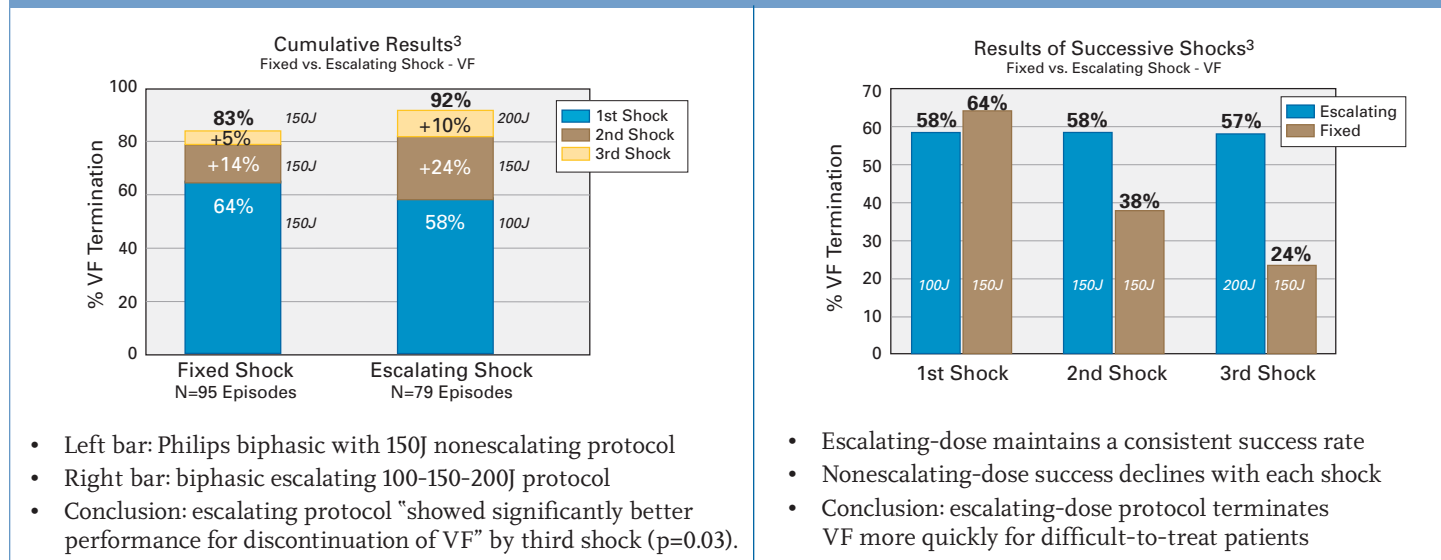


New 2005 Guidelines for Emergency Cardiovascular Care: What is the Role of Escalating Energy in Treating VF?

An Evidence-Based Approach

Biphasic shocks are highly effective in the termination of ventricular fibrillation (VF) but data show that some patients are more difficult to defibrillate than others.¹ If the initial shock fails there are two common defibrillation options: delivering another shock at the same dose (fixed-dose protocol) or delivering the next shock at a higher dose (escalating-dose protocol). The new American Heart Association (AHA) Guidelines now recommend "For second and subsequent shocks, use the same or higher energy."² However, a growing body of evidence suggests the benefit of subsequent shocks at higher energy: an escalating dose protocol is associated with higher rates of VF termination when compared to a fixed-dose protocol.

RESULTS FROM A PROSPECTIVE RANDOMIZED TRIAL: ESCALATED VS. FIXED DOSE



RECURRENT VF EPISODES: BENEFIT OF THERAPEUTIC DOSING UP TO 360J

Data from a prospective clinical trial of 416 out-of-hospital cardiac arrest patients, released in November 2005, suggests the benefit of access to higher energies for recurrent episodes of VF.¹ In this study the Medtronic ADAPTIV™ biphasic waveform successfully terminated VF with an initial shock of 200J in 92% of patients. Despite this high success rate with the first shock, 36% of the patients went on to experience at least five recurrent episodes of VF. Many of these recurrent episodes received a 360J shock to terminate VF. Twenty-seven percent of all patients are known to have survived to 30 days (111/416). Of these, 50% received an escalated dose of 360J at some point in their therapy—associating full energy biphasic with survival. The study also shows a small subset of patients are particularly hard to defibrillate with 15% of the patients accounting for 74% of the failed shocks. However, all of these patients were eventually defibrillated with 360J shocks and a good number survived past 30 days. These data demonstrate the importance of having access to the broadest dosing options available in terminating VF quickly.

THE MEDTRONIC POSITION

A growing body of clinical evidence provides insight into the value of escalating doses of electrical therapy for the rapid termination of VF, including recurrent VF. This allows for timely administration of other therapeutic interventions, such as CPR, that may increase the chance of a positive outcome. Because Medtronic is committed to giving health care providers the best tools for cardiac resuscitation, the LIFEPAK family of defibrillator/monitors and AEDs provides escalating doses up to 360J. This broad range of therapeutic dosing supports the most rapid termination of VF possible, even in the most challenging patients.

1. Chapman F, et al. 2005. Use of 360 Joule Biphasic Shocks for Initial and Recurrent Ventricular Fibrillation in Prehospital Cardiac Arrest. *Circulation* 112 (17): II-1112-1113.
 2. Guidelines 2005 for Cardiovascular Resuscitation and Emergency Cardiovascular Care. 2005. *Circulation* 112 (22): IV-174.
 3. Walsh, S, et al. 2004. Efficacy of distinct energy delivery protocols comparing two biphasic defibrillators for cardiac arrest. *American Journal of Cardiology* 94: 378-380.

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