.7 to 5.9 with a mean of 3.62. Twenty-six of the frontier counties are located in the western third of the state; 6 in the central third; 4 in the eastern third. Twenty western-Kansas counties have populations under 4,000.

Only six counties are classified as urban defined as 150 or more persons per square mile. According to 2011 population figures, 55.18% of the Kansas population resides in these six counties.

Eighty-nine Kansas counties meet the Health and Human Services criteria as Health Professional Underserved counties and 100 counties meet the HHS criteria for being underserved by mental health professionals. Moreover, the Governor of Kansas has designated 53 Kansas counties as medically underserved.

In the western third of the state 18 of the 35 counties have three or fewer physicians. Specialists are few, distances to see a healthcare provider are often long and, with physician shortages, APRNS are assuming a primary role in provision of care.

According to the Kansas Health Institute, an independent, nonprofit health policy and research organization, as of August 11, 2014 report, there are 426,000 Kansans enrolled in Medicaid and CHIP, up from 399,000 in July 2013. Thus the overall percentage of Kansans enrolled in Medicaid and CHIP is 14.9%. Medicare enrollees total 416,000 or 14.58% of the population.

There is some debate about the rate of uninsured in Kansas, however. According to the U.S Census 2012 figures that rate is 12.6% but lag time in reporting is an issue. Other sources show a 12.7% rate for all Kansans but a 17.6% rate for individuals between 18 and 64.

Kansas poverty rate is 13.2% which is slightly less than the national rate of 14.2% for the period of 2008-12. But when county-by-county statistics are examined, they reveal mal-distribution of poverty in the state. Only 10 of the 70 counties in the western and central two thirds of Kansas have poverty levels of greater than 15% of their total population whereas in the eastern third of the state over 15% of the population in 19 counties live in poverty.

According to the US Department of Health and Human Services/Center for Medicare and Medicaid Services, for the state of Kansas, 30% of heart failure patients are full-benefit Medicare/Medicaid patients and 15% are Medicare only.

Several thousand once thriving farming communities in Kansas are either ghost towns or experiencing marked decline in population. This is especially so in the western part of the state. Water necessary for agriculture is becoming scarce in western Kansas and small farmers can no longer afford the $350,000 to $500,000 price tags for the large farm equipment required to make a living.

Towns and counties have experienced a noticeable out migration of population with 77 of Kansas 105 counties experiencing loss of population. In rural and frontier counties, it is not uncommon for young people to move away leaving communities and elders with a declining tax base necessary to support basic services. In Kansas, 13.2% of Kansans are 65 or older.

If one simply looks at the numbers, it would appear that Kansas is adequately supplied with hospitals. The Kansas Hospital Association lists 127 hospitals as members; however, many of the hospitals are quite small. Eighty-three are Critical Access Hospitals—the largest number of Critical Access Hospitals in any state in the nation. Critical Access Hospitals range in size from 6 to 25 licensed beds, and many struggle to keep their doors open.

Only 20 Kansas hospitals have 100 or more licensed beds with the four largest hospitals—ranging in size from 500 to 860 beds—concentrated in Sedgwick County (2) in south central Kansas and Johnson County (1) and Wyandotte County (1) that are part of the Kansas City metroplex.

The University of Kansas Hospital (TUKH) is the only academic teaching hospital in the state. Moreover, the state is served by only one academic medical center, The University of Kansas Medical Center, with its main campus in Wyandotte County/Kansas City, Kansas and campuses in Wichita and Salina. The University of Kansas Hospital functions in close affiliation with KU Medical Center but is governed by an independent governing authority such that it operates as a separate entity from the KU Medical Center.

TUKH has actively pursued and developed successful programs internally to address heart failure. It will now use the DSRIP initiative to extend this program addressing heart failure to new populations. This quality improvement project will enhance the delivery of healthcare across the state; reduce the

disparity of care for this condition, especially in small rural communities, and their hospitals, while at the same time addressing one of the major contributors to hospitalizations. This project is timely since CMS has stated that reducing hospitalizations is a major public health goal.

Describe the Hospital's Patient Population:

TUKH primarily serves the patient population spanning the Missouri/Kansas state line, a metro area that is home to more than 2 million people. It served 131,654 unique Kansans from all 105 counties in FY 2014, plus 76,758 other, unique Americans from across the nation. TUKH has over 33,000 inpatient admissions, and over 650,000 outpatient visits annually. As the only academic teaching hospital in Kansas, it is incumbent upon the hospital to share best practices and assist in quality improvement of healthcare delivery across the state, particularly in areas without easy access to large tertiary hospitals.

Describe the Hospital's Health System:

Originally part of the University of Kansas system, in 1998 The University of Kansas Hospital (TUKH) became an independent public authority, operating completely separately from the University. Although the state retains ownership, TUKH receives no federal, state, or local appropriations. TUKH retains the responsibility as the academic teaching hospital for the state.

TUKH, a 751-bed quaternary-level hospital located in Kansas City, Kansas, is the region's premier academic medical center, providing advanced patient care and world-class service. We are unwavering in our goal to be the best healthcare provider in the United States. In the *U.S. News & World Report* Best Hospitals list for 2014-15, we had 12 out of 12 specialties ranked in the top 50 of their respective fields.

It ranks among the country's top academic medical centers, has nearly 7,000 employees, and cares for a diverse mix of patients.

Net revenues for FY 2014 were just over $1.25 billion. During that time, TUKH provided over $62 million in uncompensated care and gave over $147 million in support to the University of Kansas Medical Center and faculty physicians.

Physicians at TUKH are leaders in their fields and represent more than 200 specialties. In addition, TUKH has been Magnet-designated since 2006 and was the first hospital in Kansas to receive the designation by the American Nurses Credentialing Center. We continually update, expand, and build new clinical facilities. Our state-of-the-art medical office building opened in 2012 with physician offices, outpatient care areas, and lab and imaging services. Specialty clinics offer primary care, heart, cancer, and surgical services throughout the Kansas City metro area.

TUKH, in partnership with the University of Kansas Medical Center (KUMC), leads the way in innovative research, shaping the standards of care. KUMC regularly garners high spots in the National Institutes of Health (NIH) ranking of public medical schools, and ten departments in the KU School of Medicine are in the top 25 for NIH funding. KUMC is also a member of the national Clinical and Translational Science Awards consortium, has National Cancer Institute designation for the KU Cancer Center, and has earned collaborative and financial support from the National Institute on Aging for its National Alzheimer's Disease Center.

Challenges Facing the Hospital:

Like hospitals across the nation, TUKH is dealing with an increasingly challenging reimbursement environment. It has suffered significant Medicare reimbursement cuts due to the American Taxpayer Relief Act, sequestration, and the Affordable Care Act. The states of Kansas and Missouri, which are our largest sources of patient volume, have not yet decided to expand Medicaid, which means there has been no meaningful increase in Medicaid business to counteract these Medicare cuts.

In addition, the hospital is constantly working to improve its quality and efficiency. Along those lines, it is subject to the Centers for Medicare and Medicaid Services' (CMS) Hospital Value-Based Purchasing (VBP) program.

Project Title:

The University of Kansas Hospital will be completing this project under its Hospital DSRIP Plan:
Supporting Personal Accountability and Resiliency for Chronic Conditions (SPARCC)

Goals of DSRIP SPARCC Plan:

SPARCC will focus on heart failure patients around the state, with an emphasis on those counties having highest incidence of heart failure admittance to hospitals, and building heart failure patients' ability to care for themselves and be resilient in the face of their chronic condition. One of the major goals of the DSRIP SPARCC initiative is reducing hospital readmission from heart failure though improved self-care. This model, though initially used in heart failure patients, will be applicable for other chronic conditions in the future.

Overview of the DSRIP SPARCC Plan:

The SPARCC plan is initiated with the recruitment of registered nurses, physician assistants and nurse practitioners will who be trained in an intensive two and a half day train the-trainer session to subsequently provide, and facilitate, SPARCC resilience training to heart failure patients.

Other health professionals, e.g. social workers, dieticians, health educators, and behavioral health specialists, will also be recruited to attend a SPARCC train-the-trainer session. These individuals will serve as co-facilitators in the training of heart failure patients. Given the medical nature of heart failure, only an RN, NP or PA can serve as a lead facilitator.

Assistance from hospitals and clinical practices will be sought in recruiting health professionals to attend SPARCC train-the-trainer sessions. Individuals from these organizations will be provided with selection criteria defining the credentials, experience and attributes desired in SPARCC trainers/facilitators.

Health professionals attending SPARCC train-the-trainer sessions will be trained by faculty experienced with, and skilled in, leading SPARCC train-the-trainer sessions.

Train-the-trainer sessions will cover medical management of heart failure including medications, diet, devices, symptom monitoring and reporting; patient monitoring and follow-up; an overview of, explanation of, SPARCC and the research supporting the model; the 10 facets underlying resilience; group facilitation and processing skills; and methods used to help recruit heart failure patients into the SPARCC training for them.

Health professionals trained as facilitators will recruit heart failure patients to attend the SPARCC heart failure training. Ideally, four to six heart failure patients, plus their caregivers, will attend SPARCC failure

training. This training consists of four two-hour group-visit appointments followed by a “booster” appointment held six months after completion of the first four sessions. A complete description of the SPARCC training for heart failure patients is described under Project Description. A logic model for this project is shown below.

Supporting Personal Accountability and Resiliency for Chronic Conditions (SPARCC) Logic Model

SPARCC will focus on heart failure patients around the state and building their ability to care for themselves and be resilient in the face of their chronic condition. This model, though initially used in heart failure patients, will be usable for other chronic conditions in the future.

Inputs	Outputs	Outcomes	
		Initial	*Long*
• SPARCC's unique pairing of medical clinic skills and resilience training • Turning Point's unparalleled reputation in the region and their long-term history with patient empowerment programs, including heart failure programming • KUMC Continuing Education Extensive History across Kansas in Educational Approaches Resulting in Practice Change • Multidisciplinary Team to Support Training and Ongoing Telementoring • National Research Leaders in HF and Rural Primary Care across Health Professions • Close affiliations across KUMC Family Medicine Department, Rural Health Track, School of Nursing, and Area Health Education Centers in order to support recruitment and retention • Assessment Reflecting Increasing Statewide Need to Support HF pts • Institute for Community Engagement Evaluation and Dissemination Resources, as well as leadership as a Project ECHO Replication Site	**Across cohorts:** • Assess capabilities of hospitals and sites • Recruit and retain trainers/champions • Complete train-the-trainer initial training and ongoing telementoring • Recruit and retain patients and caregivers • Gather data from multiple perspectives, with a focus on readmissions • Facilities completed PDSA cycles to continuously improve the program • Implementation focused evaluation to identify facilitators and barriers to adopting the evidence-based approach • Continuously refine intervention protocols and procedures based on feedback	**Patient Level** • Improved quality of life • Reduction of anxiety, depression and overall distress • Increase in the number of patients who maintain a healthy weight, low salt intake and medication adherence • Decrease in hospitalizations **Trainer Level:** Improved Knowledge, Self-Efficacy, and Skills in Evidence-Based HF Practices in order to Support the Patients and Caregivers **Practice Level** • Community of Peers to Support Each Other in Managing Complex HF Patients across Underserved Communities • Increased Use of Multidisciplinary Strategies, Utilizing ECHO support • Improved Practice Performance Improvement Skills to Implement System Change **System Level** • Decrease costs due to timely evidence-based management and decreased hospitalizations • Broad Dissemination of SPARCC approach and resources	• Continued Advances in Patient, Trainer, Practice, and System Outcomes, with a focus on decreases in hospitalizations • Increased capacity across rural and other underserved communities to effectively triage patients and when appropriate, provide evidence-based treatment in the home community • Utilize the established community of practice to quickly disseminate updates in evidence-based practice across underserved communities • Leverage the strong relationships developed between the expert team and the community champions to sustain and further advance the HF approach • Expand the SPARCC approach to other complex, chronic illnesses • Integrate approach with emerging patient-centered HF strategies, such as home-based telehealth

Other Hospital Initiatives funded by Health and Human Services:

In July 2014, TUKH was awarded a $12.5 million, 3-year federal grant for the coordination of a coalition of hospitals to improve care for heart disease and stroke while reducing medical costs in Western Kansas. TUKH will be working with Hays Medical Center, ten Critical Access Hospitals and rural primary care providers. This initiative is called the Kansas Heart and Stroke Collaborative.

The program will use telehealth technology, health data exchanges, preventive health screening, and care management to keep patients healthier closer to home. The program calls for educating high risk populations to take steps on their own to prevent a health crisis and learning to immediately access care if a heart attack or stroke does occur. This grant does not provide the resilience and self-management education to patients that are the focus of SPARCC training for heart failure patients.

The rural clinically integrated network (the coalition of hospitals and doctors) will work together to standardize treatment for heart disease and strokes, with clear standards for when providers need to transfer patients to a higher degree of care.

TUKH has no other active programs funded by HHS.

Hospital Service Area Definition:

TUKH's primary service area (PSA) is made up of Wyandotte, Johnson, and Leavenworth counties in Kansas, and Clay, Platte, and Jackson counties in Missouri. The secondary service area (SSA) is made up of Franklin, Miami, and Linn counties in Kansas, and Bates, Cass, Lafayette, Ray, Caldwell, and Clinton counties in Missouri.

We also have "additional outreach counties of focus," which include Douglas, Shawnee, Lyon, in Kansas, and Buchanan and Johnson counties in Missouri. Our extended service area (ESA) includes the entire state of Kansas and 57 counties in western Missouri.

Community Partners Participating in Project:

Community Outreach Plan:

One of the goals of the DSRIP initiative is building expertise on providing SPARCC self-care initiatives for heart failure patients throughout the state in counties that meet the inclusion criteria.[1]
We will accomplish this goal in several ways:

1. Based on review of an array of county data to identify counties with highest rates of heart failure, highest numbers of Medicaid and Medicare beneficiaries, highest numbers of uninsured and those living below the Federal poverty level, we have identified counties for recruitment as host sites for SPARCC train-the-trainer programs. These programs will target regional health professionals to become SPARCC trainers.
2. We will develop a marketing campaign to broadly promote the SPARCC initiative to health professionals, hospitals, patients and caregivers in all counties that might wish to participate.
3. Based on review of data, we will identify facilities in counties most likely to implement SPARCC training for heart failure patients.

[1] County inclusion criteria described in detail in the section on Criteria Considered for Recruitment of Potential Training Sites.

4. We will conduct an awareness campaign throughout the state. Through local newspapers and other media outlets, augmented by flyers for distribution as appropriate, we will make the public aware of the benefits of SPARCC self-care training for heart failure patients and their care-givers.

Implementation of SPARCC will require identifying community partners such as hospitals, medical clinics, cardiology and primary care practices that can identify heart failure patients in need of SPARCC training. In addition, it is expected that communities will identify health professionals who will be trained to deliver the SPARCC sessions to participating heart failure patients. Assistance in identifying potential trainers/facilitators and co-facilitators is available from a number of sources including the Area Health Education Centers (AHECs). These offices are under The University of Kansas Medical Center (KUMC) and enhance the quality and accessibility of health care services in Kansas through partnerships with communities, health care professionals and organizations, educational institutions and other interested individuals and agencies.

Project Description:

Supporting Personal Accountability and Resiliency for Chronic Conditions-(SPARCC)

Identification of Need for Project:

One of the desired overall outcomes of the DSRIP program is the reduction in hospital readmissions. In 2011, heart failure was one of the top five conditions that accounted for 78% of all avoidable 30-day readmissions from skilled-nursing facilities to hospitals. The five conditions were heart failure, respiratory infection, urinary tract infection, sepsis, and electrolyte imbalance.[1]

A recent policy statement by the American Heart Association, published in Circulation (May, 2012), noted that 2.42% or 24 per 1,000 adults in the US have heart failure (HF). The table below shows the heart failure hospitalization rates for Kansas vs. National.

Table 1. Kansas Summary Statistics

Heart Failure Hospitalization Rate per 1,000 Medicare Beneficiaries, 65+, All Races, All Gender, 2008-2010

Race or Ethnicity	Heart Failure Hospitalization Rate per 1,000 Medicare Beneficiaries	
	State	National
All Race	12.3	16.8
Black	22.9	27.4
White	12	15.9
Hispanic	11.6	19.7

According to the AHA policy statement, the prevalence of heart failure is projected to increase to 2.97% of US adults by the year 2013. The average total cost of heart failure per US adult is approximately $107. The average cost of heart failure is projected to reach $244 per US adult in 2030.

[1] Hines AL (Truven Health Analytics), Barrett ML (ML Barrett, Inc.), Jiang HJ (AHRQ), and Steiner CA (AHRQ). Conditions With the Largest Number of Adult Hospital Readmissions by Payer, 2011. HCUP Statistical Brief #172. April 2014. Agency for Healthcare Research and Quality, Rockville, MD.

The statement predicts that the number of people with heart failure could climb 46% from 5 million in 2012, to 8 million in 2030. Direct and indirect costs to treat heart failure could more than double from $31 billion in 2012 to $70 billion in 2030.

The rising incidence of heart failure is fueled by the aging population and an increase in the number of people with conditions such as ischemic heart disease, hypertension and diabetes—contributors to the development of heart failure. Being older, a smoker, a minority or poor are also risk factors. Heart failure is a chronic, life-threatening condition when the heart has been weakened and can no longer pump enough oxygen- and nutrient-rich blood throughout the body. It is the leading cause of hospitalization for Americans over age 65.

Regional identification of need for the heart failure DSRIP project was also substantiated through a rigorous examination of county-by-county data which were charted in Excel by county and by region of the state. Of special interest were data that identified counties with highest rates heart failure, Medicare, Medicaid and CHIP beneficiaries, uninsured populations, and populations living below the poverty line. **Appendix 1** displays data from the 43 counties in Kansas that have the highest rates in each category

According to the data reviewed from *Kansas Health Matters*, heart failure rates in Kansas are 221.8/100,000 compared to national rates of 198.6 for the period of 2009-11.

In addition, it is recognized that the skills for adequate self-management of chronic disease, with the support of family and/or caregivers, have many benefits including limiting the need for hospitalizations, reducing healthcare costs, as well as improving functional status and overall quality of life. Psychosocial factors play an important role in a patient's ability to carry out self-management skills. For example, health literacy, presence of depression or anxiety, and social isolation have been shown to be associated with decreased treatment compliance, mortality, and increased hospital admission rates in heart failure patients.

It is also known that illness affects the entire family, creating anxiety and sometimes significant dysfunction in the system. Caregiver stress is complicated by changing roles in the family, financial uncertainty, feelings of helplessness, and the adjustment of the entire family to living with a chronic illness. The resilience training portion of this program is designed for the patient and entire family/ support system. Therefore, the program will teach the supporters, as well as the patients, skills that will help them bend without breaking.

What We Hope to Accomplish

The research design is a feasibility and outcome study utilizing an intensive train-the-trainer model to deliver point of service care focused on self-management, resilience, and health directed outcomes (hospital admissions).The focus will be on patients that have had a prior hospital admission due to heart failure. The primary outcome will be to evaluate the number (decrease) of readmissions and patient reported outcomes. Our team has extensive experience in point of service delivery across the state of Kansas.

Three fundamental questions which are addressed in this project are:

1. What are we trying to accomplish?

a. Heart failure is a chronic illness which traditionally follows a cyclical pattern. Patients suffer a decline in their health and eventually rebound to a lower level of wellness than they had previously experienced. With the SPARCC initiative, the goal is to enable more effective self-management of clinical and emotional/psychological symptoms, thereby lengthening the time between the cycles of declining health and supporting the patient's ability to maintain quality of life.

2. How will we know that a change is an improvement?
   a. We expect patients enrolled in the SPARCC initiative to have fewer readmissions and visits to the Emergency Department.
   b. We expect patients enrolled in the SPARCC initiative to report higher self-assessment of their clinical/emotional condition.

3. What changes can we make that will result in improvement?
   a. Educating patients to understand the nature of this chronic disease, and the clinical steps necessary to maintain the longest period of quality of life, is essential to the success of this initiative.
   b. Teaching patients and their caregivers approaches to build resiliency provides a strong foundation for understanding and ownership of personal behaviors that will support longer periods of acceptable quality of life.
   c. Applying Rapid Cycle Evaluation through review of data to address challenges to protocol adherence.

Important to this project is determining the root cause of challenges that decrease the likelihood of success. Even after a protocol is implemented, and individuals trained, there will be challenges that are unrelated to personnel training or protocol implementation. Examples may include lack of real time support, access to monitoring programs to quickly identify physical changes requiring intervention, and external patterns of behavior (such as from family and friends) which derail commitment to the needed behavioral practices.

While this initiative is not focused on research, there has been one scientifically-proven premise underlying its design and implementation: addressing both the clinical and behavioral/psychological aspects of chronic disease, and creating the resiliency to take ownership of that disease, results in longer, higher quality life.

Project Goals:

The goal of this project is to decrease heart failure hospital re admissions. This will be accomplished by implementing an evidence-based heart failure program promoting personal responsibility strategies and resiliency skills, involving patients, their family members and multidisciplinary professionals in specified clinics. The program is a combination of tested and validated teaching/learning modules, four weekly group sessions including a provider assessment, and resilience training proven to decrease anxiety, depression and overall distress.

Methodology:

1. Utilize resiliency theory and medical self-management principles which are based on the following components: the ability to self-calm, ability to self-replenish, hope, optimism, sense of coherence, hardiness, exercise and self-care, non-perfection/self-supporting, emotional expressiveness, social support, medication, weight and diet monitoring.

2. Implement an evidence-based, multidisciplinary group program for heart failure patients, across communities.
3. Utilize teaching materials and multidisciplinary education and support that have been validated as creating positive outcomes.
4. Develop a train-the-trainer program that communities can utilize for sustainability.
5. Create a menu of technology based (interactive television, web based) support modules for trainers and for patients to reinforce the training.
6. Develop a sustainable community action plan with measurable outcomes.

SPARCC Train-the-Trainer Program

Education and training of health professionals on management and use of SPARCC training for heart failure patients will play a critical role in meeting the overall goals of this DSRIP initiative. SPARCC train-the-trainer sessions will be conducted for health professionals who deal with heart failure patients in hospitals, primary care practices, other medical practices, e.g. cardiology practices in larger communities, and nursing facilities.

Individuals recruited to attend the train-the-trainer course and become trainers will have an RN, NP, PA, RD, MSW, LCSW, PhD or MA in psychology, or a master's in public health or health education. It is preferable that two trainers co-facilitate the program—one RN, NP, or PA plus a social worker, psychologist or health educator. If only one facilitator is available to train, it must be an RN, NP or PA. Due to the medical nature of the program, a social worker, psychologist or health educator cannot facilitate the program alone.

The credentialed trainers should have competencies in interpersonal relations and communications—including good listening skills—basic facilitation skills, empathy, patience, and the ability to speak in front of a group. We will provide our criteria for trainee selection to the different institutions and ask them to select professionals who possess the above qualities.

Ideally, the trainees will be recruited by the hospital administration or physician groups. If that is not possible, we will recruit from the community at large.

The number of trainees per site will be determined by the number of heart failure patients in the county hosting train-the-trainer and counties proximate to the host site. Ideally we would train two or three NP's PA's or RN's per site as well as two or three social workers, psychologists or health educators.

Each trainee will complete a comprehensive program consisting of a pre-and post-knowledge evaluation, evidence-based, in-person and case-based practical training along with online didactic training accredited for continuing education, and interactive questions and answers and enduring resources.

An intensive two and one-half day train-the-trainer model will be employed for health professionals recruited to be trained and prepared to provide the SPARCC training to heart failure patients.

The training manual will consist of the following sections:

- An introduction
- The nature and purpose of the training
- The medical management of HF (medication, diet, devices, symptom monitoring and reporting)
- Patient monitoring and follow-up

- What is resilience?
- Research influencing resilience
- The ten underlying facets of resilience
- Group Facilitation and Processing Skills
- Handouts for trainees to distribute to the participants in their SPARCC groups
- Requirements for trainees
- Competencies desired in trainees

Follow-up ITV, ZOOM or video conferencing will be used on a regularly scheduled basis for on-going coaching and support. We will schedule these monthly "check-ins" for all trainees to troubleshoot, respond to questions, and provide additional training as necessary. All training costs of the trainers including travel and lodging will be covered.

Further, as part of their preparation, a faculty trainer from TUKH's SPARCC team will co-facilitate the trainee's first SPARCC group program for heart failure patients. The faculty trainers will be available for additional co-facilitation if the trainee or faculty trainer deem necessary.

The institutions and SPARCC trainees must agree to facilitate at least one group session per year and preferably more. The number of trainees and training groups held will be determined by the number of heart failure patients in their area.

How Information Will Be Incorporated Into Practices

Practice based education will support the health professionals to incorporate a self-management and resilience protocol into their practice, which may or may not be part of their current patient support. In addition to the SPARCC group facilitation for heat failure patients, the self-management and resilience protocol is a skill set that can be incorporated into trained health professional's daily one-on-one practice. Our expectation is that those professionals trained in SPARCC will continue to reinforce self-management skills during patient's regular medical appointments.

SPARCC Training for Heart Failure Patients:

SPARCC is a combination of two evidence-based programs: Self-Management and Care of Heart Failure (SMAC-HF) and Turning Point's resilience model. SMAC-HF plus resilience equal SPARCC

The SMAC-HF intervention is an evidence-based intervention that was developed and tested at the University of Kansas Medical Center. Results were published in *Circulation Heart Failure*[1] in 2014 demonstrating a significant increase in event-free survival (readmissions or mortality) among recipients of the SMAC-HF intervention.

Turning Point is a department of TUKH. Turning Point was originally established in 2001 as an independent non-profit to fill gaps in psychosocial support services in Kansas City. The organization was merged with the University of Kansa Hospital in 2012 and serves as the psychosocial arm of the hospital.

[1] Smith CE, Piamjariyakul U, Wick JA, Spertus JA, Russell C, Dalton KM, Elyachar A, Vacek JL, Reeder KM, Nazir N, Ellerbeck EF. Multidisciplinary Group Clinic Appointments: The Self-Management and Care of Heart Failure (SMAC-HF) Trial. Circ Heart Fail. 2014 Sep 18. pii: CIRCHEARTFAILURE.113.001246. [Epub ahead of print] PMID: 25236883.

The resilience model is the underlying philosophy for every program offered at Turning Point. Since joining the hospital, Turing Point has been assessing the resilience programs showing a significant reduction in anxiety, depression and overall distress. The results were accepted as a poster presentation at the 36th Annual Meeting & Scientific Sessions of the Society of Behavioral Medicine, April 22-25, 2014, San Antonio, Texas.

SPARCC builds upon an extensive database of evidence-based heart failure management programs and addresses life-skills training, self-monitoring, diet, exercise, avoidance of tobacco, appropriate medication use, early recognition of symptoms and constructive engagement with health care providers.

The program begins with four weekly two-hour group visit appointments followed by a fifth *booster* appointment held six months after completion of the first four sessions. Group visits are led by a nurse with extensive clinical experience in heart failure management who can engage other health professionals such as a mental health specialist, a social worker, and a dietician.

Each class will start with an overview of a set of resilience skills. For instance, the ability to self-calm, self-replenish and self-care will be covered in the first session. Participants will then discuss how they can integrate these skills into their lives and provide examples of where they have utilized resiliency skills in the past week. The facilitator will monitor how the students are learning the skills and provide input on additional ways to implement the resiliency skills. Each week, the participants will report on what they practiced the previous week. Discussion and support is an important part of this program as participants learn from each other.

The resilience skills portion of the program will be added to the first hour of each session while the patients are getting their BP and weight. Those skills are covered in the ten facets known to increase resilience and personal reliance and include ability to self-calm, the ability to self-replenish, hope, optimism, physical self-care, sense of coherence, hardiness, non-judge/self-support, emotional expressiveness, and social support.

The medical aspect of heart failure will be provided to the patients in a series of videos (DVDs) which relay the American Heart Association/American College of Cardiology evidence-based guidelines on management of chronic heart failure including signs and symptoms to monitor and report, daily weight monitoring, medications, smoking cessation, exercise, and depression. A video will be viewed at each of the nurse-led sessions with discussion at each group regarding these essential aspects of daily heart failure management.

The medical professional (PA, NP or RN) is there, not only to facilitate the sessions, but to correct any inaccurate information discussed within the patient group and to appropriately answer questions asked by patients or their caregivers.

At the group sessions, patients complete a standardized evaluation and unique, individual problems are identified. Participants are shown how to complete the daily self-monitoring-checklist diaries with spaces to record, on a daily basis, weight, fluid/sodium intake, physical activity, emotions and moods, and heart failure symptoms. The Patient Reported Outcomes Measurement Information System (PROMIS 29) will be used to assess physical functioning, pain, sleep, fatigue, depression, anxiety and overall quality of life. The Patient Health Questionnaire (PHO9) will also be used specifically to measure depression.

As noted, short educational DVDs are used at each group session to standardize the educational content and provoke group discussion. This five-part DVD series was produced under an NIH grant (SBIR-1R43AG1700701) and illustrates heart failure patients using the national ACCF/AHA guideline-based heart failure self-management strategies.

A different DVD is used at each group session with each DVD focusing on a different self-management topic. The first DVD addressed general principles of HF home management including symptom and weight monitoring and control of sodium and fluid intake. The second addresses the medications commonly used for HF, including angiotensin converting enzyme inhibitors, angiotensin receptor blockers, β blockers, aldosterone antagonists, and diuretics. The third focuses on the low-sodium diet. The fourth addresses physical activity, moods and emotion, and smoking cessation. The fifth (booster clinic session) DVD reviews HF self-care skills and addresses more advanced concerns including the meaning of the ejection fraction and the role of interventional devices in HF management.

At the end of each group clinic discussion, a one-page, a heart failure self-management summary is completed. This form provides patients with a personal report of their trends in weight, blood pressure, heart rate and depression scores. In addition, on this form, patients write questions they want to ask and discuss with their health care provider. The checklists and monitoring resources, materials and strategies practiced in each group clinic appointment were given the "Innovation in Practice Award" by the American Association of Heart Failure Nurses in 2008.

Patient Monitoring and Follow-Up

The patient monitoring is done in person at each of the four sessions and then at the six- month follow-up session. At each of these sessions, the nurse performs a brief individual assessment, blood pressures and weights are taken and participants self-report regarding their salt intake is reviewed.

If the nurse/facilitator is from the practice where the patient is seen, we expect the facilitator to reinforce the training at office visits. We expect the facilitator (or another designated person) to check in with the patients via phone at three-month intervals (after baseline) for a 12-month period. This allows them to check on hospitalizations, other medical visits, and administer the PROMIS and PHQ9 surveys for an entire 12-month period.

The six-month follow-up is a booster session designed to check in with the group, answer any questions and reinforce the self-management skills.

Metrics will be collected at the beginning of each session (weight, BP). PROMIS and PHQ9 will be collected at the beginning of the first session, at the end of the 4th session, at 3 months, 6 months, 9 months and 12 months.

Evidence supporting the model

The evidence for this model was generated by a $3.3 million National Institutes of Health (NIH) grant that utilized educational programming based on American Heart Association (AHA)/American College of Cardiology (ACC) guidelines, and was facilitated in group discussions with heart failure patients. Award-winning teaching materials, counseling, and contact with social workers, dieticians, pharmacists, and psych nurse specialists demonstrated decreased number of hospitalizations, improved quality of life, and less depression in this at-risk population. The program expands the chronic and complex care management models currently in place.

Plan for Delivery SPARCC Education and Training

Recruitment of trainers and patients

Hospitals will be the key focal area for recruiting trainers, one of the target areas for recruitment of patients, and the major sites for training. All primary care providers will be informed of the availability of the program and invited to refer their heart failure patients. Since hospitals are in the best position to reap the financial benefits of reduced hospitalizations and potentially shorter stays, they will have a greater incentive to institute and maintain the program. Primary care providers who wish to incorporate the program into their practices will also be offered the training and all of the training materials.

Trainees will also be instructed on how to identify and recruit heart failure patients including those at high-risk of readmission, low income and underinsured. Participant eligibility criteria will be reviewed and strategies to identify and recruit will be integrated into the training session. As part of this effort, key learnings and best-practice approaches developed by working with participant organizations will be incorporated to maximize the value of SPARCC.

Recruiting trainers in rural and remote locations in Kansas presents some challenges. There is a documented shortage of health professionals in many rural locations and, as mentioned previously, 89 of the 105 Kansas counties meet Health and Human Services criteria as Health Professional Underserved Counties.

While our target is to train at least two to three NP's, RN's or PAs plus other health professionals from each training site, we recognize that some rural and underserved areas will not have, or can spare, these professionals at their particular site. Thus, we will ask those who have been trained to assist in identifying, and recruiting, additional trainers. Moreover, we anticipate identifying master trainers (from the pool of trainees) who may be called on to provide training in rural areas away from their own locale and can also train additional people.

Criteria Considered for Recruitment of Potential Training Sites

As afore referenced, a data driven approach has been used to identify, and invite to participate, community partners across the state—partners that can potentially host education and training programs on SPARCC. While there are other locations that can serve as host sites, we anticipate that most SPARCC train-the-trainer programs will be held at hospitals. Data will also identify partners that can potentially implement SPARCC training for heart failure patients.

Not only does data examined verify the need for the SPARCC initiatives, it provides information about where to host SPARCC educational and training events and, subsequently, locations most likely to implement SPARCC training for heart failure patients and those who care for them—training and education that is fundamental to the success of each initiative.

Accordingly, we developed criteria, as displayed in **Table 2**, for determining which counties to recruit to host the education and training sessions. Criteria are based on factors listed below. However, we will

reach out to other counties to participate in educational and training opportunities. Final selection of host sites will depend upon the communities' willingness to participate.

Table 2 Criteria for recruitment of potential training sites. The following table shows type and source of county-by-county data gathered

Type Data	Number and/or percent of county population	Data Source
Population	Number of people per county	2010 U.S. Census
Number hospitals	Number in each county	Kansas Hospital Association
Number of licensed beds	Number in each hospital/total in county	Kansas Hospital Association
Number of nursing homes	Number in each county	Landon Center on Aging, KU Med Center
Number of licensed beds	Number in each nursing home/total in county	Landon Center on Aging, KU Med Center
Number of physicians	Needed for physician champions for HF projects	Kansas Board of Healing Arts
Medicaid beneficiaries	Number in/percent of county population	KDHE, Bureau, Epidemiology & Health Informatics
CHIP beneficiaries	Number in/percent of county population	KDHE, Epidemiology & Health Informatics
Uninsured	Number in/percent of county population	*Kansas Health Matters (affiliated with KDHE as partner organization)
Medicare beneficiaries	Number in/percent of county population	Center for Medicare and Medicaid Services
Living below the poverty level	Percent of counties below poverty level, 2008-12	American Community Survey 2008-2012
Rate of HF Admissions 2009-11/100,000 population	HF admissions rate 2009-11 per 100,000 population*	Kansas Health Matters/Kansas Department of Health & Environment

*Kansas Health Matters: A partnership organization that provides Kansas communities with dash board data on a number of health related factors and issues that affect community health. Organization partners include: Kansas Association for the Medically Underserved; Kansas Association of Local Health Departments, Kansas Department of Health & Environment, Kansas Health Institute, Kansas Hospital Association, United Way of the Plains and University of Kansas

In addition to these data, we identified the locations of the 44 Safety Net Clinics and Federally Qualified Health Centers that provide medical services to Medicaid and low-income populations. Seven counties have multiple clinics ranging in numbers from two per to seven per one county. It is noteworthy that 27 of our planned DSRIP events take place directly in, or immediately adjacent to, counties where the Safety Net Clinics and FQHCs are located.

It is important to consider that the selection of sites to host training should have sufficient populations in their catchment area to maximize the impact of the DSRIP SPARCC initiative. While data described in **Table 2** will play an important role in determining host sites for educational and training programs, we will also promote these educational and training opportunities to counties in proximity to host sites that do not meet all the inclusion criteria. And, we will use electronic means, e.g., telemedicine, ZOOM, Adobe Connect and other electronic means to connect with individuals at remote locations who desire to participate.

As a first order in determining counties as host sites for training, we considered counties that have the highest rates heart failure, Medicaid and Medicare beneficiaries, numbers of uninsured and percent of population living below the poverty level. In addition to rates, we took into account actual numbers. If we are to measure significant change, it is important to have a large enough "test" population to determine whether an initiative effected meaningful or reproducible change.

Population data had to be considered in developing the inclusion criteria given that 68 Kansas counties have fewer than 10,130 population and 31 of those have populations under 4,000. Accordingly, we had to set population inclusion criteria at a fairly low number at ≥5,000.

We also factored into account the number of physicians practicing in each county as we have found through experience on other statewide quality improvement initiatives that when implementing performance improvement and quality improvement initiatives, it is important to have a physician champion.

We also considered the hospitals, primary care practices and cardiology practices with which TKUH, KU Medical Center, KU Medical Center's Area Health Education Centers, TUKS's Mid America Cardiology and Cardiovascular Diseases have existing relationships. Existing affiliations and relationships will help pave the way to successful recruitment of host sites for education and training programs.

Considering that most health care in our rural and frontier counties is provided by primary care practices, we will draw on the close affiliations our Family Medicine Department, Rural Health Track and Area Health Education Centers have with these practices across the state.

These affiliations with primary care practices and cardiologists will be especially important in the identification of locations to host SPARCC training considering that these providers have the closest relationship with heart failure patients.

For ease of data management, site selection and plan for a logical progression of hosting the educational and training events across the state, we divided the state into three regions—western, central, and eastern—with 35 counties in each region and reviewed and recorded data by region. The plan is for delivery of SPARCC education and training in a manner to touch as many counties as possible. See **Appendix 1** for counties that meet criteria.

Educational Approach

We use evidence-based educational and training methods particularly appropriate for practicing professionals and adult learners that are shown to translate knowledge into change in behavior and performance improvement at the practice level.

But in order to maximize the effectiveness of education and training which results in change and quality improvement, we must tailor that education and training to fit the circumstances and realities of the host sites. One size does not fit all. We will be mindful of prevailing conditions at host sites including circumstances that may present as barriers to change.

Project team members involved with the SRARCC initiatives will provide ongoing follow up and support necessary to ensure implementation success.

Irrespective of the educational and training methods used, translating knowledge into practice requires multiple reinforcing exposures to material. This will be accomplished by developing short on-line educational modules and web-based resources. Further, recognizing that heart failure patients may reside in geographically disparate locations, we will use telemedicine and other electronic means to deliver SPARCC heart failure training virtually to those individuals.

We know, too, that a vital component to the success of SPARCC initiatives will depend on recruiting a local leader and a physician and/or nurse champion at each site. Leaders, who have a significant sphere of influence, can be a community leader with interest in health care quality improvement, a hospital or nursing home administrator, a county public health officer—an individual who sees value in the SPARCC initiative for their community and who will provide their support and assistance.

Additionally we need a physician and/or nurse champion who will not only assist with project execution and implementation but who has interest in becoming a local expert in SPARCC.

Given the shortage of health professionals in Kansas, one of the goals of our educational approach is to build and expand local capacity and expertise and expand the scope of provider capabilities. This, in part, addresses the post-DSRIP sustainability issue and also provides additional rationale for having a health professional champion at each location.

Working with hospitals, a goal is to minimize the progression of heart failure so as to provide care and treatment to patients in their own locale as opposed to having to transfer them other facilities. While the focus of the education is on SPARCC for heat failure, the lessons learned from the education may be broadly applied to other complex and chronic conditions. SPARCC training is appropriate for individuals dealing with any type chronic, condition. This training gives valuable tools for health providers in helping their patients who deal with chronic conditions avoid costly hospitalizations and readmissions.

Using the hub and spoke method, hub sites will host the SPARCC train-the-trainer sessions; both hub sites and spoke sites that have sent people to the SPARCC education and training, will implement SPARCC training for heart failure patients and their family and caregivers. See **Figures 1 and 2**.

Figure 1 was developed based on the criteria discussed previously. In identifying potential hub sites, we gave strong consideration to recruiting those sites that have high rates of heart failure admissions and are in close proximity to other counties with highest instance of heart failure.

Figure 1: Potential Hub & Spoke Sites

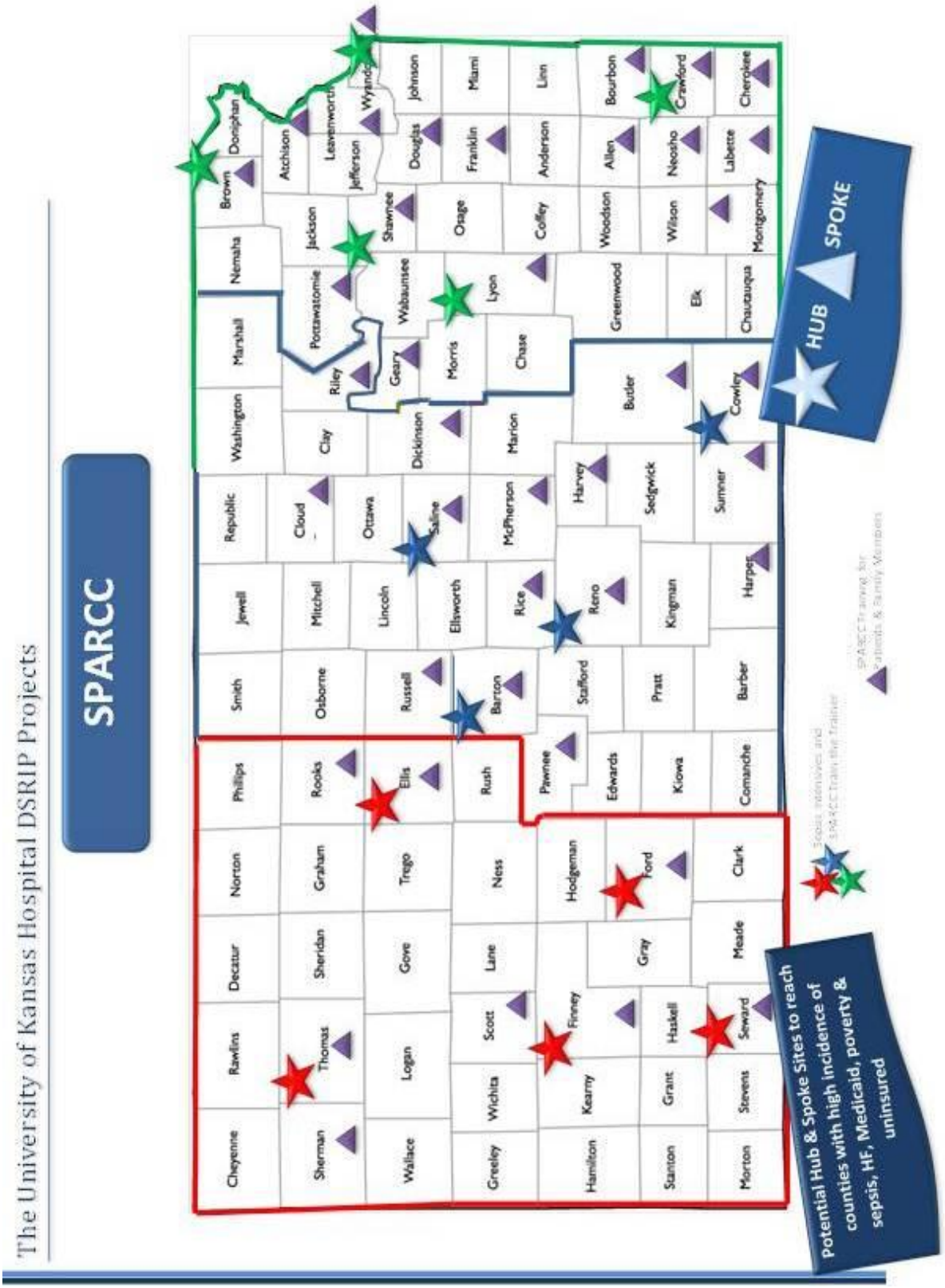
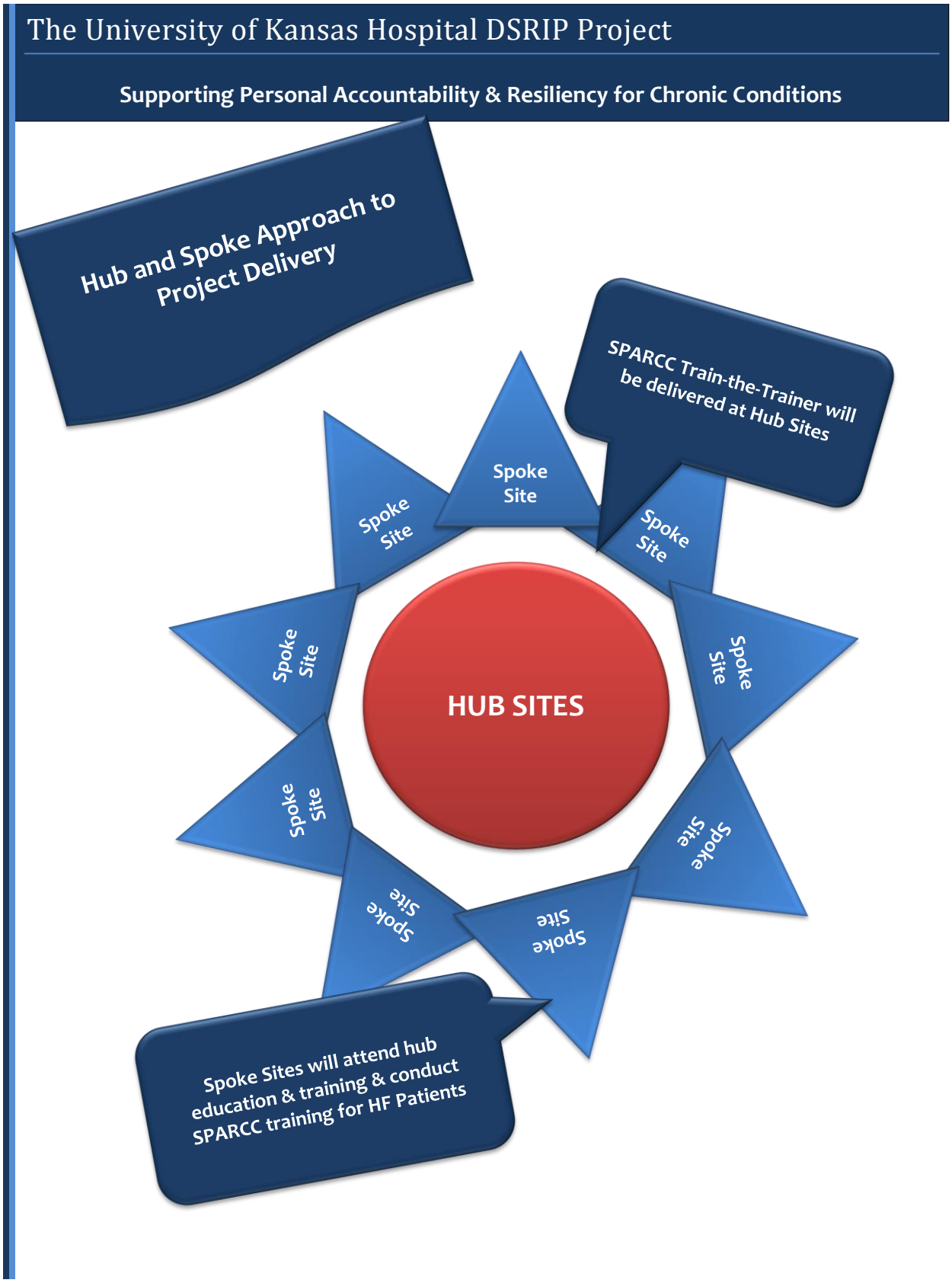


Figure 2: Hub and Spoke Model for SPARCC



Scope of the Project:
Numbers of Providers, Practices and Patients Involved

Forty-three Kansas counties meet criteria for inclusion in the SPARCC Initiative with high incidence of heart failure, Medicaid and Medicare beneficiaries, low income, uninsured and individuals living below the poverty level.

These counties constitute 40.95% of the total 105 counties in Kansas, and have 50.92% of the state's population. According to Kansas Department of Health and Environment statistics, there were 5,500 heart failure admits to Kansas Hospitals in 2009-11. Of those, 3,000 resided in the 43 selected counties.

That represents 54.49% of heart failure admits in the state for the period reported by Kansas Department of Health and Environment. Of that number, we will recruit within a range of 35% to 45% which equates to 1,050 to 1,350 heart failure patients for participation in a SPARCC training for heart failure patients and their caregivers.

However, this estimate is contingent on hospitals that conduct training and regions' ability to sustain the initiative. A primary motivating factor for sustainability is the expectation of readmission reduction of heart failure patients.

SPARCC will collaborate with hospitals and healthcare providers in the recruitment of health professionals who will attend the train the trainer sessions. Health professionals who have been trained will, in turn, help recruit heart failure patients and their caregivers to be trained.

The following chart (**Chart 1**) describes the number of locations that have been identified as potential sites to host train-the-trainer sessions and also describes the number of locations that could host one or multiple training sessions for heart failure patients and their caregivers.

Chart 1	**Western KS**	**Central KS**	**Eastern KS**	Totals
Locations for SPARCC Train the Trainer Sessions	5	4	5	14
Possible locations for Training for Heart Failure Patients & Caregivers	8	15	16	39

Ideally the number of participants per group would be eight to 10 with half (four or five) being HF patients and the other half being their caregivers/supporters. The groups should be capped at 15 with a maximum of eight of the 15 being patients and the remainder being supporters/caregivers. We expect supporters/caregivers to participate in the groups in order to reinforce and support the patient in their new self-management behaviors.

The table below (**Table 3**) shows the locations that will be recruited as host sites for SPARCC train-the-trainer and the counties that could host training sessions for heart failure patients and their caregivers.

Table 3 *Target Locations for SPARCC Train-the-Trainer Sessions & Training for Heart Failure Patients Their Support Network*

SPARCC Train-the Trainer		Counties for Patient/Caregiver
Community	County	*Counties meet inclusion criteria* *
Western Kansas		
Colby, KS	Thomas	Thomas, Sherman
Hays, KS	Ellis	Ellis, Scott
Garden City, KS	Finney	Finney
Dodge City, KS	Ford	Ford
Liberal, KS	Seward	Seward, Grant
Central Kansas		
Salina, KS	Saline	Republic, Cloud, Dickinson, Saline, Riley
Great Bend, KS	Barton	Pawnee, Rice, McPherson, Barton
Hutchison, KS	Reno	Harvey, Reno
Arkansas City, KS	Cowley	Butler, Cowley, Sumner, Harper
Eastern Kansas		
Hiawatha, KS	Brown	Brown, Atchison
Kansas City, KS	Wyandotte	Leavenworth, Wyandotte
Topeka, KS	Shawnee	Geary, Shawnee, Douglas
Emporia, KS	Lyon	Lyon, Anderson
Pittsburg, KS	Crawford	Allen Bourbon, Neosho, Crawford, Cherokee, Labette, Montgomery

** Communities and counties listed in chart meet inclusion criteria and will be actively recrutied; other counties will be invited*

To estimate conservatively we will use the following example:

Year 1 Cohort of 4 Hub Sites

Each Hub Site provides train-the-trainer for health professionals from 4 Spoke Sites

Each of the 16 Spoke Sites trains an average of 11 HF pts/year or

16 X 11 = 176/year X 3 years = 528

Year 2 Cohort of 4 Hub Sites

Each Hub Site provides train-the-trainer for health professionals from 4 Spoke Sites
Each of the 16 Spoke Sites trains an average of 11 HF pts/year or
16 X 11 = 176/year X 2 years = 352

Year 3 Cohort of 4 Hub Sites

Each Hub Site provides train-the-trainer for health professionals from 4 Spoke Sites
Each of the 16 Spoke Sites trains an average of 11 HF pts/year or
16 X 11 = 176/year X 1 year = 176
Total 1,056 HF patients trained.

Admittedly, this is a conservative estimate, and we will use intensive recruitment efforts to reach the 1,350 number and beyond. The above examples will require, over the course of three years, health professions from 48 sites to attend SPARCC train-the-trainer courses and in turn, each spoke site must recruit at least 11 heart failure patients over the course of a year and likely conduct at least two SPARCC heart failure training sessions annually to equal a possible total of 96 SPARCC trainings for heart failure patients.

In year one, three of the cohort-1 hub sites will be located in eastern Kansas given its larger population base, and one will be located in central Kansas.

We will initiate recruitment in southeastern Kansas. We will recruit as the first year cohort-1 hub site, the 188-bed hospital in Pittsburg, Kansas, in Crawford County. Potential spoke counties include Crawford, Allen, Bourbon, Neosho, Cherokee, Labette, and Montgomery. These counties were included as they meet all 11 of the selection/inclusion criteria and collectively have a population of 162,871 and 10 hospitals within those counties.

Our second hub site for year one will be Kansas City, Kansas, in Wyandotte County. The potential spoke county is Leavenworth; total population is 233,732; four hospitals with 1,277 beds.

The third hub site for year one will be in Topeka, Kansas, in Shawnee County. The potential spoke counties are Pottawatomie, Geary, Shawnee, and Douglas. This area has a population of 344,762 with six hospitals with a total of 1,267 beds.

The fourth hub site for year one will be in Hutchinson, Kansas, in Reno County in central Kansas. The potential spoke counties are Reno and Harvey. This area has a population of 99,195 with two hospitals with a total of 315 beds.

Thus, we will be recruiting from the largest population base of 840,560, and these spoke sites will provide SPARCC training to heart failure patients over a good portion of the three-year period.

Year two and three sites will be selected based on results from our rapid cycle improvement process and other lessons learned.

Considering that hospitals and health professionals will play a critical role in the success of the SPARCC initiative, in recruitment of health professionals to participate in the train-the-trainer sessions, and in

the recruitment of heart failure patients, it is important to know how many hospitals are located in the target counties and also the number of health professionals.

A complete chart of all hospitals in the counties that meet inclusion criterial for SPARCC is included as **Appendix 2**. Our master hospital data base includes all the contact information for each of these hospitals listed.

Accordingly, we need to know the numbers of health providers most likely to deal with heat failure patients— family medicine, general internal medicine, general practitioners, cardiologists, nurse practitioners and physician assistants— by county. While the following table (**Table 4**) shows the numbers of each type of health professional by county, our master data base includes all contact information for each of these health professionals.

These health professionals will be advised through multiple means of the SPARCC initiative. Not only will engaging them help ensure recruitment of potential trainees for the train-the-trainer sessions and recruitment of health failure patients for SPARCC heart failure trainings, it will also help ensure the sustainability of the initiative as some of these professionals will become local experts, champions and faculty.

Table 4: Health professionals in counties meeting inclusion criteria

Health Professionals							
	Total MDs/Dos	Fam. Med.	Gen. Int. Med.	GPs	Cardio-logists	NPs	PAs
Western Kansas							
Sherman	2	2				1	5
Thomas	10	2	2			4	1
Grant	7	4				1	4
Scott	6	5				3	5
Finney	59	9	5	3	2	16	
Seward	34	4	6	1		8	
Ford	42	11	2	2	2	6	5
Rooks	5	5				2	2
Ellis	93	9	8	3	7	38	11
Totals	258	51	23	9	11	79	33
Central Kansas							
Pawnee	10	5		1		4	
Russell	6	3		1		9	1
Barton	42	8	4			10	9
Rice	4	6		1		2	2
Reno	110	23	11	1	4	24	22
Republic	6	2		2		3	
Cloud	7	3		1		6	3
Saline	154	45	9	5	7	24	15
Butler	57	32	12	1	3	46	34
McPherson	25	19	1		1	16	11
Harvey	73	23	5			35	13
Sumner	14	9				13	4
Harper	5	4	1	2		6	7
Dickinson	10	10				7	7
Cowley	43	11	3	5	1	10	6
Riley	120	21	16	2	4	47	31
Totals	686	224	62	22	20	262	165
Eastern Kansas							
Brown	12	8				6	5
Pottawatomie	15	12	1	4	1	17	6
Atchison	23	8	2			2	7
Geary	28	6	4			8	7
Shawnee	461	62	49	7	10	138	52
Leavenworth	200	15	7	4	1	51	7
Wyandotte	676	56	26		59	43	15
Douglas	167	46	35	6	10	84	30
Lyon	31	11	7	1	1	17	1
Franklin	20	7		2		12	
Anderson	8	3				2	2
Allen	10	6		1		6	3
Bourbon	19	7	1			6	2
Neosho	10	10		1		10	9
Crawford	58	15	7	3		55	2
Montgomery	42	7	5	3	2	18	7
Labette	44	7	1	1		7	4
Cherokee	18	1	1	1		11	11
Totals	1842	287	146	34	84	493	170
Totals in all selected counties	2786	562	231	65	115	834	368

Expected Results:

The expected outcome of the SPARCC program is to increase self-management skills resulting in:
1. Improved quality of life (Appendix B-2.8) and functional health status (Appendix B - 2.2) as measured by the Patient Reported Outcomes Measurement Information System (PROMIS-29). PROMIS-29 assesses physical functioning, pain, sleep, fatigue, depression, anxiety and overall quality of life.

2. Reduction of anxiety, depression and overall distress as measured by the PROMIS Anxiety and Depression Short Form and Patient Health Questionnaire PHQ9 (Appendix B - 2.16). The PROMIS is a 14-item scale that measures anxiety, depression and overall distress. Patients are asked to recall the past seven days and respond from "Never" to "Always" on 14 questions assessing anxiety and depression. The PHQ9 is a depression measure often used with HF patients. Patients are asked to recall over the past 14 days and answer 9 questions specific to depression including a suicide question.

3. Increase in the number of patients who maintain a healthy weight, low salt intake and medication adherence as evidenced by weekly weight and blood pressure readings (Appendix B – 2.18-2.19) as well as self-report to the health professional. The PROMIS-29 will also capture compliance via the functional health status section.

4. Decrease in hospitalizations as measured by the number of hospitalizations for heart failure for people who have gone through SPARCC training (Appendix B – 2.1),

Relationship to Other Projects:

The following chart (**Chart 2**) and narrative delineate how SPARCC is distinguished from the Kansas Optimizing Health Program (KOHP) and the HCIA Round 2 Award (called the Kansas Heart and Stoke Collaborative).

Chart 2	**KOHP Program**	**HCIA Round 2 Award (Kansas Heart and Stroke Collaborative)**	**SPARCC**
Facilitators	Leaders must be living with chronic condition, have taken the course, are excited about what they have learned and can model the behaviors taught	There are no 'group leaders.' Health professionals from TUKH will work – through the Heart and Stroke Collaborative's governance model – with professionals at the participating health care facilities.	Leaders must be trained health professionals in nursing psychology, social work or health education
Facilitation	Two leaders must be trained and co-lead the program. At least one leader must be a peer leader and not health professional or social worker	There is no class to be facilitated.	Preferred but not required that two leaders are trained per site. All leaders must be credentialed health professionals. If there is only one facilitator for a site it must be an RN or NP because of the medical nature of the program.

Format of Program	It is a scripted program and leaders must follow the script	No script.	No script, manual and training provided, leaders must have the depth of knowledge to answer health concerns or coping questions off script
Disease Focus	Non-disease specific focused on arthritis, diabetes, heart disease, lung disease	Focuses only on heart disease and stroke. Does not include heart failure.	Disease specific for heart failure but could be adapted to other illnesses in future iterations. However, due to the medical focus, the health conditions should not be mixed
Length of Program	Six weeks, 2.5 hours each week	Three years	Four weeks, 2 hours each week
	Does not teach medical aspects of disease	Patient engagement (which occurs later in the grant timeline and is not set up in a course or support group format) does include education on the medical aspects of disease	Heavy focus on medical aspects of disease
Techniques Taught for Disease Management	Focus on managing the emotional, physical, social aspects of chronic disease	Focus on processes health care professionals use in care delivery	Focus on medication and disease specifics, low salt diet, exercise, depression, self-calming, self-replenishing, cognitive behavioral techniques that trained health professionals address
Participants	Patient, family and caregivers welcomed	Health care facilities	Patient, family and caregivers welcomed
	Supportive in nature, participants learn from each other	Not organized as a support group; not designed to have patients learn from each other.	Supportive in nature, participants learn from each other

The HCIA Round 2 Award, now being called the Kansas Heart and Stroke Collaborative, is a program targeted at reducing deaths from heart attack and stroke in Northwest Kansas. It involves only Hays Medical Center, ten Critical Access Hospitals, and a few clinics. The focus is on risk analysis to identify those at greatest risk of heart attack or stroke, integrating care among providers and assuring that patients receive evidence-based protocol/pathway driven care regardless of their location. It does not target heart failure patients. Heart disease and heart failure are two different conditions. It also does not include components related to long-term self-care for those patients. Educational initiatives aimed at the general public center on early recognition of the symptoms of heart attack and stroke.

The Kansans Optimizing Health Program (KOHP) does not focus specifically on heart failure patients. As stated by the Kansas Department of Health and Environment, "Participants do not learn the medical aspect of a disease but rather how to manage the emotional, physical, and social challenges of having a chronic condition."

In short, KOHP is a peer-led, scripted support program with no focus on the medical aspects of the disease process. This program focuses on empowering individuals to better manage chronic disease but does not focus on the medical management aspects of any particular disease. Using the model developed by Stanford University, this model is facilitated by lay leaders and does not focus on the specific medical management of any one chronic disease.

SPARCC is heavily focused on the medical aspect while integrating resilience skills into the discussions. SPARCC will address the medical management alongside psychosocial elements, while KOHP focuses solely on the psychosocial. These programs could be complementary in that the KOHP program could reinforce some of the skills taught in the SPARCC training.

The SPARCC project is based on a model currently in operation on a very small scale at TUKH's Turning Point location in Kansas City. All locations added under DSRIP will be new locations. The program is specifically designed to teach persons with heart failure how to manage the medical aspects of the condition, as well as the psycho-behavioral factors that are often barriers to the individual's ability to cope with and effectively monitor and manage their own care. This program includes education on assessing symptoms; quickly recognizing signs of impending problems; intensively managing diet, medication, and life-style to control and, hopefully, slow progression of the disease and reduce need for acute care admissions.

Outcomes from the HCIA Round 2 will be distinguished from the SPARCC project outcomes in several ways.

The governance structures for these two projects, HCIA Round 2 (Kansas Heart and Stroke Collaborative) and SPARCC, are completely different. The Kansas Heart and Stroke Collaborative has an Executive Director who interfaces with participating locations and reports up to the Board of Directors of the Collaborative. The relevant data is collected using electronic medical records at the participating locations.

In contrast, the SPARCC project is managed by The University of Kansas Hospital through the KU Medical Center Department of Continuing Education and Professional Development. The outcomes from patients in each project will be collected by RedCap, an online data collection tool. It will reside in a separate database and will be analyzed separately. The administrations of these two projects, including data collection and outcomes analysis, do not overlap.

In addition, the patient populations, on which data will be collected, are different. The Kansas Heart and Stroke Collaborative focuses on heart diseases and stroke patients, while SPARCC focuses on heart failure patients. As noted in Appendix B of the DSRIP documentation (metrics document), SPARCC will look at decreased hospitalizations and readmissions, functional health status, smoking reduction/cessation, hypertension monitoring, quality of life, depression assessment/screening, weight monitoring, and diet monitoring, among others, specifically related to heart failure.

Relationship to other participating providers' projects and plan for Learning Collaborative:
In order to identify a cohort of HF patients for SPARCC training, it will be necessary for clinics, nursing facilities and hospitals to communicate with each other. The continuum of care embedded in the SPARCC model requires enlisting and development of support systems beyond the walls of the hospital. Formal and or professional support systems available in urban settings may need to be modified for smaller communities. However, developing a sustainable Learning Collaborative provides a scaffold that can be utilized to enhance the care for other chronic diseases such as diabetes. Resiliency skills coupled with medical self-management are key elements for many chronic care models.

This project meets the following Healthy Kansas 2020 goals and ties into the tri-part aim in the following ways:
The overall goals of the Health Kansas 2020 (HK 2020) Steering Committee are improving access to services, promoting healthy living, and promoting healthy communities.

Through the DSRIP program, TUKH aims to work toward these three, broad objectives by implementing two projects which promote two key areas:

- Increase access to services, including primary care and preventive services
- Increase integration of the health care delivery system, including medical, behavioral, health, and social services
- Expand chronic and complex care management models

Challenges:
The initial challenge will be identifying trainers—nurses and other health professionals—to serve as co-facilitators in the selected locations hosting SPARCC train-the-trainer sessions. Identifying and recruiting these health professionals will be less of a challenge in the more heavily populated eastern and central parts of Kansas. Western Kansas is dominated by sparsely populated counties with fewer health providers and thus recruitment efforts will be intensified in these areas.

While we have many strategies in place for patient recruitment, it may be more challenging to recruit in sparsely populated areas of Kansas, especially in western Kansas. However, we can recruit patients living in remote sites with the understanding that the SPARCC team will find a way for them to participate virtually via ITV, ZOOM or Adobe Connect.

In recruitment of both trainers and heart failure patients, it will be absolutely essential to enlist the hospitals and clinics/practices in the identification of trainers and heart failure patients who might be candidates for the SPARCC HF training. Our strategy includes advising hospitals and appropriate health professions early in the DSRIP cycle about the SPARCC initiative and its many benefits.

5-Year Expected Outcomes for Provider and Patients:
The expectation is that 30 day hospital readmissions will decrease. In five years we expect the program to be a regular part of heart failure treatment and clinics and that hospital readmissions drop significantly for a minimum of 30 days and likely for six months.

Realistically, not all patients will live past five years. However, we expect all patients' quality of life, anxiety, depression and overall distress to significantly improve ($p < .001$) for that five year period and beyond.

Starting Point/Baseline:
The patient baseline is dependent upon the health and the emotional state of the patient at the beginning of the training. This will be measured at the beginning of the training using the PROMIS, PHQ9 and self-report of number of times they had been hospitalized in the six months prior to taking the class. The expectation is that emotional health will improve as well as adherence to self-management requirements such as diet, medications, weight monitoring and exercise.

Rationale for the Project:
According to the policy statement by the American Heart Association, published in *Circulation (May, 2012)*, the prevalence of heart failure is projected to increase to 2.97% of US adults by the year 2013. The average total cost of heart failure per US adult is approximately $107, costing Kansas approximately $231.6M in 2012. The average cost of heart failure is projected to reach $244 per US adult in 2030. Heart failure patients are at high risk for readmission to the hospital if unable to adhere to self-care skills. Diet, medication adherence and depression are risk factors for readmission. If these factors are controlled, the 30 day hospital readmission rate should decline, overall quality of life will improve, and anxiety and depression should decrease.

In addition to improving outcomes for heart failure patients, this program also addresses caregiver stress by training the supporters in stress management and coping skills. Although this program has been studied in heart failure patients, this model can be used for any chronic medical conditions such as diabetes, lung disorders, autoimmune disorders, Parkinson's and MS.

This project represents a new initiative or significantly enhances an existing delivery system reform initiative in the following ways:
This project represents a new initiative for TUKH to bring an evidenced-based chronic care model to smaller-rural communities. The foundation of this initiative can serve as a basis for building additional chronic care support programs. Facilitators trained for this program have the skills to implement similar programs for other chronic disease thus expanding the expertise within the communities served.

Data Collection:
Data collection will be completed using both paper and online assessment for participants, healthcare personnel, sites for training and delivery. Participants will be coached on how to complete patient reported outcomes including the PROMIS measures, PHQ9, and salt intake. Healthcare personnel will be instructed on how to standardly collect clinical measures including BP and weight.

Rapid Cycle Evaluation:
Table five illustrates the proposed high level timeline for the SPARCC project. The enlisted sites for patient SPARCC training would be grouped into three cohorts based upon their geographical location. One cohort of sites/hospitals would be trained each year. Once the cohorts have individuals trained as SPARCC trainers and the first SPARCC training has been delivered, patient SPARCC training would continue on a rolling basis based upon identified patients.

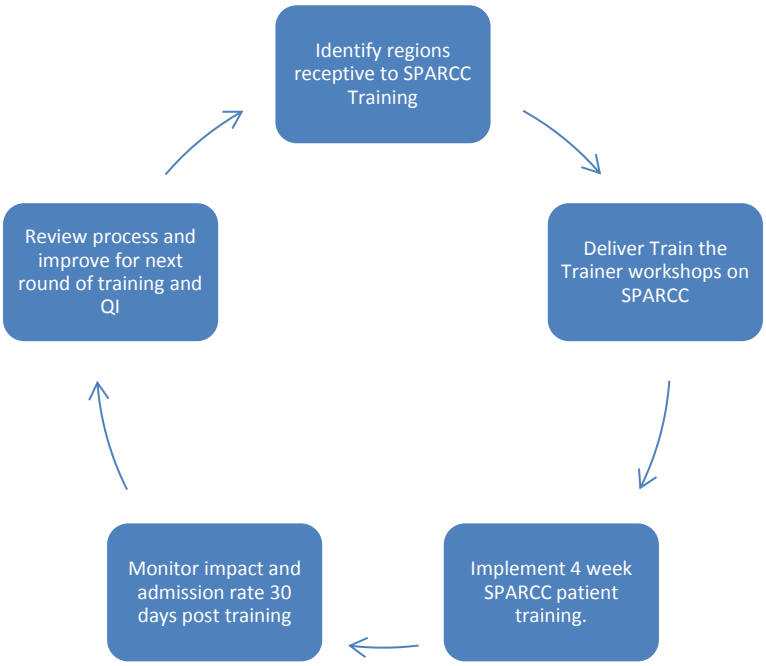
Table 5 Timeline for SPARCC

TASKS	Duration	YEARS		
		1	2	3
Cohort Hospitals				
Assess capabilities of hospitals/sites	**3 wks**			
Cohort 1				
Cohort 2				
Cohort 3				
Recruit cohort of hospitals	**2 wks**			
Cohort 1				
Cohort 2				
Cohort 3				
Recruit 2 trainers per hospital	**4 wks**			
Cohort 1				
Cohort 2				
Cohort 3				
Deliver Train the Trainer	**2 days**			
Cohort 1				
Cohort 2				
Cohort 3				
Recruit Patients	**4 wks**			
Cohort 1				
Cohort 2				
Cohort 3				
Deliver SPARCC Training	**4 wks**			
Cohort 1				
Cohort 2				
Cohort 3				
Assess Patient Readmission	**24-36 wks**			
Cohort 1				
Cohort 2				
Cohort 3				
Review actual vs. expected results.	**2 wks**			
Cohort 1				
Cohort 2				
Cohort 3				
Feedback & dissemination of Results	**2 wks**			
Cohort 1				
Cohort 2				
Cohort 3				
Facility level rapid cycle improvement*	**2 wks**			
Cohort 1				
Cohort 2				
Cohort 3				

*Based on performance to goal and evaluation of facility-level implementation, identify potential interventions to help advance lower performing organizations' results

At the conclusion of each task, the process will be assessed as to the actual measurement versus the goal; identification of challenges or barriers to meeting the goal; means to mitigate challenges; recognized factors for success; and recommended changes and corrective actions to the protocol for the next repeat of that step. In addition, at the end of one complete cycle (recruitment through end of patient training), the cycle, illustrated in **Figure three**, will be assessed for necessary changes or improvements to the protocol. Changes will be reviewed and agreed upon by cohort hospitals, trainers, and TUKH prior to starting the next cycle.

Figure 3. Training cycle for SPARCC (PDSA)



Data will be collected by the responsible entity as shown in **Table 6**. TUKH project management will then be responsible for collecting the data and reviewing the data at the end of each task within a cycle and at the end of each cycle.

Table 6. SPARCC Tasks

TASKS For Each Cycle	Responsible	Goal
Assess capabilities of hospitals	TUKH	≥ 16 possible hospitals/cohort
Recruit cohort of hospitals	TUKH	4-6/cohort
Recruit trainers	TUKH	2/hospital
Deliver Train the Trainer	TUKH	8 trainers per session
Recruit Patients	Hospital	4-5 patients per SPARCC session
Deliver SPARCC Training	Hospital	Complete two 4 week session/year
Assess Patient Readmission	Hospital/ Trainer	Reduce readmission rate
Review actual results vs. proposed results.	TUKH/ Cohort/ Trainers	Narrow gap between actual and expected
Feedback & dissemination of Results	TUKH	Reduce Time to analyze and disseminate results
Facility level rapid cycle improvement	Hospital/ Trainer	Reduce Time to integrate changes and corrective actions

Dissemination of Outcomes:

A number of means will be used to disseminate outcome results from the SPARCC initiative. Outcomes will be distributed by hosting a statewide web stream and presenting at local, regional, and statewide conferences. In addition, educational content, resources, and case studies will be translated into an online CE certification course. Publications and white papers will also be written and distributed to share findings. Next steps will allow for a wider distribution, regardless of practice location, and will focus on self-management and resilience protocol. .

Project Budget

Provide a detailed budget for all three years of DSRIP the project:

Estimated DSRIP Budget University of Kansas Hospital

Personnel, project management and data analyst	$691,172.00
Data management system	$32,000.00
Marketing	$30,000.00
On-line applications curriculum development	$250,000.00
SPARCC Train the Trainer Workshops	$107,572.00
40 SPARCC 4 week Heart Failure Patient Trainings	$153,600.00
Total	$1,264,344.00

Project Governance

A number of the project team members are integrally involved with the education and training aspects of the DSRIP project. These individuals have extensive and in-depth experience in design and delivery of outcomes-based quality improvement education and training in SPARCC as well as in a range of other topics in health care and long-term care.

At least three of these individuals will serve as lead faculty for SPARCC education and training. Given that two of team members are affiliated with the University of Kansas Medical Center's nationally accredited continuing medical and nursing education, they bring a depth of experience in development of educational programs designed to make a positive difference in practice performance improvement and patient outcomes.

TUKH proposes to work with selected communities across the state of Kansas that represent a chosen rate of heart failure, a predetermined Medicaid and/or uninsured population, a population living below the poverty level, and a willingness to support individuals becoming trained to lead SPARCC programs in their communities.

As community partners come on board, the Steering Committee and Expert Panel for the DSRIP projects will evolve. Each hospital and/or other community partner may request either a seat on the Steering Committee or the Expert Panel. Review of the project implementation within the community will occur monthly with direct input from the clinical leads of the project. The Project Management leads will continue to be Dale Grube and Elizabeth Wenske-Mullinax, and they may add ad hoc members as needed, especially as data collection efforts grow along with the number of community partners.

The complete project team for the Health SPARCC Project at TUKH is comprised of*:*

- Project management
    - Dale Grube, MA, Associate Dean of Continuing Education and Professional Development and Director of Continuing Medical Education
    - Elizabeth Mullinax-Wenske, PhD, Project Manager, Continuing Education
- Steering Committee
    - Clinical Lead: Moira Mulhern, PhD, Executive Director, Turning Point
    - Linda Redford, PhD, Director, Central Plains Geriatric Education Center, Landon Center on Aging at the University of Kansas Medical Center
    - Cathy Glennon, RN, MHS, BC, CAN, OCN, Director of Nursing, KU Cancer Center; Community Outreach, Turning Point
    - Barbara MacArthur, RN, FAAN, Vice President, Cardiac Services
- Expert Panel
    - Jennifer Klemp, PhD, MPH, Associate Professor
    - Christie Russell, NP, Cardiology
    - Stacy Wattier, RN, Nurse Manager, Cardiothoracic Progressive Care
- Ad Hoc Members
    - Chris Wittkopp, Director of Quality Outcomes, Organizational Improvement
    - Cathy Gardner, Senior Director of Business Operations, Organizational Improvement
    - Dorothy Hughes, Government Relations Liaison
- Community partners involved in this project include:
    - To be determined

Data Sharing and Confidentiality

The SPARCC DSRIP Project will build a database for this project. When possible, baseline data will be obtained from the medical records (of previously treated HF patients) for comparison with data obtained prospectively during the course of the project. Hospitals/providers will review the medical records of patients with HF who were hospitalized within one year prior to the participation in the project. Information from the medical records will be used to populate the database. When this is not possible, at the beginning of the program, the patient will be asked how many times they have been hospitalized during the previous six months. The data will be encrypted, password protected, backed up in separate physical servers, and HIPAA compliant. Every key aspect of collected data can be analyzed for before and after performance, or by comparison of any time periods selected by the users, including monthly time course data.

Expectation of Sustainability

Overall, this program will demonstrate a decrease in thirty day hospital readmission rate of HF patients as compared to baseline.

Regarding sustainability, this clinic model is reimbursable. If a nurse practitioner is running the clinic and performs a physical exam, the visit is reimbursed. If an RN leads the clinic and is not reimbursed, with the expected reduction in 30 day hospital readmissions, a significant savings for the hospital should offset any costs. Grants can be obtained to offset costs if the medical center does not have an NP and is using RN's to co-facilitate the program (with a social worker).

Designated KU staff will educate professionals in the specified counties, so the new trainers will be able to facilitate SPARCC programs and eventually identify and train others to implement the program. The program will be integrated into the community's model of heart failure care. The clinic assessment is reimbursable if a Licensed Provider, such as an ARNP, performs. The self-report measures on functional status, QOL, anxiety, depression and distress will continue to be analyzed as well as data collected on readmissions at the specified community hospitals.

There will be succession training. We will identify master trainers in each region who can help identify and train new facilitators in their area. Since many of the trainers will be employed by a medical center or clinic, they can identify trainees in their place of work or associated centers.

In addition, we are building a training website where there will be ongoing training for current trainers and the newly trained. For 6 months, there will be monthly ITV "check-ins" for the trainees in order to answer questions or trouble shoot. The University of Kansas Hospital SPARCC staff will always be available in case the trainers have questions.

Project Milestones and Performance Indicators

(Metrics also detailed in Appendix 3.)

Related Category 1 Outcome Measures:

Metrics

- 1.1 Identification of community partners
    - Metric: Number of participating community partners (hospitals, nursing facilities, clinics, etc.)
- 1.2 Conduct an assessment of readmission for HF patients within the participating community
    - Metric: Identify patients eligible for SPARCC training

Related Category 2 Outcome Measures:

Metrics

- 2.1 Develop 'train-the-trainer' modules
    - Metric: Number of trainers prepared
- 2.2 Identify mechanisms by which to contact and disseminate information about the SPARCC program to patients, families, and potential providers
    - Metric: # of patients who respond or indicate interest
- 2.3 Develop virtual method to deliver and monitor program
    - Metric: Deliver and monitor training remotely

Related Category 3 Outcome Measures:

Metrics (Appendix B numbering)

- 2.8 Quality of life and functional health status
  - Measured by the Patient Reported Outcomes Measurement Information System PROMIS-29)
  - Metric: Survey responses indicating functional health status
  - Metric: Pre and post intervention assessment of patient using PROMIS Inventory.
- 2.16 Depression Assessment/Screening
  - Measured by the PROMIS Anxiety and Depression Form and PHQ9
  - Metric: Depression Assessment Conducted (PROMIS)
- 2.18 Daily Weight Monitoring
  - Measured by weekly weight and blood pressure readings as well as self-report (daily tracking) to the health professional.
  - Metric: % of patients who track weight daily
- 2.13 Hear Failure Admission Rate
  - Measured by the average time between admissions for patients who have gone through SPARCC training
  - Metric: Number of hospitalizations for heart failure (for individuals who have gone through SPARCC training)

Related Category 4 Outcome Measures:

Metrics

- 4.1 Reduce overall ED utilization
  - Metric: # of ED visits
  - Metric: # of frequent users
- 4.2 Decrease 30-day, readmission rate following hospitalization
  - Metric: # of patients readmitted to the index hospital following a hospitalization
- 4.3 Controlling High Blood Pressure
  - Metric: % of patients aged 18-85 years of age who had a diagnosis of hypertension and whose blood pressure was adequately controlled (<140/90mmHg) during the measurement period
- 4.4 Preventive Care and Screening: Tobacco Use: Screening and Cessation Intervention
  - Metric: Percentage of patients aged 18 years and older who were screened for tobacco use one or more times within 24 months AND who received cessation counseling intervention if identified as a tobacco user

Project Valuation

As the Large Public Teaching Hospital (LPTH), TUKH has been allocated a total of $45 million across DY 3 through DY 5. This amount is split equally between the two DSRIP projects, giving SPARCC a total value of $22.5 across the three demonstration years.

Base Valuation

The base valuation is 75% of the total, and half is SPARCC, so 37.5% of the total, which is $16,875,000. The table below shows the base valuation by year for SPARCC:

	DY 3	DY 4	DY 5	Total
Base Valuation	37.5%	37.5%	37.5%	
LPTH Pool: SPARCC Project	$2,812,500	$5,625,000	$8,437,500	**$16,875,000**

Secondary Valuation

Secondary valuation payments are comprised of a "Partner Secondary Value Proportion" and a "Trailblazer Secondary Value Proportion." Achievement of the Partner Secondary Value is based on the number of Medicaid/CHIP beneficiaries served in the project, and the percent of patients primarily serve by community partners.

The Partner Secondary Value of 15 percent (7.5% attributable to SPARCC) is achieved if at least 20 percent of the patients served through the project are affiliated with external partners:

The Trailblazer Secondary Value of 10 percent (5% attributable to SPARCC) is achieved if TUKH includes outreach and capacity building components that disseminate the project's outcomes and methods to rural and underserved areas of Kansas in order to expand access to best practices:

The dollar amounts possible under the secondary valuation methodology are outlined for SPARCC in the table below:

	DY 3	DY 4	DY 5	Total
Partner Secondary Value	7.5%	7.5%	7.5%	
LPTH Pool: SPARCC Project	$562,500	$1,125,000	$1,687,500	$3,375,000
Trailblazer Secondary Value	5%	5%	5%	
LPTH Pool: SPARCC Project	$375,000	$750,000	$1,125,000	$2,250,000
Totals	$937,500	$1,875,000	$2,812,500	**$5,625,000**

Per the DSRIP Protocols, metric milestone categories are each assigned a percentage (value) in each demonstration year. These percentages are applied to the dollar amounts in each project's base valuation.

Appendix 1: Counties meeting inclusion criteria

Counties Chosen as Hub and Spoke Sites

Western Kansas

County	Pop.	Hospt.	Licensed Beds	Nursing Homes	Licensed Beds	MDs Dos	HF. Admits per/100,000	Sepsis Rate Angus 2	% Medicaid /CHIP	Percent Medicare	Percent Uninsured	% Below Poverty	Criteria Met(11)
Sherman	6010	1	25	1	57	12	184.9	229.8	18.59	23.64	18.9	8.4	10
Thomas	7900	1	25	1	45	10	229.8	222.7	14.87	18.18	15.8	10.3	9
Grant	7829	1	26	1	56	7	232.5	188.7	23.12	13.27	23.7	11.6	9
Scott	4936	1	25	1	68	6	260.5	322.8	16.84	20.42	19.2	6.7	10
Finney	36776	1	132	2	121	59	142.7	194.3	28.89	11.54	25.6	13.6	8
Seward	22952	1	83	3	133	34	179.7	180.9	30.45	10.9	30.9	17.4	9
Ford	33848	1	99	5	273	42	191.9	206.5	26.34	11.93	27.9	16.4	10
Rooks	5181	1	25	2	70	5	151.8	444.2	16.25	25.67	17.1	16.3	11
Ellis	28452	1	222	3	211	93	241.9	373.8	12.75	5.2	15.7	15.2	9

Central Kansas

County	Pop.	Hospt.	Licensed Beds	Nursing Homes	Licensed Beds	MDs Dos	HF Admits per/100,000	Sepsis Rate Angus 2	Percent Medicaid/CHIP	Percent Medicare	Percent Uninsured	% Below Poverty	Criteria Met(11)
Pawnee	6973	1	25	1	80	10	180	463.9	14.54	21.14	15.6	8.9	9
Russell	6970	1	22	1	59	6	121.5	463.6	18.61	27.62	19.3	10.9	9
Barton	27674	3	83	3	210	42	133.8	332.2	22.1	20.5	20.9	14.9	9
Rice	10083	1	25	3	132	4	187.7	326.5	17.87	21.65	18	16.4	10
Reno	64511	1	209	9	653	110	117.9	290.8	20.28	21.67	18.1	12	9
Republic	4980	1	25			6	186.1	151.4	15.32	30.36	18	13.9	9
Cloud	9533	1	25	4	169	7	365.6	203.3	19.01	25.27	17.9	16	11
Saline	55606	1	411	6	422	154	91.1	268.5	20.73	19.28	19	15.6	10
Butler	65880	1	74	7	624	57	152	265	14.52	16.78	13.2	7.00	10
McPherson	29180	3	95	7	572	25	185.5	195.8	13.75	24.51	13.9	8.1	8
Harvey	34684	1	106	7	496	73	177.3	376.7	17.15	21.55	16.5	11.9	9
Sumner	24132	2	50	2	262	14	153.6	334.6	18.94	20.36	15.6	13.5	10
Haprer	6034	2	50	2	97	5	279.7	388.4	18.95	24.7	21.1	16.2	10
Dickinson	19754	2	50	3	134	10	220.5	218.5	20.73	21.9	15.3	11.4	10
Cowley	24132	2	74	6	357	43	154.3	216.5	24.81	31.7	18.9	18.1	11
Riley	71115	1	150	4	358	120	119.6	146.8	13.46	9.58	14.2	22.7	6

Eastern Kansas

County	Pop.	Hospit.	Licensed Beds	Nursing Homes	Licensed Beds	MDs Dos	HF Admits per/100,000	Sepsis Rate Angus 2	Percent Medicaid/CHIP	Percent Medicare	Percent Uninsured	% Below Poverty	Criteria Met(11)
Brown	10030	1	26	2	102	12	357.6	280.7	25.57	23.13	20.3	21.4	11
Pottawatomie	21604	1	25	3	145	15	221.7	234.8	13.07	16.19	14.8	8.2	8
Atchison	16924	1	25	3	162	23	191.3	420.9	20.76	18.88	15.6	15	11
Geary	34362	1	92	1	100	28	186.8	180.8	15.4	10.94	19.4	10.8	8
Shawnee	177934	2	964	16	1439	461	206.2	483	21.79	20.27	17.5	15.9	11
Leavenworth	76227	2	150	5	352	200	199.5	404.6	12.5	15.4	13	9.6	8
Wyandotte	157505	2	1127	9	775	676	381	640	33.92	15.5	27.3	23.4	11
Douglas	110862	1	161	6	402	167	120.4	256.7	12.29	12.81	17.2	19.5	8
Lyon	35369	1	53	3	249	31	196.5	270.8	19.51	16.25	22.7	20.7	11
Franklin	25992	1	44	3	225	20	222.5	370.6	21.4	20.03	15.3	12.2	10
Anderson	7920	1	25	1	51	8	175.5	404.7	18.79	24.22	20.5	15.3	11
Allen	13371	1	25	3	146	10	180.3	346.1	24.82	23.21	17.7	17.2	11
Bourbon	15173	1	177	2	111	19	271.6	349.7	26.69	22.75	17.6	17.7	11
Neosho	16512	1	25	4	220	10	356.3	379.4	23.67	22.36	18.2	17.6	11
Crawford	39134	1	188	6	457	58	314.3	478.1	24.51	18.68	21.6	20.4	11
Montgomery	35471	2	108	7	409	42	266.7	328.3	26.27	22.52	19.3	17.4	11
Labette	21607	2	111	6	259	44	195.4	735.7	25.28	23.55	17.7	16.6	11
Cherokee	21603	1	25	4	211	18	231.5	855.7	26.23	23.9	19.4	17.8	11

Criteria: Counties with: population of $\geq 5,000$; at least one 25 bed hospital; at least one nursing home; ≥5 physicians; of ≥ 150/100,000; sepsis Angus 2 rate of ≥ 200/100,000; percent population covered by Medicaid/CHIP ≥ 15%; heart failure admit. rate percent population covered by Medicare ≥ 15%; percent of population uninsured ≥ 15%; percent population living below poverty ³ 15% percent population living below poverty ³ 15%

Please note: counties meeting the majority of criteria were included

Appendix 2: Hospitals in counties meeting inclusion criteria

Western Kansas				
County	Hospital	Location		Beds
Training Sites	Note: this document is a truncated version of the master data base			
Spoke Sites	for SPARCC in counties meeting inclusion criteria: master includes			
	all contact information/phone number and other relevant information			
Sherman	Goodland Regional Medical Center	Goodland	KS	25
Thomas	Citizens Medical Center	Colby	KS	25
Grant	Bob Wilson Grant County Hospital	Ulysses	KS	26
Scott	Scott County Hospital	Scott City	KS	25
Finney	St Catherine Hospital	Garden City	KS	132
Seward	Southwest Medical Center	Liberal	KS	83
Ford	Western Plains Medical Center	Dodge City	KS	99
Rooks	Rooks County Health Care	Plainville	KS	25
Ellis	Hays Medical Center	Hays	KS	222

Central Kansas				
County	Hospital	Location		Beds
Training Sites				
Spoke Sites				
Pawnee	Pawnee Valley Community Hospital	Larned	KS	80
Russell	Russell Regional Medical Center	Russell	KS	22
Barton	Great Bend Regional Hospital	Great Bend	KS	42
	Clara Barton Hospital	Hoisington	KS	25
	Ellinwood District Hospital	Ellinwood	KS	25
Rice	Hospital District #1 of Rice County	Lyons	KS	25
Reno	Hutchinson Regional Hospital	Hutchinson	KS	209
Republic	Republic County Hospital	Belleville	KS	25
Cloud	Cloud County Health Center	Concordia	KS	25
Saline	Salina Reginal Medical Center	Salina	KS	411
Butler	Susan B. Allen Hospital	El Dorado	KS	74
McPherson	McPherson Hospital, Inc.	McPherson	KS	49
	Mercy Hospital, Inc.	Moundridge	KS	21
	Lindsborg Community Hospital	Lindsborg	KS	25
Harvey	Newton Medical Center	Newton	KS	106
Sumner	Sumner Regional Medical Center	Wellington	KS	65
	Sumner County District #1 Hospital	Caldwell	KS	15
Harper	Anthony Medical Center	Anthony	KS	25
	Harper Hospital District #5	Harper	KS	25
Dickinson	Memorial Health System	Abilene	KS	25
Cowley	South Central Kansas Medical Center	Arkansas City	KS	49
Riley	Mercy Regional Health Center, Inc.	Manhattan	KS	120

Eastern Kansas				
County	Hospital	Location		Beds
Training Sites				
Spoke Sites				
Brown	Hiawatha Community Hospital	Hiawatha	KS	25
	Horton Commt. Hospt./Center	Horton	KS	15
	for Health & Wellness			
Pottawatomie	Onaga Community Health	Onaga	KS	25
	Wamego Health Center	Wamego	KS	25
Atchison	Atchinson Hospital	Atchinson	KS	25
Geary	Geary Community Hospital	Junction City	KS	92
Shawnee	St. Francis	Topeka	KS	378
	Stormont Vail	Topeka	KS	586
Leavenworth	St. Luke's Cushing Hospital	Leavenworth	KS	74
	St John Hospital	Leavenworth	KS	76
Wyandotte	Providence Hospital	Kansas City	KS	400
	University of Kansa Hospital	Kansas City	KS	727
Douglas	Lawrence Memorial Hospital	Lawrence	KS	161
Lyon	Newman Regional Medical Center	Emporia	KS	53
Franklin	Ransom Memorial Hospital	Ottawa	KS	44
Anderson	Anderson County Hospital	Garnett	KS	25
Allen	Allen County Regional Hospital	Iola	KS	25
Bourbon	Mercy Hospital Fort Scott	Fort Scott	KS	177
Neosho	Neosho Memorial Hospital	Chanute	KS	25
Crawford	Via Christi/Pittsburg	Pittsburg	KS	188

Mongomery	Coffeyville Regional Medical Center	Coffeyville	KS	68
	Mercy Hospital Independence	Independence	KS	40
Labette	Labette Health	Parsons	KS	99
	Oswego Community Hospital	Oswego	KS	12
Cherokee	Mercy Hospital Columbus	Columbus	KS	

Appendix 3: Metrics for SPARCC

Measure Count	Measure Name	Metric	NQF# if applicable	Measure Steward	Data Source	Baseline Performance Level (include numerator/denominator)	Anticipated Completion Date if applicable	Report Deliverables to State	Data Periodicity	Anticipated target level for triggering payment
CATEGORY 1 MEASURES										
1.1	Identification of community partners	Number of participating community partners (hospitals, nursing facilities, clinics, etc.)	Not found	TUKH	TUKH	# of Community partners interested/Total potential community partners #of community partners fully engaged/Total potential community partners	ongoing	Semi-annual & annual per state required schedule	6 months	10% of potential community partners
1.2	Conduct an assessment of readmission for HF patients within the participating	Identify patients eligible for SPARCC training	Not found	TUKH	TUKH	# of HF patients identified/# potential HF patients in the 43 identified counties	ongoing	Semi-annual & annual per state required schedule	6 months	≥ 30%
CATEGORY 2 MEASURES										
2.1	Develop 'train-the-trainer' modules	Number of trainers prepared	Not found	TUKH	TUKH	# of trainers trained/# of trainers required	ongoing	Semi-annual & annual per state required schedule	6 months	75% of required trained for first 6 months
2.2	Identify mechanisms by which to contact and disseminate information about the SPARCC	# patients who respond or indicate interest	Not found	TUKH	TUKH	# of patients identified/Total target # of patients	ongoing	Semi-annual & annual per state required schedule	6 months	≥ 30%
2.3	Patients Participating	Number of patients participating in SPARCC/resilience training program and	Not found	TUKH	TUKH	Number of patients that participate/# that are eligible	ongoing	Semi-annual & annual per state required schedule	6 months	≥25%
2.3	Develop virtual method to deliver and monitor program	Ability to deliver and monitor training remotely	Not found	TUKH	TUKH	Beta test completed 6 months	ongoing	Semi-annual & annual per state required schedule	6 months	Beta version validated

CATEGORY 3 MEASURES (App B numbers)										
2.8	Quality of life and functional health status	Measured by the Patient Reported Outcomes Measurement Information System PROMIS-29) Survey responses	Not found	TUKH	TUKH	Baseline score/post intervention score	ongoing	Semi-annual & annual per state required schedule	6 months	≥ 10% improvement
2.16	Depression Assessment/Screening	Measured by the PROMIS Anxiety and Depression Form	0518	CMS		Baseline score/post intervention score	ongoing	Semi-annual & annual per state required schedule	6 months	≥ 10% improvement
2.18	Daily Weight Monitoring	Measured by weekly weight and blood pressure readings as well as self-report (daily tracking) to the health professional.PROMIS-29 captures compliance via the functional health	Not found	TUKH	TUKH	Enrolled patients weighing/# of total patients enrolled	ongoing	Semi-annual & annual per state required schedule	6 months	≥ 10% improvement
2.13	Heart Failure Admission Rate	Measured by the average time between admissions for patients who have gone through SPARCC training	0277	AHRQ	DAI	Rate of readmission for patients in the program/ national readmission rate	ongoing	Semi-annual & annual per state required schedule	6 months	≥ 10% improvement

CATEGORY 4 MEASURES										
	Reduce overall ED utilization	# of ED visits	n/a	KDHE/ Medicaid Managed Care Organizations (MCOs)	Medicaid claims data statewide	Numerator: number of ED visits Denominator: population of the state (same reporting period)	n/a (ongoing; likely beyond initial DSRIP period)	Semi-annual & annual per state required schedule	Data reviewed quarterly at a minimum	10% improvement in the metric each time reported for purposes of payment
		# of frequent users of ED	n/a	KDHE/ Medicaid MCOs	Medicaid claims data statewide	Numerator: number of patients visiting the ED four times a year or more Number of total ED visits	n/a (ongoing; likely beyond initial DSRIP period)	Semi-annual & annual per state required schedule	Data reviewed quarterly at a minimum	10% improvement in the metric each time reported for purposes of payment
	Decrease 30-day, readmission rate following hospitalization	# of patients readmitted to the index hospital following a hospitalization	n/a	KDHE/ Medicaid MCOs	Medicaid claims data statewide	Numerator: Number of readmissions Denominator: Total hospital admissions	n/a (ongoing; likely beyond initial DSRIP period)	Semi-annual & annual per state required schedule	Data reviewed quarterly at a minimum	10% improvement in the metric each time reported for purposes of payment
	Controlling High Blood Pressure (HBP)	Percentage of patients 18-85 years of age who had a diagnosis of hypertension and whose blood pressure was adequately controlled (<140/90mmHg) during the measurement period.	#0018 (CMS165v1)	NCQA	CMS	Numerator: Number of patients diagnosed with HBP whose BP was adequately controlled Denominator: Number of patients with a diagnosis of HBP	n/a (ongoing; likely beyond initial DSRIP period)	Semi-annual & annual per state required schedule	Data reviewed quarterly at a minimum	10% improvement in the metric each time reported for purposes of payment
	Preventive Care and Screening: Tobacco Use: Screening and Cessation Intervention	Percentage of patients aged 18 years and older who were screened for tobacco use one or more times within 24 months AND who received cessation counseling intervention if identified as a tobacco user.	#0028 (CMS 138v1)	AMA-PCPI	CMS	Numerator: Number of patients age 18+ screened and counseled if identified as a tobacco user Denominator: Total tobacco	n/a (ongoing; likely beyond initial DSRIP period)	Semi-annual & annual per state required schedule	Data reviewed quarterly at a minimum	10% improvement in the metric each time reported for purposes of payment