

FACTS

When Minutes Matter

Systems of Care for Acute Cardiovascular Conditions

OVERVIEW

Time is of the essence in treating acute cardiovascular conditions, but in far too many cases a fragmented and disorganized delivery system prohibits patients from receiving the treatments that can improve or even save their lives.

- >2150** Americans die *each* day of cardiovascular disease (CVD)¹
- 40** Seconds occur between each death due to CVD *each* day¹
- 40** Seconds occur between strokes suffered *each* day¹
- 985** Incidents of out-of-hospital sudden cardiac arrest (SCA) that occur *each* day¹

Additionally, according to American Heart Association (AHA) estimates, the total direct and indirect costs of heart disease and stroke will be close to \$1.5 trillion (in 2010 dollars) by 2030,² giving government at all levels a stake in improving the quality and value of cardiovascular care.

The AHA believes that leadership and resources at the federal, state, and community levels are needed to help develop and implement coordinated systems of care for acute conditions to improve patient outcomes.

SYSTEMS OF CARE SAVE LIVES, REDUCE DISABILITY

Certain care processes have been demonstrated to improve patient outcomes. Systems of care seek to implement these processes so that care is coordinated and victims of heart attack, stroke, and sudden cardiac arrest (SCA) receive timely treatment. These systems can also improve the cost-effectiveness of care.

- Although the clot-dissolving drug tPA is available to treat the most common type of stroke, only 3-8.5% of eligible stroke patients receive this therapy.³ This thrombolytic therapy can significantly

reduce disability from stroke, but should be administered as soon as possible after symptom onset and preferably within four and a half hours to be most effective.⁴ It also saves money by improving patient outcomes and reducing the need for more extensive medical care. A recent analysis demonstrated that if tPA were used in just 20 percent of all ischemic stroke patients in the US, it would save nearly \$74 million in the first post-stroke year alone.⁵

- Initial efforts at implementing stroke care systems have shown that they improve patient access to recommended care, including increased administration of thrombolytic therapy.⁶
- Roughly 1 out of every 4 heart attack victims each year will have the most severe type of heart attack called ST-Elevation Myocardial Infarction (STEMI).⁷ The quicker a patient with this heart attack has the completely blocked artery reopened (“reperfusion”), the better the chances are for survival and less permanent damage to the heart. Approximately one-third of STEMI patients do not receive any reperfusion therapy (including the preferred type, percutaneous coronary intervention (PCI)) to restore blood flow in the artery. Many more do not receive this treatment within the recommended 90 minutes, even though such treatment greatly reduces the risk of death or debilitation.⁸
- CPR and defibrillation within the first three to five minutes of collapse, plus early advanced care, can result in long-term survival rates of greater than 50% for victims of SCA with witnessed ventricular fibrillation. Survival rates in most emergency systems are lower; however, suggesting this optimal timeframe is not always achieved.⁹
- Induced therapeutic hypothermia (TH), a medical treatment used to improve neurological outcomes for victims of out-of hospital cardiac arrest,¹⁰ is a relatively cost effective treatment modality, but is often not readily accessible to those that need it. If TH were fully implemented in the United States, an estimated 2298 additional out-of-hospital victims each year could be expected to survive.¹⁰

SYSTEMS OF CARE CONTINUUM

Systems of care are tailored by states or regions and locally implemented to meet the needs and challenges of an area, but should be based on the latest scientific guidelines. The ideal system of care provides patients with seamless transitions from each stage of care to the next. There are gaps and needs at each stage of this care continuum, however, that could be addressed by more coordinated care. Examples include:

Emergency Medical Services

- Only 27% of those surveyed were aware of five heart attack warning signs and symptoms and indicated they would first call 9-1-1 if they thought someone was having a heart attack or stroke. Approximately half of patients delayed hospital arrival by at least four hours from onset of acute heart attack symptoms.¹
- Pre-hospital electrocardiograms (ECGs) can significantly reduce the time to treatment for patients with the deadliest type of heart attack, but only 10% of our nation's EMS vehicles are outfitted with this equipment.¹
- According to data from the Paul Coverdell National Acute Stroke Registry, stroke patients transported by ambulance were significantly more likely to arrive at the hospital within two hours of symptom onset, compared with those transported by other means. Patients arriving by ambulance also had significantly shorter waiting times once arriving at the hospital.¹¹

Acute Care

- Only a small fraction of eligible stroke patients receive thrombolytic therapy to restore blood flow to the brain following an ischemic stroke. Patients who receive this therapy within 90 minutes of symptom onset are almost three times more likely to have favorable outcomes three months after a stroke than those who do not receive it.³
- After one state hospital implemented new protocols to speed up treatment for patients with the deadliest type of heart attack, the percent of patients treated within 90 minutes increased from 28% to 71%. Faster treatment also reduced the average hospital stay by two days, and average hospital costs per patient declined by nearly \$10,000 -- from \$26,826 to \$18,280.¹²

Subacute Care and Secondary Prevention

- The subacute phase of stroke care is an important but potentially overlooked aspect of patient care. About one-third of stroke patients worsen during the first 24 to 48 hours after stroke onset and early deterioration is associated with increased mortality and morbidity.¹³
- When subacute stroke care is provided through the use of stroke units, a patient's risk of death

can be reduced by 40% and the need for institutional care is also reduced.¹⁴

Rehabilitation and Recovery

- Cardiac rehabilitation after a heart attack is underused, especially in women and older patients.¹
- Less than 31% of stroke survivors received outpatient rehabilitation, fewer than would be expected if clinical practice guideline recommendations had been followed for all stroke patients. Fifteen to thirty percent of stroke survivors are permanently disabled.¹

THE ASSOCIATION ADVOCATES

The American Heart Association/American Stroke Association advocates for public policies and resources to help facilitate the development of coordinated systems of care in states and regions for acute cardiovascular conditions, such as stroke, heart attack, and SCA.

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