Top Ten Things To Know
AED and Survival After
In-Hospital Cardiac Arrest

1. The use of AEDs has been proposed as a strategy to decrease time to defibrillation, and improve survival for in-hospital cardiac arrest (IHCA).

2. AEDs may be less effective when the initial rhythm is not a ‘shockable’ rhythm.

3. This study sought to
   • Examine the association between AED use (stand-alone AEDs and AED/shock advisory mode on manual defibrillators) and survival for IHCA
   • Determine whether this association differs when the initial cardiac arrest rhythm was shockable [ventricular fibrillation (VF), pulseless ventricular tachycardia (VT)] or non-shockable [asystole, pulseless electrical activity (PEA)].

4. The primary outcome was survival to discharge (SDC)

5. The secondary outcomes were:
   • Return of spontaneous circulation for > 20 min. (ROSC)
   • Survival at 24 hours
   • No major neurological disability (cerebral performance category [CPC]=1)

6. Of the 11,695 adult in-hospital cardiac arrests in the GWTG-R* database:
   • 2079 (17.8%) were shockable rhythms (VT, VF)
   • 9616 (82.2%) were not shockable (asystole, PEA)
   • AEDs were used in 4515 (38.6%) patients

7. The overall SDC rate in this study cohort was 2117 (18.1%)
   • 734/4515 (16.3%) among patients in whom AEDs used
   • 1383/7180 (19.3%) among patients in whom AEDs were not used

8. AED use: Lower survival in asystole / PEA
   • Longer resuscitation periods to achieve ROSC.
   • Time required to use an AED to assess non-shockable rhythms may lead to longer interruptions of continuous chest compression during critical first minutes of resuscitation.
   • Lower survival likely attributable to factors occurring during acute resuscitation.

9. AED use: No difference in VT / VF
   • No effect on time to defibrillation
   • AEDs may have arrived earlier, but offset by time required to apply defibrillator pads and await automated rhythm analysis, as well as extending the periods without chest compression for repeat rhythm assessment for patients who do not respond to defibrillation shocks.

10. AED use to treat IHCA was not associated with improved survival, therefore current use of AEDs in hospitalized patients may need further study.

*GWTG-R, formerly NRCPR, is a performance improvement tool that can be used to identify and monitor key process variables and patient outcomes for in-hospital cardiac arrest.