SENATE STAFF ANALYSIS AND ECONOMIC IMPACT STATEMENT

(This document is based on the provisions contained in the legislation as of the latest date listed below.)

Prepared By: Justice Appropriations Committee

BILL:	CS/CS/SB 328
SPONSOR:	Justice Appropriations Committee, Community Affairs Committee, Senator Fasano and others
SUBJECT:	Automated External Defibrillators
DATE:	April 12, 2005 REVISED:

	ANALYST	STAFF DIRECTOR	REFERENCE	ACTION
1.	Erickson	Cannon	CJ	**Fav/2 amendments**
2.	Vickers	Yeatman	CA	**Fav/CS**
3.	Butler	Sadberry	JA	**Fav/CS**
4.				
5.				
6.				

I. Summary:

The committee substitute for CS/SB 328 requires the Florida Department of Law Enforcement (FDLE) to administer the "Automated External Defibrillator Grant Program". This competitive grant program will support the placement of automated external defibrillators (AEDs) in law enforcement vehicles. Grants awarded by FDLE are limited to amounts specifically appropriated each year for the AED program. FDLE is authorized to spend up to three percent of the funds appropriated for administrative costs. Law enforcement agencies must provide matching funds, as specified in the CS/CS, to be considered for funding. FDLE is required to adopt rules for administration by September 1, 2005. In implementing this program, FDLE is directed to provide priority consideration to grant applications from rural law enforcement agencies.

This CS creates new and as-yet unnumbered sections of the Florida Statutes.

II. Present Situation:

Use of AEDs

"[S]udden cardiac arrest remains the leading cause of death in the United States, accounting for approximately 1,000 deaths per day. Most cases are due to ventricular fibrillation (VF), and quite often present the first presentation of coronary disease."[1] "Most cardiac arrest is due to VF, and virtually all who survive cardiac arrest had VF as the initial rhythm. The goal of any effort to improve survival is focused on the speed with which defibrillation is achieved."[2]

[1] Ramaswamy K, Page RL. 2003. The Automated External Defibrillator: Critical Link in the Chain of Survival. *Annu. Rev. Med.* 54:235-243.

[2] *Id*.

"AEDs" or automated external defibrillators are "computerized devices that can recognize cardiac rhythms and deliver a commanded electrical shock across the chest wall to terminate VF."[3] According to staff of the National Conference of State Legislators, "[t]he American Heart Association notes that at least 20,000 lives could be saved annually by prompt use of AEDs. Ultimately, with broad deployment of AEDs among trained responders, as many as 50,000 deaths due to cardiac arrest could be prevented each year."[4]

Because there are often delays in medical personnel arriving at the scene of an out-of-hospital cardiac arrest, a number of "deployment strategies" have been developed to facilitate a more rapid response to out-of-hospital cardiac arrests through the use of AEDs by non-medical personnel.

> Strategic deployment can be classified in four categories: (1) emergency vehicles, (2) public access sites, (3) multifamily dwellings, and (4) single-family dwellings…. The fundamental principle driving each of these strategies is that minimally trained personnel or lay individuals can learn to operate AEDs and apply them in the setting of a cardiac emergency. Examples of nonconventional cardiac arrest response by emergency vehicle personnel, other than conventional emergency rescue system (emergency medical services [EMS]) responders, include police patrol cars, standard fire engines, and ambulances. The rescuers for these strategies may have a higher level of training than some of the others. The public access strategies include AED placement in public buildings, stadiums and malls, airports and airliners, and other sites at which people congregate. The responder personnel can include the security personnel at various locations, designated rescuers, and even random lay persons with minimal training. Multifamily dwellings include apartment buildings, condominiums, and hotels, and once again responders may include security personnel, designated rescuers, or family members. The single-family dwelling focuses on private homes, where the responder usually is a trained family member…. The anticipated effect of the patterns of deployment is to expand the density of availability of AEDs so that under conditions of a medical emergency, the probability of rapid access to defibrillation would be statistically greater.[5]

Research on Police Use of AEDs

Myerburg et al (2003) summarized the results of studies on use of AEDs by police officers in Rochester, Minnesota; Amsterdam; and rural Indiana:

> A number of communities, worldwide, have implemented and/or tested the feasibility of placing AEDs in police patrol cars to improve response times to cardiac arrest.[6] The fundamental principle is that, in contrast to fire department-based emergency rescue systems or ambulance-based emergency rescue responders, police cars are on the road at

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[3] *Id.*

[4] National Conference of State Legislatures. 2004. State Laws on Heart Attacks, Cardiac Arrest & Defibrillators: Encouraging community access and use.

[5] Myerburg RJ, Velez M, Rosenberg DG, Fenster J, Castellanos A. 2003. Automatic External Defibrillators for Prevention of Out-of-Hospital Sudden Death: Effectiveness of the Automatic External Defibrillator. *J. Cardiovasc. Electrophysiol.* 14:108-116. (Original footnote omitted.)

[6] Footnotes and cited studies omitted.

> all times and therefore offer the potential to be closer (both physically and in time) to the sites of cardiac events. Therefore, it is reasonable to expect the police to respond more quickly. Among the communities that carried out organized early studies on this concept, Rochester, Minnesota, has provided important data.[7] Their data on 246 cardiac arrests, of which 131 (53 percent) had shockable rhythms, demonstrate a cumulative survival of 22 percent, even though police response times were only approximately 0.8 minute less than standard paramedic response times. Given the nature of the community, with its low population and traffic density, it is not surprising that there was no great difference between the response times of police and paramedics, but it also highlights the fact that the response times for both were less than what is seen in major metropolitan areas…. Their data on outcomes revealed that spontaneous return of circulation by shock only was equivalent for police responders and paramedic responders (approximately 20 percent–30 percent); the remainder of patients required advanced cardiac life support (ACLS), which was provided only by paramedics…. One of their important observations was that survival to hospital discharge was nearly 100 percent in the subgroup in which shock only was sufficient to result in return of circulation, and that this outcome was equivalent for both police and paramedic responders.
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> The Amsterdam Resuscitation Study has provided data on police and EMS response time in a section of that city and demonstrated a significant benefit for response times by police. Fifty percent of the police responses occurred in ≤6 minutes compared to approximately 11 minutes for EMS.[8] Less encouraging statistics emerged from rural Indiana, where placement of AEDs in police cars in sparsely populated areas did not provide a significant benefit; police arrived first at the scene of cardiac arrest in only 6 percent of the instances.[9]

The study that may be of most interest to Florida lawmakers was performed by Myerburg and his coauthors in Miami-Dade, Florida.[10] In 1999, all Metropolitan Miami-Dade County police vehicles were equipped with AEDs. Officers received a 4-hour training program modified from a program of the American Heart Association. "The educational program used a 'train-the-trainer strategy,' in which selected police officers with a special interest in the project were trained as

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[7] White RD, Hankins DG, Bugliosi TF. 1998. Seven years' experience with early defibrillation by police and paramedics in an emergency medical services system. *Resuscitation* 39:145-151. (Original footnote omitted.)

[8] Waalewijn RA, de Vos R, Koster RW. 1998. Out-of-hospital cardiac arrests in Amsterdam and its surrounding areas: Results from the Amsterdam resuscitation study (ARREST) in "Utstein" style. *Resuscitation* 38:157-167. (Original footnote omitted.)

[9] Groh WJ, Newman MM, Beal PE, Fineberg NS, Zipes DP. 2001. Limited response to cardiac arrest by police equipped with automated external defibrillators: Lack of survival benefit in suburban and rural Indiana—The police as responder automated defibrillation evaluation (PARADE). *Acad. Emerg. Med.* 8:324-30. (Original footnote omitted.) It has been suggested that the absence of a demonstrated benefit in the Indiana study was "likely due to the fact that police arrived before EMS in only 6.7 percent of cases. Perceptions by police of factors limiting response included lack of comfort or confidence in providing medical care (43.8 percent) and concern over personal liability (25.0 percent). When the police did arrive first, the data support the findings of Myerburg et al; time to shock was shortened by an average of 4.9 minutes, and survival from shockable rhythms trended to improvement…." Joglar J, Page RL. 2002. Automated External Defibrillator Use by Police Responders: Where Do We Go From Here? (Editorial). *Circulation* 106:1030-1033.

[10] Myerburg, RL, Fenster J, Velez M, Rosenberg D, Lai S, Kurlansky P, Newton S, Knox M, Castellanos A. 2002. Impact of Community-Wide Police Car Deployment of Automated External Defibrillators on Survival From Out-of-Hospital Cardiac Arrest. *Circulation* 106:1058-1064.

educators and participated in training other groups of officers."[11] The 9-1-1 emergency communications system "was modified for the police to meet the requirements of the police-AED (P-AED) dual-dispatch program."[12] The response strategy was described as follows:

> Simultaneous dispatch of AED-equipped police and standard EMS is a strategy intended to achieve device availability, diagnosis, and defibrillation as quickly as possible when VT [ventricular tachycardia]/VF is observed by the first service vehicle arriving at the scene.… If the EMS vehicle arrives first, police are diverted. If police arrived first, they carry out defibrillation or CPR, according to the initial rhythm diagnosed and subsequent responses, continuing until EMS arrived. Once EMS is at the scene, police are relieved of additional responsibility. Police responsibilities are limited to basic life support and defibrillation, whereas EMS personnel have the added responsibility of providing advanced life support, if needed. In all cases, EMS transports the victim to the nearest appropriate hospital.[13]

Data from the study indicated that of the 420 cardiac arrest events studied by the researchers, police were the first responder to 56 percent of those events (237), EMS was the first responder to 33 percent of those events (138), and police and EMS arrived simultaneously to 11 percent of those events (45).

Data also indicated that "[p]olice AED response times from 9-1-1 call to arrival at the scene of a cardiac arrest, and from call to patient's side, was shorter than corresponding EMS response times."[14] "Response by police averaged about 1.5 minutes faster than that of EMS (6.16 versus 7.56 minutes), and the dual-response system reduced overall first-responder time to just 4.9 minutes (compared with 7.6 minutes from historical control). This translated to a statistically significant improvement in the percentage of those who survived 'shockable' ventricular arrhythmias (17.2 percent survival rate, compared with a 9 percent survival rate in the historical control). The improvement in survival from shockable rhythms did not result in an overall improvement in survival, however, because of a high frequency of nonshockable rhythms…."[15] Myerburg and his colleagues suggested that the excess of nonshockable rhythms may have been partly attributable to delay in 9-1-1 activation; however, they also noted that "another report providing data on mechanisms of cardiac arrests that occur after the arrival of EMS also showed a higher than expected proportion of nonshockable rhythms."[16]

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[11] *Id.*
[12] *Id.*
[13] *Id.* (Bracketed information provided by staff.)
[14] *Id.* "[T]he mean police response time to nonmedical emergencies was 4.15 $\pm$ 1.40 minutes, compared with 6.16 $\pm$ 4.27 minutes for the medical calls—a 2.1-minute mean differential…." Myerburg et al (2002) suggested that possible explanations for this differential "include multiple vehicle responses to certain types of crimes in progress and the relationship between geography of certain police districts versus incidence of cardiac arrest events in those districts." However, Joglar and Page (2002) (note 9) contended that this explanation "misses a major concern—namely, whether police responders may have been uncomfortable with this new responsibility, which thus translated to a delay in response. This concern is supported by the experience in suburban and rural Indiana as reported by Groh and colleagues." (See note 9.)
[15] Joglar and Page, *supra*, summarizing the findings in Myerburg et al (2002) (note 10).
[16] *Id.* (Footnote and footnoted citation omitted.) Joglar and Page (2002) (note 9) believed that the large number of nonshockable patients in the Miami study "suggests a substantial delay, and all links in the chain of survival must be improved to further decrease mortality from sudden cardiac arrest." (Footnote and footnoted citation omitted.) They asserted that the delay is "inherent" and "serves to demonstrate the limitations of an AED program that is dependent on a device being delivered to the site of a cardiac arrest."

Cost of AEDs

According to the National Center for Defibrillation (NCD),[17] "[t]he average cost for an AED is $3,000.[18] Some AED manufacturers and distributors provide lease-to-own options, which cost approximately $200 a month per AED over a three-year period. Some communities use devices that have been donated or purchased through grants and gifts. Manufacturers expect AEDs to last up to five years." Bulk purchases of AEDs may reduce the purchase price.

The NCD also reported that there are peripheral equipment costs, "such as extra batteries, electrode pads and cables. The costs of these accessories total approximately $500 per defibrillator. Some AED models also require battery chargers, which cost about $200. This equipment will last up to five years with normal use."

There may also be maintenance and insurance costs. The NCD reported that "[m]aintenance costs vary according to the type of device. The primary costs associated with maintenance involve replacement of batteries and electrode pads. For each device, you should have two batteries so that you always have a spare. Lead acid batteries, which cost about $150, have to be replaced about every two years. Lithium batteries, which cost about $100 to $300, have to be replaced every one to five years, depending on the capacity of battery and usage patterns. Pads cost approximately $20 a pair. At least two sets should be kept on hand for each AED because

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> Time passes between a bystander's discovery of a victim and activation of the emergency response system. Even with immediate recognition, there are further delays in delivering the life-saving shock. The 5-minute response time reported in the study … must be added to the time for the 9-1-1 activation and dispatch, as well as an additional 1 to 1.5 minutes from the time the rescuer arrives to delivery of the first shock…. This translates to at least 7 minutes from collapse to shock: too long a time to achieve high levels of survival.

Joglar and Page believed that "if public access defibrillation were fully developed, with widely available AEDs and operators, the time to shock would be substantially reduced and survival would be increased."

Myerburg et al (2002) (note 10) made the following conclusions in their study:

> This likelihood that delays in 9-1-1 activation play at least a partial role in the excess of nonshockable rhythms leads to the notion that any effective strategy must include continuing attention to public education efforts calling for prompt contact of emergency systems. Our data suggesting both response time and survival benefits as a consequence of a P-AED program can have even more meaningful impact if other components encouraging rapid responsiveness, such as public education, public information, and police responder efficiency, are also addressed.
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> The data reported also highlight a layering effect of added access to early defibrillation. There was an interaction between police with AEDs and EMS in the first responder data …, supporting the general goal of rapid access to defibrillation. Whatever benefit police-AED strategies add to a community's response systems, even more benefit might be expected to be achieved by other public access deployment strategies. Cumulatively, they prepare the community for cardiac arrest responses from multiple points of attack.

(Footnotes and footnoted citations omitted.)

[17] All information in this section relevant to costs of AEDs is from Internet information on evaluating cost-effectiveness of AEDs (http://www.early-defib.org/03_06_09.html), which was prepared by the National Center for Defibrillation at the University of Pittsburgh.

[18] Information provided to staff by staff of the American Heart Association provides a lower "typical" figure: "The price of an AED may vary slightly depending upon the make or model, but typically the price is approximately $1,500 to $1,800." Staff analysis, American Heart Association (on file with the committee).

they are discarded after use. Unused pads should be replaced after two years because they slowly dry out over time. Replacement insurance and warrantee and service contracts may need to be purchased from some manufacturers."

Other costs reported by the NCD may include AED training costs, salary costs of program personnel, event documentation costs, quality assurance costs, and additional community-wide CPR training.

Protections From Legal Liability

As noted by Groh et al (2001), legal liability for the use of AEDs has been a concern of some police officers. However, Ramaswamy and Page (2003) have asserted that this "obstacle" has been removed by federal and state laws. In part, they have noted that "the Cardiac Arrest Survival Act of 2000[19] provides federal protection from legal liability for the AED operator." Also, they have noted that "all states now have Good Samaritan legislation for bystander operators of an AED."

According to staff of the National Conference of State Legislatures, Florida was the first state in the nation to enact a law providing for broad public access to AEDs.[20] Section 401.2951, F.S., provides:

> It is the intent of the Legislature that an automated external defibrillator may be used by any person for the purpose of saving the life of another person in cardiac arrest. In order to ensure public health and safety:
> (1) All persons who use an automated external defibrillator must obtain appropriate training, to include completion of a course in cardiopulmonary resuscitation or successful completion of a basic first aid course that includes cardiopulmonary resuscitation training, and demonstrated proficiency in the use of an automated external defibrillator;
> (2) Any person or entity in possession of an automated external defibrillator is encouraged to register with the local emergency medical services medical director the existence and location of the automated external defibrillator; and
> (3) Any person who uses an automated external defibrillator is required to activate the emergency medical services system as soon as possible upon use of the automated external defibrillator.

Paragraph (2)(a) of s. 768.13, F.S., which is Florida's "Good Samaritan Act" provides:

> (2)(a) Any person, including those licensed to practice medicine, who gratuitously and in good faith renders emergency care or treatment either in direct response to emergency situations related to and arising out of a public health emergency declared pursuant to s. 381.00315, a state of emergency which has been declared pursuant to s. 252.36 or at the scene of an emergency outside of a hospital, doctor's office, or other place having proper medical equipment, without objection of the injured victim or victims thereof, shall not be held liable for any civil damages as a result of such care or treatment or as a result of any act or failure to act in providing or arranging further medical treatment

[19] 42 U.S.C. [sections] 238p. and 238q.
[20] See note 4.

where the person acts as an ordinary reasonably prudent person would have acted under the same or similar circumstances.

Subsections (3) and (4) of s. 768.1325, F.S., Florida's "Cardiac Arrest Survival Act" provide:

> (3) Notwithstanding any other provision of law to the contrary, and except as provided in subsection (4), any person who uses or attempts to use an automated external defibrillator device on a victim of a perceived medical emergency[21], without objection of the victim of the perceived medical emergency, is immune from civil liability for any harm resulting from the use or attempted use of such device. In addition, any person who acquired the device, including, but not limited to, a community association organized under chapter 617, chapter 718, chapter 719, chapter 720, chapter 721, or chapter 723, is immune from such liability, if the harm was not due to the failure of such acquirer of the device to:
> (a) Notify the local emergency medical services medical director of the most recent placement of the device within a reasonable period of time after the device was placed;
> (b) Properly maintain and test the device; or
> (c) Provide appropriate training in the use of the device to an employee or agent of the acquirer when the employee or agent was the person who used the device on the victim, except that such requirement of training does not apply if:
> 1. The employee or agent was not an employee or agent who would have been reasonably expected to use the device; or
> 2. The period of time elapsing between the engagement of the person as an employee or agent and the occurrence of the harm, or between the acquisition of the device and the occurrence of the harm in any case in which the device was acquired after engagement of the employee or agent, was not a reasonably sufficient period in which to provide the training.
> (4) Immunity under subsection (3) does not apply to a person if:
> (a) The harm involved was caused by that person's willful or criminal misconduct, gross negligence, reckless disregard or misconduct, or a conscious, flagrant indifference to the rights or safety of the victim who was harmed;
> (b) The person is a licensed or certified health professional who used the automated external defibrillator device while acting within the scope of the license or certification of the professional and within the scope of the employment or agency of the professional;
> (c) The person is a hospital, clinic, or other entity whose primary purpose is providing health care directly to patients, and the harm was caused by an employee or agent of the entity who used the device while acting within the scope of the employment or agency of the employee or agent;
> (d) The person is an acquirer of the device who leased the device to a health care entity, or who otherwise provided the device to such entity for compensation without selling the device to the entity, and the harm was caused by an employee or agent of the entity who used the device while acting within the scope of the employment or agency of the employee or agent; or
> (e) The person is the manufacturer of the device.

[21] A "perceived medical emergency" is defined in s. 768.1325(2), F.S., as "circumstances in which the behavior of an individual leads a reasonable person to believe that the individual is experiencing a life-threatening medical condition that requires an immediate medical response regarding the heart or other cardiopulmonary functioning of the individual."

Staff has not found any case in Florida (or in the nation) in which a police officer has been held negligent in the use or failure to use an AED. Paragraph (9)(a) of s. 768.28, F.S., provides, in part, that "[n]o officer, employee, or agent of the state or of any of its subdivisions shall be held personally liable in tort or named as a party defendant in any action for any injury or damage suffered as a result of any act, event, or omission of action in the scope of her or his employment or function, unless such officer, employee, or agent acted in bad faith or with malicious purpose or in a manner exhibiting wanton and willful disregard of human rights, safety, or property."

III. Effect of Proposed Changes:

The CS for CS/SB 328 requires the Florida Department of Law Enforcement (FDLE) to administer a competitive grant program during the 2005-2006 fiscal year for placing automated external defibrillators (AEDs) in law enforcement vehicles. Grants awarded by FDLE are limited to amounts specifically appropriated each year for the AED grant program. FDLE is authorized to spend up to three percent of the grant funds for administrative costs. FDLE is required to adopt rules for administration by September 1, 2005.

Participation in the grant program by law enforcement agencies is discretionary. Law enforcement agencies must provide matching funds. A law enforcement agency (the CS/CS defines the term "law enforcement agency" to include "any law enforcement service provider") that does not serve a rural community is required to provide matching funds of at least 25 percent to be considered for funding. A law enforcement agency that serves a rural community must provide matching funds of at least 10 percent to be considered for funding. The CS/CS defines "rural community" by reference to the definition of that term in s. 288.0656, F.S. Paragraph (2)(a) of s. 288.0656, F.S., defines a "rural community" as: 1) a county with a population of 75,000 or less; 2) a county with a population of 100,000 or less that is contiguous to a county with a population of 75,000 or less; 3) a municipality within a county previously described; or 4) an unincorporated federal enterprise community or an incorporated rural city with a population of 25,000 or less that meets other criteria of the paragraph. The CS/CS provides that the department is to give priority consideration to grant applications from rural law enforcement agencies.

The CS takes effect upon becoming a law.

IV. Constitutional Issues:

A. Municipality/County Mandates Restrictions:

None.

B. Public Records/Open Meetings Issues:

None.

C. Trust Funds Restrictions:

None.

V. Economic Impact and Fiscal Note:

A. Tax/Fee Issues:

None.

B. Private Sector Impact:

A 2002 study of the cost-effectiveness of a police AED program in four suburban communities surrounding the William Beaumont Hospital, Royal Oak, Michigan, estimated that cost per life saved with the police AED program varied from $23,542 to $70,342 and cost per year life saved ranged from $1,582 to $16,060.[22] Costs were estimated using 1999 levels and included police or medical service costs. Societal costs, such as lost productivity, were not calculated.

C. Government Sector Impact:

The CS for CS/SB328 requires the Florida Department of Law Enforcement to administer a competitive grant program during the 2005-2006 fiscal year for placing automated external defibrillators (AEDs) in law enforcement vehicles. Grants awarded by FDLE are limited to amounts specifically appropriated each year for the AED grant program.

The grant program created by the CS/CS allows qualifying law enforcement agencies to purchase AEDs for their law enforcement vehicles. Agencies have the discretion whether to seek grant funding. Agencies that do seek grant funding must provide matching funds as specified in the CS/CS in order to be considered for funding. Additionally, it appears that these agencies will have to cover AED maintenance costs and possibly other costs (see "Present Situation" section of this analysis).

The FDLE has reported that "[t]he staff of the Office of Criminal Justice Grants is funded from administrative grant funds of the federal grants programs managed by this Office. General Revenue funds are needed to fund the time spent on administration of this state grant program." The CS/CS authorizes FDLE to spend up to 3 percent of funds appropriated for administrative costs.

VI. Technical Deficiencies:

None.

VII. Related Issues:

None.

[22] Forrer C, Swor RA, Pascual RG, Compton S, McEachin C. 2002. Estimated cost effectiveness of a police automated external defibrillator program in a suburban community: 7 years experience. *Resuscitation* 52:23-29.

VIII. Summary of Amendments:

None.