

Bobby Jindal
GOVERNOR



Alan Levine
SECRETARY

State of Louisiana
Department of Health and Hospitals
Office of the Secretary

May 18, 2010

The Honorable Joel T. Chaisson, II, President
Louisiana State Senate
P.O. Box 94183, Capitol Station
Baton Rouge, LA 70804-9183

The Honorable Jim Tucker, Speaker
Louisiana State House of Representatives
P.O. Box 94062, Capitol Station
Baton Rouge, LA 70804-9062

The Honorable Kay Katz, Chairwoman
House Committee on Health and Welfare
Louisiana State House of Representatives
P.O. Box 44486, Capitol Station
Baton Rouge, LA 70804-4486

Dear President Chaisson, Speaker Tucker, and Chairwoman Katz:

In response to House Resolution No. 1 (HR 1) of the 2009 Regular Session, the Louisiana Department of Health and Hospitals (DHH) submits the enclosed report. HR 1 urges and requests DHH to study the feasibility of requiring the placement of automated external defibrillators in schools and requires that a written report of findings and recommendations be submitted to the House Committee on Health and Welfare. R.S. 24:772 also requires that the report be submitted to the President of the Senate and the Speaker of the House.

The office of public health within DHH is available to discuss the enclosed report and recommendations with you at your convenience. Please contact Dr. William R. Clark, Jr., bureau of emergency medical services, at (225) 763-5700 with any questions or comments you may have.

Sincerely,

A handwritten signature in black ink, appearing to read "Alan Levine".

Alan Levine
Secretary

Enclosures

Cc: The Honorable Members of the House Health and Welfare Committee
David R. Poynter Legislative Research Library

**THE FEASIBILITY OF
REQUIRING THE
PLACEMENT OF
AUTOMATED EXTERNAL
DEFIBRILLATORS IN
SCHOOLS**

REPORT PREPARED IN RESPONSE TO HR 1
OF THE 2009 REGULAR SESSION

MAY 2010

Contact:

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EXECUTIVE SUMMARY

Life threatening emergencies can happen at any time in any school. These emergencies can be the result of pre-existing health problems, violence, unintentional injuries, natural disasters, or toxins. In recent years, stories in the lay press have documented tragic premature deaths in schools from sudden cardiac arrest. According to the American Heart Association (AHA), school leaders should establish an emergency response plan to deal with life-threatening medical emergencies.

In 2004, David Markenson, MD, EMTP, et al published the article “Response to Cardiac Arrest and Selected Life-Threatening Medical Emergencies: The Medical Emergency Response Plan for Schools: A Statement for Healthcare Providers, Policymakers, School Administrators, and Community Leaders.” This document introduced a public health initiative to create Emergency Medical Response Plans for schools. This document focused on the preventative measures to treat life-threatening emergencies, including sudden cardiac arrest. The document outlines the emergency plan, training and equipment necessary for such a response. It gives detailed information about sudden cardiac arrest, cardiopulmonary resuscitation (CPR) and automated external defibrillator (AED) programs.

Sudden cardiac arrest is the sudden cessation of cardiac activity so that the victim becomes unresponsive, with no normal breathing and no signs of circulation. Unless the victim receives immediate CPR and other treatment to restore normal cardiac activity, he or she will die. If a child or adult develops sudden cardiac arrest caused by ventricular defibrillation or pulse-less ventricular tachycardia, immediate bystander CPR and early defibrillation are needed. AEDs are medical devices that can be used by lay rescuers to treat sudden cardiac arrest.

The goal of the plan is to encourage schools to develop programs to reduce the incidence of life-threatening emergencies and maximize the chances of victim’s survival. The plan should encourage effective and efficient communication throughout the school campus, coordinated and practiced response plans, risk reduction, training and equipment for first aid and CPR, and implementation of lay rescuer AED programs.

As concluded by the AHA study, legislative efforts should be directed to support programs that are likely to save the greatest number of lives due to life-threatening emergencies. Life-threatening emergencies in children in schools are relatively uncommon, but when they do occur, they require a planned, practiced and efficient response with provisions of first aid and possible CPR and use of an AED. To maximize survival, schools must develop a medical emergency response plan that will allow them to provide appropriate treatment within in the first few minutes of an emergency.

According to the Louisiana Department of Education, there are 1,718 public schools in Louisiana. There are 48 public schools with AEDs issued through the Health Resources and Services Administration's SRA Rural AED Grant program, leaving 1,670 public schools without AEDs. The estimated cost per school with an AED would be \$2,709, and without an AED would be \$2,859 per year. Either program could result in a cost per life saved of \$1,480,962 to \$3,127,746.

Number of Schools without an AED	Annualized Cost per School	Total Estimated Annualized Cost for all Schools
1670	\$2,859	\$4,774,530

Number of Schools with an HRSA RAED	Annualized Cost per School	Total Estimated Annualized Cost for these Schools
48	\$2,709	\$130,032

Total Number of Louisiana Public Schools	Total Estimated Annualized Cost for all Schools
1718	\$4,904,562

REPORT TO THE LEGISLATURE

INTRODUCTION

Life threatening emergencies can happen at any time in any school. These emergencies can be the result of preexisting health problems, violence, unintentional injuries, natural disasters, and toxins. In recent years, stories in the lay press have documented tragic premature deaths in schools from sudden cardiac arrest. School leaders should establish an emergency response plan to deal with life-threatening medical emergencies.

BACKGROUND

In 2004, David Markenson, MD, EMTP, et al published an article titled "Response to Cardiac Arrest and Selected Life-Threatening Medical Emergencies: The Medical Emergency Response Plan for Schools: A Statement for Healthcare Providers, Policymakers, School Administrators, and Community Leaders." This document introduced a public health initiative to create Emergency Medical Response Plans for schools. This document focused on the preventative measures to treat life-threatening emergencies, including sudden cardiac arrest. The document outlines the emergency plan, training and equipment necessary for such a response. It gives detailed information about sudden cardiac arrest, cardiopulmonary resuscitation, and AED programs.

MAGNITUDE OF THE PROBLEM

In a survey of elementary and high school teachers, 18 percent surveyed indicated that they personally provided some aspect of emergency care to more than 20 students each academic year, and 17 percent indicated they responded to ≥ 1 life-threatening emergency during their teaching careers.

LIFE-THREATENING EMERGENCIES IN CHILDREN

The Intermountain Injury Control Research Center at the University of Utah conducted a study comparing the number and types of EMS dispatches for children between the ages of five and 18. The calls were categorized as either dispatch to a school or non-school location. The study was conducted over a period of three years. The study concluded that there were three chief medical complaints for school dispatched EMS for children unrelated to injury: breathing difficulty (18.4 percent), seizure (16 percent), and other illness (12.3 percent). These complaints are consistent with the causes of school deaths: severe asthma, anaphylaxis, choking, drug overdose, and heatstroke. These causes of arrest require recognition of the emergency and first aid, which may include the administration of medications, opening of the airway, possible CPR with use of an AED or rapid transport to appropriate definitive medical care. These treatments are time dependent. For the child to survive, the school must have a plan to ensure that trained rescuers identify the emergency and act quickly in a coordinated fashion to provide appropriate treatment.

Sudden cardiac arrest is the sudden cessation of cardiac activity so that the victim becomes unresponsive, with no normal breathing and no signs of circulation. Unless the victim receives immediate CPR and other treatment to restore normal cardiac activity, he or she will die. Although sudden cardiac arrest in children is relatively uncommon, victims are more likely to survive if they receive prompt support and

treatment. When sudden cardiac arrest does occur in children or adults, it may be precipitated by ventricular fibrillation or pulseless ventricular tachycardia. These abnormal heart rhythms are usually the result of underlying medical conditions, which may or may not be known to the victim. Examples of such conditions include prolonged QT syndrome; hypertrophic cardiomyopathy, and abnormal development of the coronary arteries; aortic dissection; myocarditis; and congenital aortic stenosis. If a child or adult develops sudden cardiac arrest caused by ventricular defibrillation or pulseless ventricular tachycardia, immediate bystander CPR and early defibrillation are needed. AEDs are medical devices that can be used by lay rescuers to treat sudden cardiac arrest. The AED will provide voice and visual prompts to guide the rescuer.

LIFE-THREATENING EMERGENCIES IN ADULTS

Adult workplace emergencies are likely to be representative of life-threatening emergencies among adults who work in schools. Rescuers responding to these emergencies must recognize and act in the same manner as they would respond to children. The pathophysiology of adult sudden cardiac arrest is no different than with children. However, sudden cardiac arrest in adults is a leading cause of death for those > 35 years of age and is the most common cause of death for those > 45 years of age.

CURRENT LEVEL OF SCHOOL PREPARATION FOR MEDICAL EMERGENCIES

In a random-based survey of elementary and high school parents and teachers, 80 percent of parents indicated that they assumed that teachers were adequately trained in first aid and CPR, but one-third of the teachers surveyed had no training in first aid, and 40 percent had never completed a course in CPR. Additionally, in another survey conducted by the American Heart Association, 80 percent of teachers felt that CPR training was important, yet 35 percent of schools provided no CPR training for students. Furthermore, when the schools were asked to identify factors that would encourage schools to offer CPR training to faculty and students, 24 percent indicated that funding would be helpful, and 17 percent indicated that a requirement or credit for CPR training would encourage CPR training.

SCHOOL MEDICAL EMERGENCY RESPONSE PLAN: AMERICAN HEART ASSOCIATION'S RECOMMENDED ELEMENTS

The goal of the plan is to encourage schools to develop programs to reduce the incidence of life-threatening emergencies and maximize the chances of a victim's survival. The following core elements are recommended by the AHA and its endorsing organizations:

1. Effective and efficient communication throughout the school campus;
2. Coordinated and practiced response plan;
3. Risk reduction;
4. Training and equipment for first aid and CPR; and
5. Implementation of a lay rescuer AED program.

POTENTIAL ANNUALIZED AND AMORTIZED COST FOR SCHOOL EMERGENCY RESPONSE PLANS

The American Heart Association estimates the program cost per life saved by using the example of the cost per survival of a high school victim of sudden cardiac arrest in a school with a medical emergency response plan that includes a lay rescuer AED program. This example will enable calculation using the cost of all potential elements described above: the costs of training four teachers to serve as first aid, CPR, and AED rescuers and instructors every two years; training half the student body in CPR and use of an AED every year; establishment of a lay rescuer AED program; and all first aid, CPR, and AED equipment needed. The American Heart Association used 1999 data of the number of high school students in the United States (13,369,163).

The average number of students per school, both private and public schools, was 390. For the calculation, an estimated annual incidence of sudden cardiac arrest was 0.5 to 1.0 in 100,000 high school students. This predicts that there will be between 133 and 266 sudden cardiac arrests in United States high schools annually, or one event per 259 to 547 schools. A successful program should have a goal of saving at least half of the potential victims of sudden cardiac arrest (50 percent survival to hospital discharge), or one life saved for every 518 to 1094 schools. Because each school must invest \$2,859 per year, which would result in a cost-per-life savings of \$1,480,962 to \$3,127,746 (\$2,859 annual cost per school X 518 to 1094 schools per life saved).

AHA TABLE OF APPROXIMATE ANNUAL COST ANALYSIS*

Implementation Item	Cost	Quantity	Lifespan in years (y)	Annualized Cost per School
Training for 2 teachers and 2 alternates	\$300	4	2	\$627
AED with defibrillator pads and case	\$1200†	1	8	\$150
Manikins and AED trainers	\$275	8	6	\$388
First Aid Kits	\$300	1	10	\$185
Instructor tool kits, student manuals, CPR cards, and reference CPR texts for classroom	\$109.50	2/200/200/2	5/1/1/5	\$471
Miscellaneous/substitute teachers	\$252.50	200/4	½	\$1,038
TOTAL	\$2,437			\$2,859

*The estimated costs have been amortized and annualized based on the (y) indicator, and costs are depreciated over their anticipated lifespan at an annual rate of 3 percent. If teachers are trained in CPR and first aid on professional development days, substitute teachers will not be required, and \$250 allocated in miscellaneous costs will be saved.

†The current cost of an AED on Louisiana state contract.

**LEGISLATIVE MANDATES AND FUNDING FOR SCHOOL
MEDICAL EMERGENCY RESPONSE PLANS**

Legislative efforts should be directed to support programs that are likely to save the greatest number of lives due to life-threatening emergencies. According to the AHA, a planned program should be required, as should appropriate training and equipment. The statement paper published by David Markenson, MD, EMTP, et al recommends the following:

1. Establish an efficient and effective campus-wide communication system;
2. Develop a coordinated and practiced medical emergency response plan, with appropriate evaluation and quality improvement;
3. Reduce the risk of life-threatening emergencies by identifying students at risk;
4. Train and equip teachers, staff, and students to provide CPR and first aid; and
5. Establish an AED program.

CONCLUSION

On any given day, as much as 20 percent of the combined US adult and child population can be found in schools. Life-threatening emergencies in schools are relatively uncommon, but when they do occur, they require a planned, practiced and efficient response with provision of first aid and possible CPR and use of an AED.

To maximize survival from a life-threatening emergency, schools must develop a medical emergency response plan designed to provide appropriate therapy within the first minutes of the emergency.

The medical emergency response plan includes:

1. Creation of an effective and efficient campus-wide communication system;
2. Coordination, practice, and evaluation of a response plan with the school nurse and physician, athletic trainer, and local EMS agency;
3. Risk reduction;
4. Training in and equipment for CPR and first aid for the school nurse, athletic trainers, and teachers and CPR training for students; and
5. Schools with a documented need, establishment of an AED program.

BIBLIOGRAPHY

Response to Cardiac Arrest and Selected Life-Threatening Medical Emergencies: The Medical Emergency Response Plan for Schools: A Statement for Healthcare Providers, Policymakers, School Administrators, and Community Leaders. Mary Fran Hazinski, David Markenson, Steven Neish, Mike Gerardi, Janis Hootman, Graham Nichol, Howard Taras, Robert Hickey, Robert O'Connor, Jerry Potts, Elise van der Jagt, Stuart Berger, Steve Schexnayder, Arthur Garson, Jr, Alidene Doherty, Suzanne Smith and Writing Group. *Circulation* 2004;109;278-291; originally published online Jan 5, 2004.

Regular Session, 2009

HOUSE RESOLUTION NO. 1

BY REPRESENTATIVE KATZ

A RESOLUTION

To urge and request the Department of Health and Hospitals to study the feasibility of requiring the placement of automated external defibrillators in schools.

WHEREAS, sudden cardiac arrest is the most common cause of death in the United States, accounting for an estimated three hundred fifty thousand deaths annually or one thousand deaths a day, and it is the leading cause of disability and increased health care costs; and

WHEREAS, for every minute that passes while a person is in ventricular fibrillation the chances of survival decrease by ten percent even if cardio-pulmonary resuscitation is administered; and

WHEREAS, within four minutes of the heart stopping the sudden cardiac arrest victim can suffer brain damage from the lack of oxygen; and

WHEREAS, after six minutes, according to studies conducted by the Mayo Clinic, the chance of resuscitating a sudden cardiac arrest victim is near zero; and

WHEREAS, sudden cardiac arrest is unpredictable and can happen to anyone even young children; and

WHEREAS, the reports of student athletes who die of sudden cardiac arrest continue to increase and have caused a number of states, including Ohio, Massachusetts, Tennessee, and Texas, to require public schools to have automated defibrillators; and

WHEREAS, an automated external defibrillator is a computerized portable medical device that analyzes the patient's heart rhythm and advises the rescuer whether a shock is needed to restore a normal heart beat after an incident of cardiac arrest; and

WHEREAS, the American Heart Association endorsed the chain of survival treatment method that has four pre-hospital steps which significantly improve survival rates after sudden cardiac arrest; and

WHEREAS, the Department of Health and Hospitals may consult the Sudden Cardiac Arrest Association's booklet entitled "Saving Lives in Schools and Sports" as means of determining the potential benefits of installing automated external defibrillators in schools; and

WHEREAS, Physio-Control Incorporated, a division of Medtronic, introduced portable lightweight, modestly priced automated external defibrillators that are relatively simple to learn to use; and

WHEREAS, when considering a school's potential liability the Department of Health and Hospitals should consider the implementation of required training, restricting the use of the device, company-sponsored indemnification programs, and potential legislation that could provide immunity from such liability.

THEREFORE, BE IT RESOLVED that the House of Representatives of the Legislature of Louisiana does hereby urge and request the Department of Health and Hospitals to study the feasibility of requiring the placement of automated external defibrillators in schools.

BE IT FURTHER RESOLVED that a written report of findings and recommendations be submitted to the House Committee on Health and Welfare not later than March 15, 2010.

BE IT FURTHER RESOLVED that a copy of this Resolution be transmitted to the appropriate personnel within the Department of Health and Hospitals.

SPEAKER OF THE HOUSE OF REPRESENTATIVES