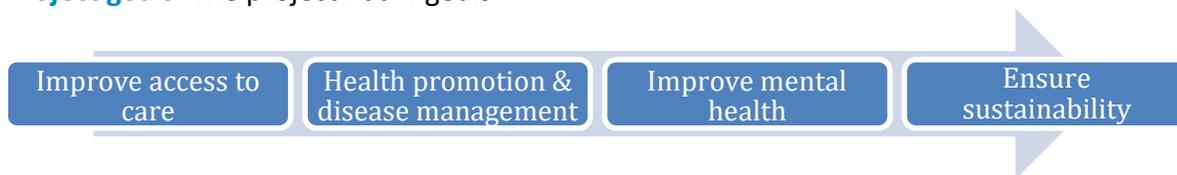


**Bridges to Cardiovascular Population Health: Project Outcomes and Lessons Learned**

**About the project.** Bay Rivers Telehealth Alliance (BRTA) led the HRSA-funded<sup>1</sup> Bridges to Cardiovascular Population Health (BCPH) project from May 2018-April 2021 (no-cost extension for 1 year). BCPH provided remote patient monitoring (RPM) and chronic disease and behavioral management tools and coaching to at risk patients with a diagnosis of CHF, diabetes, or CHF and diabetes in 6 rural counties on the Middle Peninsula and Northern Neck (Essex, Northumberland, Middlesex, Richmond, Westmoreland, and Lancaster).

**Project goals.** The project had 4 goals:



**Expected project outcomes.** The project was designed to demonstrate whether the use of remote patient monitoring (RPM) for 90 days along with chronic disease and behavioral management tools and coaching would decrease the unnecessary use of higher levels of care services (ED, observation, inpatient) while facilitating the use of lower-cost healthcare services and patient activation of own health.

**Project partners.** Bay Rivers Telehealth Alliance led a consortium of the following partners:

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| <p><b>Riverside Medical Group practices at Callao, King William, Warsaw, White Stone, and Tappahannock</b> enrolled patients while the <b>Riverside Health System Transfer Center</b> monitored the patients on a daily basis.</p> | <p><b>The Middle Peninsula Northern Neck Community Services Board</b> provided services to support behavioral health.</p>   |
| <p><b>Bay Aging</b> provided coaching, chronic disease management and additional resources and services to support behavioral health and related needs.</p>  | <p><b>Riverside Center for Excellence in Aging and Lifelong Health</b> provided a project evaluation in conjunction with the <b>College of William and Mary Mason School of Business</b>, including 2 graduate student teams.</p> |

**Patients Served:** The Project Evaluation Team followed 85 patients who were enrolled, ranging in age from 30-99 years. 83.75% were over age 60 and 16.25% were under age 60. 43.4% percent were female and 56.6% were male. 54.9% were White non-Latino and 45.1% were Black or African American. Patients in the study had the following diagnoses<sup>2</sup>:

<sup>1</sup> HRSA: Health Resources and Services Administration Rural Health Outreach Grant # D04RH31770

<sup>2</sup> These diagnoses were selected on the basis that they represent the most common discharge diagnoses in the Northern Neck and Middle Peninsula regions.

- Chronic Heart Failure (CHF): 36.7%
- Diabetes and CHF: 58.3%
- High risk - other: 5%

**Data Gathered:** Clinical data were gathered from the Honeywell RPM equipment placed in patient homes using the Lifestream software program that tracked and aggregated patient measures, including weight, diastolic and systolic pressure, heart rate, and SpO2. Patients also completed the Patient Health Questionnaire (PHQ-9), a brief depression assessment, and a generalized question aimed at a patient's activation measure (PAM) at the outset. At the conclusion of a patient's enrollment in the program, they were invited to complete a Patient Satisfaction Survey detailing several PAM facets, satisfaction, willingness to pay for remote monitoring services, and any other free-form comments about the program. Claims data for enrollees was pulled from Riverside's electronic medical record (EMR) system EPIC.

**Project Evaluation:** Key project findings include:

- **Hospital admissions declined** by 75% and inpatient observations by 60% during the monitoring period.
- **ED utilization declined** from 39 encounters in the 90 days prior to monitoring to 27 ED utilizations during the grant period.
- **Improved chronic disease outcomes were achieved** through chronic disease education and close monitoring by nurses, care coordination and Bay Aging staff.
- **Improved access to health services was facilitated** through alerts and consistent vital report trends.
- **Reduced cost of care delivery was achieved**, with net savings of \$390,296, approximately 173% of the total program expenses.
- **Improved integration and oversight of services was achieved**, with most patients appreciating the opportunity to be more closely monitored, and to establish a relationship with the monitoring nurse and care coordinator. Physicians received vital report trends every 2 weeks, and even when patients were seen outside of the Riverside Health System, the nurses were able to follow up on care.
- **High patient activation was documented**, with 96% of patients crediting RPM with becoming more involved with their own healthcare.
- **High patient satisfaction was documented**, with 98% of participants stating they would recommend RPM to others.

**Lessons Learned:**

- Participants' initial hesitance to use the RPM equipment and submit daily vitals was alleviated once they built trust with the RPM nurses and care coordinators and saw the positive effects of the program first-hand.
- After 2 program evaluations, one where patients enrolled post-hospitalization and a second with primary care referral, it is clear that remote monitoring equipment is most beneficial when patients have access and participate for more than 40 days and ideally to 90 days.
- Net cost savings are significant and outweigh program expenses.
- Data management can be challenging when pulling and integrating data from multiple sources.
- This program can be replicated in other communities with strong and ongoing communication among the key departments in the health system, as well as community and technology partners.