



## Key Messages

- Heart disease is still the #1 killer in Montana and the U.S.
- Over the past several decades, there have been significant improvements in cardiac care.
- To sustain these improvements in Montana, there needs to be continued cardiac-related funding and vigilance in systems of cardiac care.

In 2015, through the generosity of the Leona M. and Harry B. Helmsley Charitable Trust, Montana was able to initiate or expand efforts in pre-hospital and acute care of cardiac patients. Also, the trust funded the Cardiac Ready Communities (CRC) Program initiated by the EMS and Trauma Systems Section. The initial focus of this program was to decrease death from cardiac arrest. The mission of the CRC Program has expanded to decrease deaths and improve outcomes from all cardiovascular emergencies. This data-driven initiative will ultimately save lives and decrease disability from heart attack and cardiac arrest.

Key features of creating a successful CRC (and measures communities are evaluated on to receive recognition) include having a committee or coalition that provides overall direction and sustainability to the project. Other key components are providing cardiopulmonary resuscitation (CPR) instructions over the telephone by 9-1-1 dispatchers; having adequate numbers of people in the community trained in some form of CPR (usually greater than 50%); having automated external defibrillators (AEDs) in public locations, in law enforcement and fire department vehicles; and having well-trained EMS and hospital personnel.<sup>3</sup> Data gleaned from state and national sources, dispatcher and EMS code reviews, and hospital “mock-code” drills

## Progress and Opportunities to Improve Cardiac Care

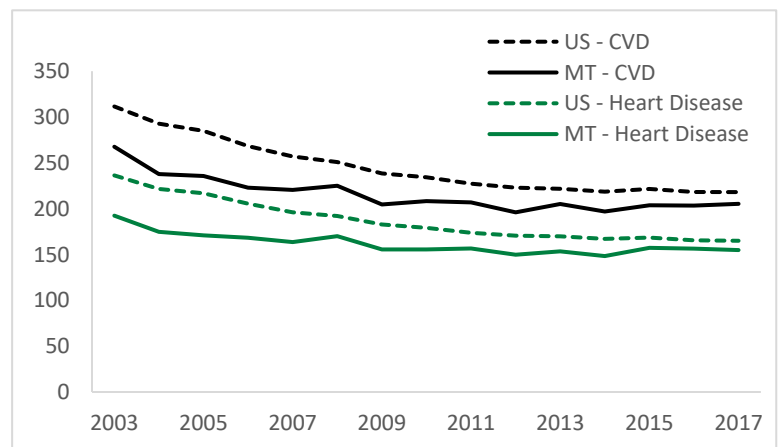
### Background

Mortality from cardiac-related deaths has declined significantly over the past several decades.<sup>1</sup> Advances in controlling cardiovascular risk factors, improvements in the detection and treatment of heart disease, and public health efforts have played a large role in the steady decline in mortality. Despite this success, heart disease is still the leading cause of death in Montana and the U.S.<sup>2</sup> This report highlights the efforts taken by the Montana Department of Public Health and Human Services (DPHHS) and partners to continue the downward trend in cardiac mortality.

### Cardiac Efforts in Montana

As of 2017, Montana’s mortality rate for cardiac disease is less than the national average (Figure 1). For over 20 years, targeted efforts by the Cardiovascular Health (CVH) Program and the Emergency Medical Services (EMS) and Trauma Systems Section at DPHHS have focused on pre-hospital care, the acute treatment of heart attack, and primary and secondary prevention strategies.

Figure 1. Age-adjusted cardiovascular disease and heart disease mortality (deaths/100,000 adults), 2003-2017.





provide the guidelines for continual process improvement to make each response better than the last. Another activity the CRC Program is involved in is the MT Heart Rescue Project, which focuses on providing education on Hands-Only CPR and AED use statewide.

Data collection from EMS agencies has increased each year since program initiation. The data indicate Montana’s cardiac arrest survival rate is slightly higher than the national rate of 10% (Figure 2). One reason for Montana’s higher survival rate could be due to higher rate of bystander CPR (Figure 3).

**Acute Treatment – Cardiac Recognition Program**

In 2011, the CVH program and partners launched the Cardiac Recognition Award. The Award was developed to recognize critical access hospitals (CAHs) who have gone the extra mile in treating heart attack patients. In addition, the Award can serve as a guide on how CAHs can develop and maintain a high-quality cardiovascular program. The Award requires that CAHs use evidence-based cardiac order-sets and policies, commit to yearly cardiac-related education, submit cardiac surveillance data to the CVH Program, and engage in quality improvement activities with the overall goal of improving patient care. Recent surveillance data indicated that two-thirds of patients entering the emergency department received an electrocardiogram (ECG) in less than 10 minutes, nearly 9 of 10 received aspirin on arrival, and a third received potentially lifesaving thrombolytic therapy in less than 30 minutes (Figure 4). There are currently 21 Cardiac Recognized CAHs across the state.

**Acute Treatment – ST-Elevation Myocardial Infarction (STEMI)**

The Mission:*Lifeline* Montana Program focuses on STEMI recognition and treatment.<sup>4</sup> A STEMI is the most severe/critical type of heart attack a person can experience. Time parameters for treatment have been established, and larger Montana health systems have been using a data collection system, Get with the

Figure 2. MT Overall Survival from Cardiac Arrests

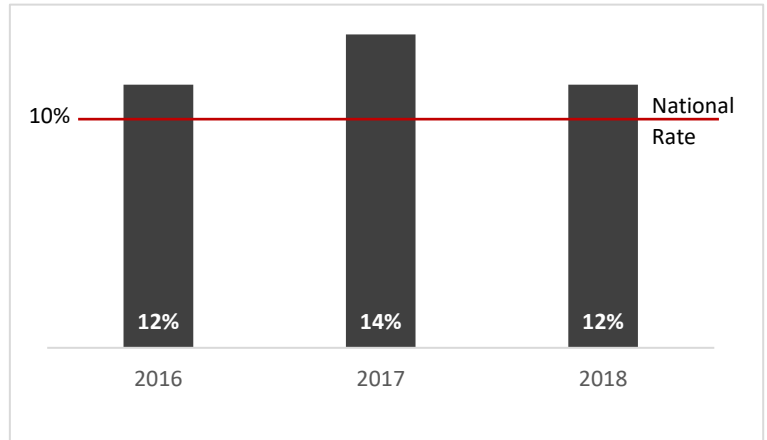


Figure 3. CPR Initiation: National versus MT Rates

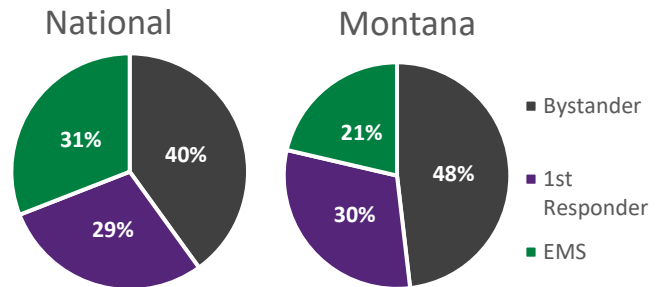
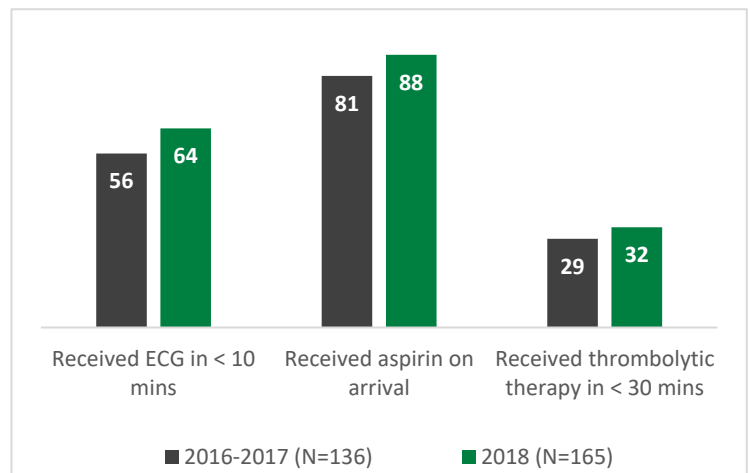


Figure 4. Percentage of patients seen at Cardiac Recognized Critical Access Hospitals receiving select treatments, 2016-2017 and 2018.





Guidelines – Coronary Artery Disease (GWTG-CAD), to track outcomes. Cardiologists across MT developed a set of standing guidelines for CAHs to use when treating a patient having a STEMI prior to transport to a percutaneous intervention (PCI) capable hospital for treatment.<sup>4</sup> These guidelines, along with GWTG-CAD, have provided hospitals and EMS agencies with data to initiate process improvement plans for outcomes from STEMI. The biggest challenge to this system is the low percentage of patients who call 9-1-1 to activate the system.<sup>5</sup> They self-transport to the hospital, causing delays in STEMI activation and treatment.

GWTG-CAD data helps hospitals improve their response to a STEMI by tracking critical time metrics: Time to first ECG, Time to meds, Time in and out of a CAH, and Time from ED to catheter lab. By comparing their times to national benchmarks, hospitals can improve their response and decrease damage to the heart. The CRC Program reviews this data with each hospital to help target areas for improvement and reviews the data from a state perspective for system improvement (Figures 5 & 6).

Figure 5. GWTG-CAD STEMI Achievement Measures (medications at discharge or arrival), Jan-Sep 2019

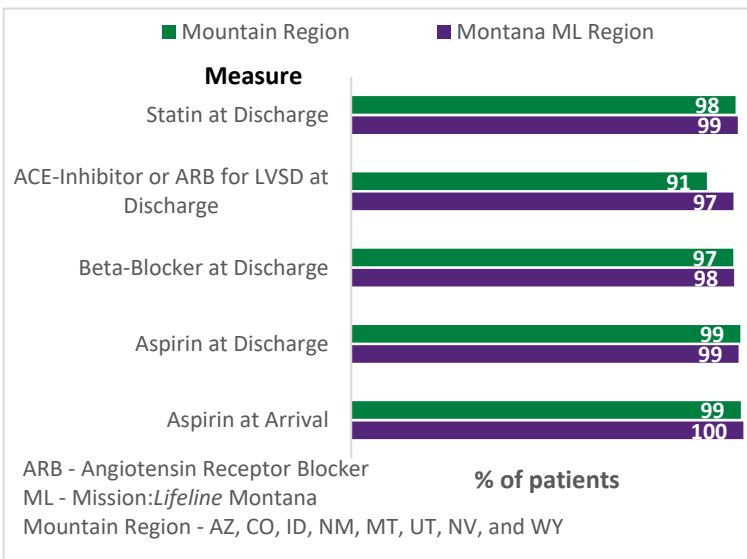
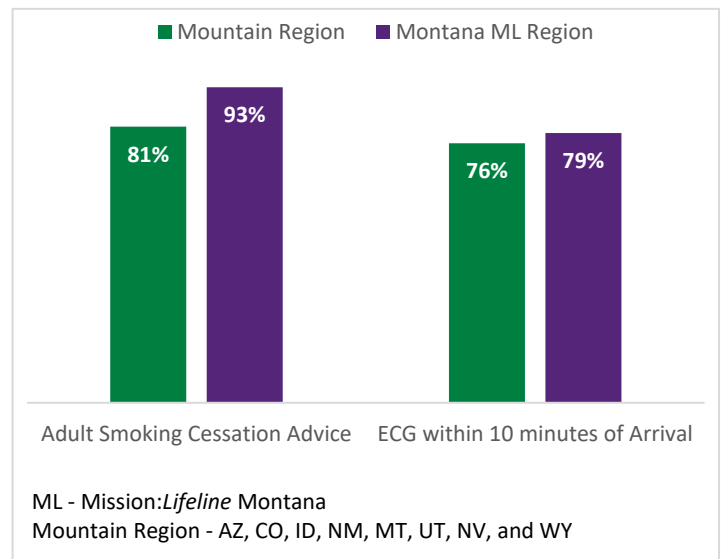


Figure 6. GWTG-CAD STEMI Achievement Measures, Jan-Sep 2019



### Primary Prevention

In Montana, over 40% of adults 45 years and older have high blood pressure or hypertension (HTN).<sup>6</sup> High blood pressure is a powerful risk factor for cardiovascular disease, which includes heart attack. The CVH Program works closely with clinics across the state to focus on improving blood pressure (BP) control rates in their patient population. These projects include identifying and treating patients with undiagnosed HTN, utilizing team-based care to improve BP control rates, having pharmacists counsel patients with HTN, and providing home BP monitors that patients can use to track their BP outside of the clinic setting. Since 2013, the CVH Program has worked with 59 primary care clinics to improve quality measures related to hypertension.

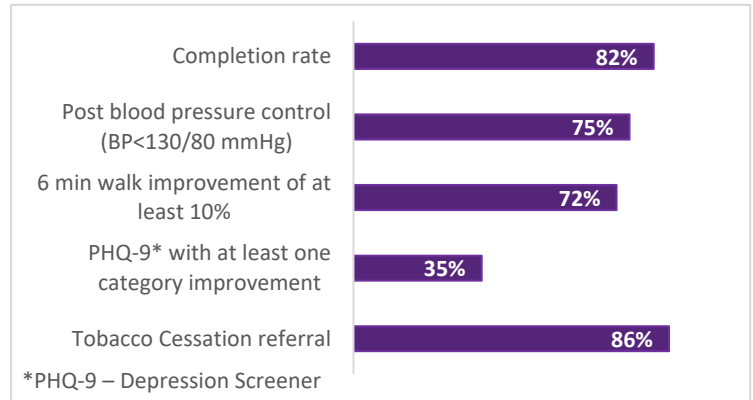
### Secondary Prevention

The CVH Program has also been working closely with the state’s cardiac rehab (CR) programs. The goal of CR is to improve cardiac risk factors, quality of life and have a positive impact on psycho-social issues over the typical 12-week program. Attendance in CR reduces mortality by 20% and hospital readmissions by 28%.<sup>7</sup>



In 2005, the CVH Program developed a CR Registry to track key performance measures. Twenty-two CR programs in Montana participate in the Registry and submit data to the CVH Program quarterly. The goal of the Registry is to provide feedback reports to drive quality improvement activities (Figure 7). The CVH Program is working with CR programs to improve patient referral rates using a bi-directional communication system. The CVH Program is also working with CR programs to initiate home-based CR, which targets patients who can't make it into the traditional hospital-based program.

Figure 7. Quality metrics among participating cardiac rehab facilities in Montana, Apr 2018 – Mar 2019.



### Next Steps

- Host the Annual STEMI Conference – 2020 Conference in Billings, Feb 12-13<sup>th</sup>. URL: <http://www.45pr.com/STEMI.htm>.
- Formalize the Cardiovascular System of Care (just as the Trauma System has been). This would mandate a statewide system to evaluate and support improved response to cardiovascular emergencies.
- Recognize more communities as Cardiac Ready.
- Continue training/education opportunities based on the data to affect system improvement.
- Pilot home-based/hybrid cardiac rehabilitation to increase the reach of this under-utilized service.
- Use the electronic bi-directional referral system (CONNECT) to increase the reach of cardiac rehab.

### Resources

1. The Heart Rescue Project. <http://www.heartrescueproject.com/>
2. The American Heart Association. <http://www.heart.org>
3. The Cardiac Ready Communities Program, DPHHS. <https://dphhs.mt.gov/publichealth/EMSTS/cardiaready>
4. The Resuscitation Academy. <https://www.resuscitationacademy.org/>

### References

- <sup>1</sup>Mensah G.A., et al. Decline in Cardiovascular Mortality: Possible Causes and Implications. *Circ Res.* 2017 Jan 20; 120(2): 366–380.
- <sup>2</sup>Murphy S.L, Xu J.Q., Kochanek KD, Arias E. Mortality in the United States, 2017. *NCHS Data Brief*, no 328. Hyattsville, MD: National Center for Health Statistics. 2018.
- <sup>3</sup>The Cardiac Ready Communities Program, DPHHS. <https://dphhs.mt.gov/publichealth/EMSTS/cardiaready>
- <sup>4</sup>The American Heart Association. <http://www.heart.org>
- <sup>5</sup>Get With the Guidelines: CAD for MT, 2018.
- <sup>6</sup>Montana Department of Public Health and Human Services, Montana Behavioral Risk Factor Surveillance System, 2015.
- <sup>7</sup>Dunlay, S.M., et al., Participation in cardiac rehabilitation, readmissions, and death after acute myocardial infarction. *Am J Med*, 2014. 127(6): p. 538-46.

### Montana Cardiovascular Health and Emergency Medical Services Programs

1400 E Broadway  
Helena, Montana 59260-2951  
(406) 444-0442