60% of out-of-hospital cardiac arrests (OHCA) occurring in a public setting are shockable—making Public Access Defibrillation (PAD) more important than ever.

**Clinical Summary**


**Study Objectives**

- To determine the association of bystander automated external defibrillator (AED) use with survival and functional outcomes in shockable witnessed OHCA in the public setting

**Methods**

- Prospectively collected detailed information on all cardiac arrests at nine regional emergency medical services (EMS) agencies between 2011-2015. Shock delivered by bystander-applied AEDs were compared to initial defibrillation by EMS

**Primary Outcome**

- Hospital discharge with normal or near-normal (favorable) functional status defined as a modified Rankin Score* ≤2
- Survival to hospital discharge was the secondary outcome measure

**Results**

- 4115 observed public OHCAs were analyzed
- 8.3% were witnessed OHCAs in a public setting
- 60.8% had a shockable initial heart rhythm
- Bystander shock using an AED occurred in 18.8% of the shockable arrests
- Benefit of bystander AED use was strongest at industrial locations and places of recreation
- Benefit of bystander AED use increases as the arrival of EMS is longer (e.g. 8-12 minutes)

**Modified Rankin Score (mRS)**

The mRS uses a scoring system from 0 to 6 to quantify functional outcome (0=no symptoms; 1=no significant disability; 2=slight disability; 3=moderate disability, requiring some help but able to walk without assistance; 4=moderately severe disability, unable to walk or attend to bodily needs without assistance; 5=severe disability; 6=death). An mRS≤2 is a validated indicator of favorable functional outcome.

Conclusions

• Bystander AED use before EMS arrival in shockable witnessed OHCA in a public setting was associated with better survival and functional (neurological) outcomes.

• Continued emphasis on PAD programs may further improve outcomes of OHCA.

Physio-Control Discussion Points

• This study validates our long-held position that increasing the availability and use of AEDs in public locations can improve survival from OHCA.

• As the study highlights, the effective allocation of AEDs and training may benefit from an emphasis on locations where the response time for emergency medical response is longer.

• LIFEPAK® and HeartSine® samaritan PAD AEDs are specifically designed to be easy-to-use by the public access rescuer.