Developing Regional STEMI Systems of Care: Final Results of the Mission: Lifeline STEMI ACCELERATOR Study


Background: Current guidelines recommend implementation of regional systems of care to improve the timely reperfusion for STEMI patients. While door-to-device times are generally excellent in primary PCI centers, the new standards of EMS first medical contact (FMC) to device and transfer times remain suboptimal.

Methods: We intervened in 16 large US metropolitan regions involving 171 PCI hospitals and over 200 non-PCI hospitals and 1253 EMS agencies. We required PCI hospitals to participate in a common database, organized local regional leadership and coordination, and established STEMI protocols for EMS activation and inter-hospital transfer, with ongoing measurement and feedback through Mission: Lifeline regional quarterly reports containing blinded hospital comparison reports. Primary outcomes were first medical contact (FMC) to device times, and first door to device (as well as door-in to door-out times in emergency departments) for transfer patients for hospitals implementing protocols. Results are compared from baseline to one year later and stratified according to the adoption of specific process interventions from final survey data.

Results: In 16 regions across the US for the baseline quarter of involvement (Q3 2012), 3538 STEMI patients were admitted to participating sites, 2727 of which directly presented to a PCI center, 811 transferred from a non-PCI (age 61 years, 30% female, 7.7% cardiogenic shock). For those presenting directly to PCI centers, median FMC to device time was 85 min (interquartile range 68, 107). For patients transferred for primary PCI, median FMC to device time was 132 min with a median door in to door out time of 63 min. Coordination with EMS was highly correlated with better survival (ED wait time / mortality: less than or =30 min / 2.3%; 30-45 min / 7.7%; >45 min / 11.2%, P=0.0001).

Conclusions: In a diverse group of cities and states across the US, baseline data show important opportunities to improve timely reperfusion therapy beginning at the new
standard, first medical contact. Final results will be presented including what process interventions may have led to improved times and outcomes.