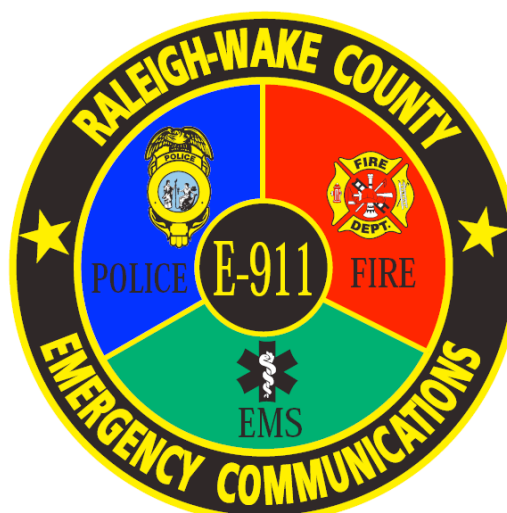


Time to First Compression Using MPDS CPR Pre-Arrival Instructions Does Not Vary with Dispatcher Experience

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Background

- Rapid delivery of uninterrupted chest compressions is a key component of successful resuscitation.
- Without bystander CPR, cardiac arrest survival decreases 7%-10% for every minute of delay until defibrillation.
- Dispatcher-assisted CPR increases the rate of bystander CPR and cardiac arrest survival.
- While there are uncontrollable barriers to the delivery of dispatcher-assisted CPR, the time to first compression (TTFC) remains a potentially modifiable component of the EMD-caller interaction. However, the effect of dispatcher experience on TTFC has not been examined.

Setting

- Wake County, NC, is a mixed urban/suburban county encompassing 831 square miles with a 2010 population of approximately 897,000 residents.
- Approximately 78,000 EMS calls answered in 2010.
- Approximately 1,500 basic life support firefighter first responders with an estimated mean response time of 5 minutes.
- 225 ALS providers with a mean ambulance response time of 8.3 minutes.
- 75 credentialed emergency medical dispatchers utilizing MPDS protocol versions 11.3 and 12.0 across the study period.
- Raleigh-Wake Emergency Communications Center (RWECC) is the sole ambulance dispatch center for Wake County, and is one of only 139 accredited EMD centers of excellence (ACE) worldwide.



Objective

To quantify the relationship between TTFC and emergency medical dispatcher (EMD) experience across MPDS versions 11.3 and 12.0 for all calls identified as cardiac arrest on call intake that did not require MTMV instruction.

Methods

- Retrospective review of all non-traumatic 911 calls receiving compression-first pathway CPR Pre-Arrival Instructions (PAIs) from May 2008 to June 2010.
- 371 calls received CPR PAIs
 - 122 excluded due to MTM pathway usage or patient not actually in cardiac arrest
 - 14 excluded for incomplete data
 - Audio recordings of each call were reviewed by an ED-Q to determine TTFC.
 - Overall relationship between TTFC and months of EMD experience was examined using Pearson Correlation.
 - Differences in TTFC between novice and experienced EMDs analyzed using Student's t-test.
 - Novice = < 12 months
 - Experienced = ≥12 months
 - $p \leq 0.05$ indicating significance.

Results

- Complete data were available for 235 cases.
- Mean TTFC was 246.7 (± 79.7) seconds.
- Mean (\pm S.D.) dispatcher experience was 65.6 (± 46.1) months.
 - $r = 0.02$, $p = 0.71$
- Overall there was no correlation between EMD experience and TTFC:
 - $r = 0.01$, $p = 0.87$
 - $r = 0.07$, $p = 0.41$
- When examined separately there was still no correlation:
 - MPDS version 11.3
 - $r = 0.01$, $p = 0.87$
 - MPDS version 12.0
 - $r = 0.07$, $p = 0.41$
- There was no correlation between TTFC and novice vs. experienced EMDs:
 - 248 (± 61) seconds novice
 - 247 (± 82) seconds experienced
 - $p = 0.97$

Limitations

- Retrospective data set from a single EMS system.
- Small sample size.
- Only two protocol versions examined.

Conclusions

For calls receiving compression first pre-arrival instructions in these versions of the MPDS protocols, we found a mean overall TTFC of 246 seconds and no demonstrated correlation between dispatcher experience and TTFC. Our data suggest that the tightly scripted MPDS protocols can be equally applied by novice and experienced dispatchers alike with little variation in TTFC.

Table 1

| Correlation Between Mean TTFC and Dispatcher Experience | | |
|---|-------------------------|------------|
| MPDS Version | Correlation Coefficient | |
| 11.3 | $r = 0.01$ | $p = 0.87$ |
| 12.0 | $r = 0.07$ | $p = 0.41$ |
| Overall | $r = 0.02$ | $p = 0.71$ |