Benefits of Fully Automatic Defibrillators

Time is Critical

Early defibrillation combined with CPR can improve survival rates to as high as 74% when defibrillation is provided within three minutes of collapse.[1] For every minute that elapses between sudden cardiac arrest and defibrillation, the chance of survival decreases 7 to 10%.[2] That's why choosing an automated external defibrillator (AED) that can be trusted to help reduce unnecessary shock delays could make the difference between life and death.

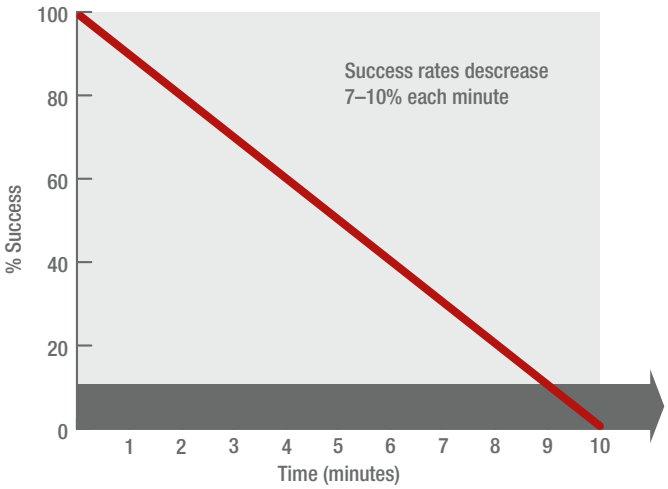

Figure 1: Shock success over time[2]

Fully Automatic vs. Semi-Automatic AEDs

All AEDs automatically analyze the heart rhythm to determine if a shock is needed. However, there are two types of lay-user AEDs—fully automatic and semi-automatic. If a shock is needed, semi-automatic AEDs prompt rescuers to press a shock button. A fully automatic AED is designed to give a shock automatically, if needed, without the rescuer having to push a button to deliver that shock. The device communicates step-by-step instructions that let rescuers know when a victim is about to be shocked.

Benefits of Fully Automatic

Fully automatic models are designed to help responders who may hesitate in cardiac arrest emergencies. Studies have shown that fully automatic AEDs are safe, effective and may reduce extended delays associated with hesitation to push the shock button during a rescue.

Safe: A recent study shows that safety is not compromised when untrained rescuers use a fully automatic AED compared to a semi-automatic AED. In fact, the study demonstrated overall safer behavior by fully automatic AED rescuers when in the presence of bystanders.[3] The authors of the study attribute the improved safety to the fact that the fully automatic AED in the study had an extra voice prompt reminding rescuers not to touch the patient immediately before shock delivery. They also noted that semi-automatic rescuers were focused on pushing the shock button, whereas the fully automatic rescuers could focus on the voice prompts and interact more with bystanders before shock delivery.

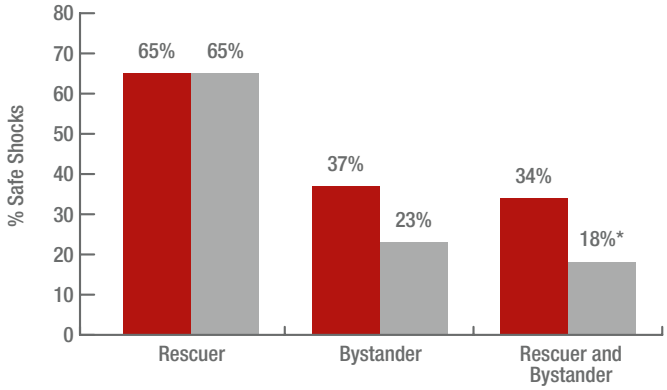

Figure 2: Percentage of safe shocks. Red: FAED; Gray: SAED (*p < 0.05)

Effective: A similar study compared usability of fully automatic and semi-automatic AEDs by untrained nursing students. In this study, use errors were lower in the group using the fully automatic version of the AED.[4] The study's authors noted this improved performance could be explained given that fully automatic AEDs put the rescuer in "a more passive and secure position during analysis and shock delivery, preventing the rescuer from inappropriate actions."

Reduced Delays in Treatment: Multiple studies and retrospective reviews have shown that semi-automatic AEDs are more likely to be associated with extended delays. Table one shows the increased variability in shock delay with rescuers using semi-automatic AEDs.

	FULLY AUTOMATIC (N=68)	SEMI-AUTOMATIC (N=82)
MEAN (S)	22	24
RANGE (S)	18 – 29	11 – 99

Table 1: Delays between electrode attachment and first shock delivery[3]

While most studies comparing the performance of fully and semi-automatic AEDs are conducted under simulated scenarios using manikins, there is also data to show the prevalence of shock delays in real-life situations. A five-year sudden cardiac arrest study out of Bochum, Germany collected data on twelve AED deployments in the community.[5] Of these deployments, a shock was indicated seven times. Unfortunately, in two of the seven cases that a shock was recommended, the automated speech announcement was ignored. The study's author speculated that in these two cases, the rescuers were reluctant to deliver the shock. The patients did not survive.

Investing in an AED program is a commitment to protect the lives of those in your community. Fully automatic AEDs are safe, effective, and may reduce extended delays associated with hesitation to push the shock button.

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