Improving Rural STEMI Care through Multi-State Sharing and Collaboration

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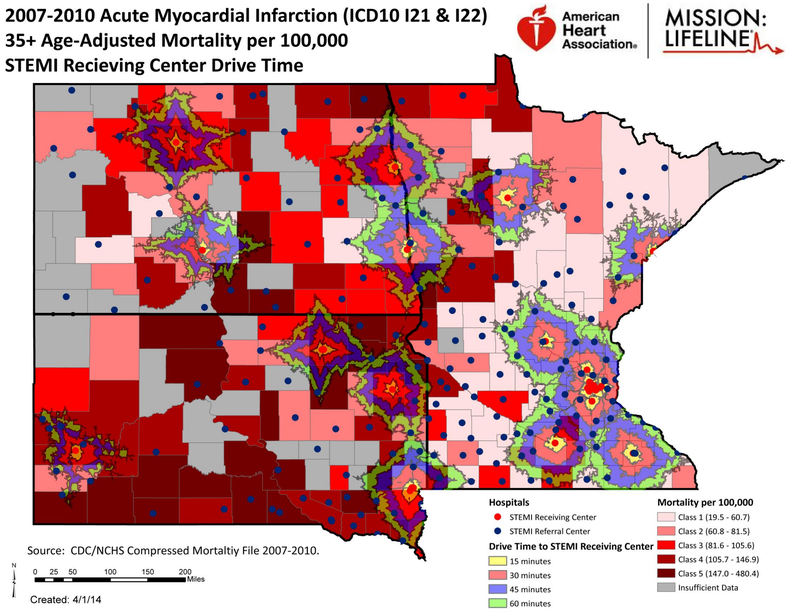
Background

Several factors can impede the timely delivery of optimal care to STEMI patients, particularly in rural states such as South Dakota, North Dakota and Minnesota. South Dakota has 66 counties covering nearly 76,000 square miles. Five of the seven percutaneous coronary intervention (PCI)-capable facilities are located in two communities and travel distances between hospitals can exceed 200 miles. North Dakota consists of 53 counties over 69,001 square miles. Thirty-four entire counties are designated medically underserved areas and 13 counties have some part of them designated medically underserved. Similar distances issues between referring hospitals and PCI-capable facilities are also seen in the majority of the state of Minnesota. These rural areas are heavily dependent upon volunteer ambulance services and the capabilities of the small referring (non-PCI or CAH) hospitals to receive the STEMI patient and transfer in a timely manner. Excluding the Twin Cities and Rochester, there are a total of 18 PCI-capable hospitals throughout rural Minnesota, South Dakota and North Dakota. Only two of these hospitals are Chest Pain Accredited, with one having Mission: Lifeline® Accreditation. There are 153 Critical Access Hospitals in this region, making them crucial to a STEMI system of care.

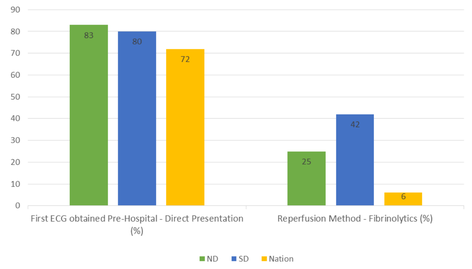
Methods

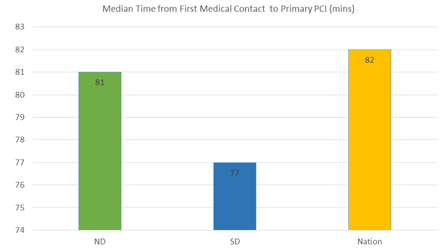
Mission: Lifeline® is a strategic initiative to save lives and reduce disability by improving emergency readiness and response to heart attack patients. With funding support, the American Heart Association, hospital, EMS and state stakeholders have worked together to improve each component of STEMI systems, including across state borders. The South Dakota project started in 2010 followed by North Dakota in 2011. Minnesota was launched in 2013. In each state, STEMI task forces and provider specific sub-committees were formed. Each PCI-capable hospital was asked to participate in data collection through ACTION Registry®-GWTG™. EMS agencies in North Dakota and South Dakota were granted funds to purchase 12-lead monitor/defibrillators. Minnesota is currently in the process of allocating these devices, based on funding availability. Critical Access Hospitals and other non-PCI-capable facilities participated in STEMI education which included ways to improve time critical processes and transfer protocols. An education plan was delivered to EMS agencies South Dakota and North Dakota as well, and this same plan is being adjusted to meet the needs in Minnesota.



Results

A statewide STEMI protocol was adopted in 2012 in North Dakota. South Dakota used this to create their own guideline which was adopted in 2013. Both protocols will be shared with the Minnesota task force in 2014 by the South Dakota and North Dakota physician champions. The number of 12-lead ECG transmissions have more than tripled in South Dakota since the start of the project. In addition the time from First Medical Contact (FMC) to PCI was 77 minutes in South Dakota from Q4 2012-Q3 2013 beating the national average of 82 minutes. North Dakota is also beating the national average with a FMC to PCI time of 81 minutes during that same timeframe.





Conclusions

Although each state is very different, rural areas often have many of the same barriers for an effective state STEMI system. As the projects have moved forward, each state has approached each component a little differently and adjusted based on needs. The learning experience across state borders has been effective way to make progress. The hospital data and 12-lead ECG transmission increase has proven that there is better STEMI system awareness and competence throughout the states resulting in a faster time from first medical contact to device. The collaboration of EMS and hospitals around state borders will also help with the sustainability of the projects and most importantly, the ability for better outcomes for STEMI patients, regardless of their location.

Limitations

Data was collected from ACTION Registry®-GWTG™, which is the registry used by all PCI capable hospitals in SD, MN and ND. The first medical contact results captures patients that have presented directly to a PCI hospital via EMS or by walk-in. Transfers from other acute facilities are not included in this data. The ECG Transmissions were provided by LifeNet and includes the majority of transmissions.

ACTION Registry® – GWTG™

DISCLOSURE INFORMATION
The following relationships exist related to this presentation: no disclosures