

Supporting Implementation of AEDs on School Campuses



Sara Council, BSN, RN, NCSN; Ramona Whichello, DNP, RN, NEA-BC; Amy Putnam, DNP, RN, CNE

ABSTRACT

- The integrated literature review explored the evidence related to implementation of Automated External Defibrillators (AED) on school campuses for the prevention and management of Sudden Cardiac Arrest (SCA) in pediatric populations.
- The review aimed to assess the effectiveness of AED programs in schools and examines the obstacles and factors that support the implementation.

INTRODUCTION/ BACKGROUND

- SCA is a critical and life-threatening condition that occurs when the heart stops functioning which results in a lack of blood flow and unconsciousness.
- SCA is relatively rare in children; it is a serious medical emergency that can result in devastating consequences if not treated promptly.
- The importance of the implementation of comprehensive strategies to prevent and respond to SCA in educational settings, particularly in schools, continues to be a growing concern.
- AED implementation is a valuable strategy to improve survival rates in individuals who experience SCA on school campuses.
- Early defibrillation with CPR, within the first few minutes following SCA onset, significantly increases the chances of survival (Scarneo-Miller, 2020).
- Chance of survival decreases by 7% - 10% every minute that passes without defibrillation (Scarneo-Miller, 2020).
- Rapid deployment of AEDs in schools has the potential to significantly impact outcomes. Schools and other educational settings are potential high-risk environments for SCA, as children, adolescents, and adults spend a considerable amount of time on school campuses (Fuchs, 2018).
- Installation of AEDs in easily accessible locations and the provision of training to school staff and students, creates a safer environment and increase the chances of survival for individuals who experience cardiac emergencies on campus.



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METHODS

- Research articles identified through computer database searches of Cumulative Index for Nursing and Allied Health Literature (CINAHL) Plus, Academic Search Premier, Medline, PsycINFO, Education Source, and SocINDEX.
- Search terms included keywords and phrases: schools, AED, defibrillator, CPR, cardiopulmonary resuscitation, cardiac arrest, heart attack, and school nurse.
- A Boolean phrase was created and used for database searches: *(schools and AED or defibrillator and CPR or cardiopulmonary resuscitation or cardiac arrest or heart attack or nurs*, and United States*)*.
- Inclusion criteria included full-text articles within the last 7 years, English language, and published in a peer-reviewed journal.
- Comprehensive search yielded 373 articles. Duplicate records were removed and reduced the number of relevant articles to 247. Records were reviewed at the title level; 61 articles that were not relevant to the research topic were removed. Abstracts were reviewed for relevance; 21 articles were excluded. The texts of the remaining 44 articles were reviewed for relevance and quality; 23 articles were excluded.
- 21 studies were included in this review.
- Whittemore and Knafel (2005) methodology was used to evaluate, analyze, and synthesize the studies.

KEY THEMES

- Emergency Preparedness Plans
- Accessibility
- Training
- Overcoming Barriers associated with AED implementation and use



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PRELIMINARY RESULTS

- Use of an AED in out-of-hospital cardiac arrest is considered the standard of care.
- Use of an AED to provide rapid defibrillation has been identified by the American Heart Association as an important component in the chain of survival for individuals who experience SCA (Fuchs, 2018).
- Need for directed efforts in the implementation and use of AEDs within school settings and the pediatric population.
- AED use is impacted by neighborhood characteristics and policies and laws enacted by state-level legislation, department of education mandates, and individual school system policies.
- AED use is dependent upon an emergency preparedness plan, accessibility, training, and overcoming barriers associated with AED implementation and utilization.

PRELIMINARY RECOMMENDATIONS

- Prioritize implementation of AEDs and comprehensive cardiac emergency response plans in schools.
- Collaborate with school nurses and stakeholders to evaluate the need for AEDs, develop implementation plans, and provide staff training on AED operation and CPR.
- Ensure placement of AEDs on all school campuses through collaboration with community organizations, local governments, and healthcare providers.
- Develop and implement comprehensive emergency action plans with specific requirements for AED access and utilization in schools.
- Implement comprehensive training programs for school staff on CPR, AED use, and emergency response protocols, with school nurses as key educators and facilitators.
- Conduct regular refresher courses and drills to ensure staff competency and readiness to respond effectively to sudden cardiac arrest incidents.
- Collaborate with federal, state, and local leaders to address gaps in AED legislation and funding, and provide funding and resources at the district and state levels to support AED purchase, installation, and maintenance.
- Collaborate with local health departments, emergency medical services agencies, and healthcare providers to access discounted AEDs, training materials, and ongoing support.
- Collaborate with professional organizations, such as the National Association of School Nurses, to promote AED initiatives and advocate for supportive policies at the national level.
- Engage parents, students, and community members to raise awareness about the importance of AEDs in schools and seek support for funding and implementation efforts.
- Identify barriers associated with AED utilization in schools and develop interventions to address these barriers, aiming to improve outcomes on school campuses.

PRELIMINARY CONCLUSIONS

- Integration of AEDs on all school campuses is essential to improve cardiac emergency response capabilities and to improve outcomes for individuals experiencing SCA.
- Use of Kurt Lewin's Change Theory, schools can address the challenges associated with the effective implementation of AEDs, and to promote a culture of preparedness and safety.
- Prioritization of AED implementation, comprehensive emergency response plans, and community partnerships can create environments that prioritize cardiac emergency preparedness and ultimately save lives.

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