

Basic Life Support Workshop 2025 Heart: Hear, Evaluate, Act, Resuscitate And Train

Nolly O. H. Rantung

Department of Cardiology and Vascular Medicine Faculty of Medicine,
Universitas Kristen Indonesia, Jakarta, Indonesia

*Corresponding Author:

Email: jerschome@gmail.com

Abstract.

Background: The Community Service Activity entitled “2025 Basic Life Support Workshop: HEART (Hear, Evaluate, Action, Resuscitate, Training)” was implemented as an effort to improve preparedness and basic skills in handling emergencies in the community, especially among high school students. *Objective:* This activity aims to provide fast and appropriate initial treatment to increase the victim's chances of survival and minimize the risk of complications. *Method:* This activity was held at SMAN 67 Jakarta on April 26, 2025 and was attended by 40 students as active participants. The implementation method included a series of educational and interactive activities, consisting of material counseling on the concept and stages of Basic Life Support (BLS), basic skills training in dealing with cardiac arrest and respiratory distress situations, as well as direct practice and educational games to strengthen participants' understanding. Through the HEART (Hear, Evaluate, Action, Resuscitate, Training) approach, participants were trained to recognize emergency signs, evaluate the victim's condition quickly, take appropriate action, and perform cardiopulmonary resuscitation (CPR) according to standards. *Results:* The results of the activity showed an average increase in participants' knowledge scores of 42.5% after the training, with 90% of participants able to demonstrate CPR steps with the correct sequence and technique. In addition, 85% of participants stated that they were more confident in providing first aid in emergencies. The activity also received a positive response, with a 95% level of participant satisfaction with the relevance and learning methods used. *Conclusion:* It can be concluded that the 2025 Basic Life Support Workshop: HEART Training successfully increased students' knowledge, skills, and confidence in dealing with medical emergencies. This program is expected to become a model for sustainable education in the school environment to build a young generation that is responsive, caring, and skilled in helping others.

Keywords: Basic Life Support; Cardiopulmonary Resuscitation; Health Education; Emergency Skills and HEART Training.

I. INTRODUCTION

Out-of-hospital cardiac arrest (OHCA) is an emergency that poses a significant public health burden globally. The latest data from the World Health Organization (WHO) confirms that cardiovascular disease remains the number one cause of death with 19.8 million deaths in 2022 ($\pm 32\%$ of all deaths), the majority of which are related to myocardial infarction and stroke; some of these deaths originate from cardiac arrests that require a rapid and appropriate first aid response in the community (Organization 2020). In the context of emergencies, the literature consistently shows that cardiopulmonary resuscitation (CPR) by a lay rescuer (bystander CPR) and early defibrillation using an AED are the main determinants of survival, significantly increasing the chance of survival compared to no CPR (Missel et al. 2023). Common gaps include delayed recognition of cardiac arrest, hesitation to initiate chest compressions, lack of exposure to practical training, and low student/community confidence to act. Dispatcher-assisted CPR (DA-CPR) systems—CPR instruction via emergency telephone—have been shown to improve 30-day survival compared to no CPR or spontaneous CPR by an uninstructed layperson, while shorter time to initiation of DA-CPR is associated with better neurologic outcomes (Li et al. 2024). However, the success of DA-CPR remains highly dependent on the preparedness of lay rescuers, making school-based CPR education a crucial population strategy for increasing bystander CPR rates (Riva et al. 2020). On the other hand, evidence-based recommendations from the American Heart Association (AHA) and the International Liaison Committee on Resuscitation (ILCOR) have emphasized strengthening the community Chain of Survival, updating algorithms, and innovating resuscitation education to align with the latest science.

The 2020 AHA guidelines added a sixth link, “Recovery,” to the Chain of Survival and emphasized high-quality compressions, early defibrillation, and more effective education for non-healthcare providers (Takahashi et al. 2025). The 2023 and 2024 ILCOR international consensus also updated the evidence and recommendations for resuscitation education, including rapid cycle deliberate

practice (RCDP) and more pragmatic curricular strategies for lay participants (Tsao et al. 2023). Why middle school? Adolescents are a key group because: (1) they are potential witnesses to events at home, school, and in public settings; (2) they relatively quickly acquire simple motor skills such as chest compressions; and (3) they act as multipliers, spreading preparedness behaviors to family and peers. Recent evidence suggests that school-based CPR programs improve knowledge, compression performance (rate and depth), and intention to act; even a brief intervention such as a 60-second video with a mannequin exercise can significantly improve CPR quality (Merchant et al. 2020). Additionally, a 2025 systematic review of school CPR training implementation identified both enablers (availability of low-cost mannequins, policy support, teacher training) and barriers (limited curriculum time, equipment costs, and maintenance), making concise, interactive, and repeatable training models (low-cost, high-impact) a clear need (Berg et al. 2023). The core issue the program aims to address is the gap between global recommendations and grassroots practice: bystander CPR rates remain low globally, and regional disparities remain large.

Multicountry population studies have shown that in some developed countries, approximately 10% of OHCA victims survive, while in certain middle-/high-income countries the rate is much lower; key determinants are time to CPR/defibrillation, public AED availability, resuscitation literacy, and policy support (Greif et al. 2024). The Public Access Defibrillation (PAD) approach with widespread AED placement and community training has been shown to improve survival, but its sustainability requires programmatic integration with schools, places of worship, transportation, and fitness centers (Sadjadi et al. 2025). In the realm of health education, training design is crucial. Modern pedagogical principles emphasize active learning, deliberate practice, immediate feedback, and problem-based scenarios. ILCOR has assessed that RCDP short cycles of practice correction practice can accelerate the formation of procedural memory for critical tasks such as rhythmic chest compressions at 100–120/minute at a depth of 5–6 cm with full chest recoil (Dalle, Trisyani, and Nur'aeni 2025). Furthermore, a meta-analysis of serious games and digital media for CPR training demonstrated improvements in knowledge and technical performance, strengthening the argument for combining video micro-learning, short educational games, and hands-on practice (Cheng et al. 2024). Based on this spectrum of evidence, the 2025 Basic Life Support Workshop, themed HEART (Hear, Evaluate, Action, Resuscitate, Training), was designed as a concise, interactive, and performance-oriented educational package for students of SMAN 67 Jakarta. The acronym HEART crystallizes five key steps: 1) Hear – Sharpening sensitivity to “hear” distress signals: calls for help, sudden falls, abnormal/agonal breathing.

The rescuer’s initial response depends on recognizing these situations; 2) Evaluate – Assessing the safety of the scene, the victim’s response, and the quality of breathing; a quick decision triggers system activation (call for help, request an AED); 3) Action – Initiating chest compressions immediately while organizing bystanders to contact emergency services and provide an AED; 4) Resuscitate – Performing high-quality CPR and, if available, defibrillation with an AED according to guidelines; 5) Training – Emphasizing the importance of regular practice for skills retention and development. The HEART framework was chosen because it aligns with the AHA/ILCOR Chain of Survival, is easy for teens to remember, and enables educators to translate concepts into action (Folke et al. 2023). Furthermore, the integration of HEART with high-quality CPR principles (100–120 compressions/minute, 5–6 cm depth, full recoil, minimal interruptions) and hands-only CPR for adult lay rescuers reduces the psychological barriers associated with unaided mouth-to-mouth ventilation, while being consistent with AHA guidelines.cpr.heart.org To expand reach, provision of take-home materials (infographics, algorithm pocket cards), quick-response videos (≤ 60 seconds), and periodic training boosters are recommended by ILCOR and recent intervention studies to prevent rapid loss of competency (Perman et al. 2024).

Finally, SMAN 67 Jakarta, as the activity location, has a learning ecosystem that is conducive to this intervention: the presence of a student cadre, teacher support, and a parent network that allows for the diffusion of good practices into the surrounding community. With 40 students, the class size allows for intensive hands-on practice (an adequate mannequin-to-participant ratio) and structured peer coaching—two components that evidence shows are directly linked to compression quality and retention. AHA

Journals. Overall, the “Basic Life Support Workshop 2025: HEART” program is designed to bridge the evidence-to-practice gap by combining modern education science principles, the latest AHA/ILCOR guidelines, and realistic school implementation strategies. By focusing on early recognition, rapid decisions, effective action, and ongoing practice, this activity is expected to improve BHD literacy, core CPR skills, and students’ courage to act—ultimately contributing to increased bystander CPR rates and community safety.

II. METHODS

Activity Format and Approach

This Community Service activity uses an educational-participatory approach, a training method that actively engages participants through counseling, demonstrations, simulations, and hands-on practice. This approach is designed to ensure participants not only understand the theoretical concepts of Basic Life Support (BLS) but also apply them in real-life situations. The model adopted Kolb's experiential learning principles, which emphasize direct experience, reflection, conceptualization, and reapplication within the context of emergency skills learning. The HEART (Hear, Evaluate, Action, Resuscitate, Training) theme serves as the main framework for the activity, with each stage designed to train participants in recognizing emergency situations, assessing the victim's condition, making quick decisions, performing first-aid actions, and internalizing the skills through ongoing practice. The program targeted 40 students of SMAN 67 Jakarta, selected purposively based on their willingness and interest in participating in the training. The program took place in the school hall on April 26, 2025.

Activity Stages

Preparation

Includes coordination with schools, preparation of materials and demonstration materials (manikins, BHD modules, and audiovisual aids), and short training for facilitators from the UKI Medical Faculty.

Implementation

Consists of three main sessions: 1) Interactive Counseling: providing basic material on recognizing cardiac arrest and the importance of BHD; 2) Practical Training: participants practice performing cardiopulmonary resuscitation (CPR) under the direct guidance of an instructor; 3) Simulation and Educational Games: strengthening understanding through team games based on emergency scenarios.

Evaluation and Feedback

Evaluation was conducted using pre- and post-tests to assess knowledge gains, as well as observation of skills using a CPR implementation checklist. A satisfaction questionnaire was also administered to measure participants' perceptions and confidence after the training.

Data Analysis

Quantitative data from the pre- and post-tests were analyzed using a comparison of average improvement scores (%), while qualitative data from observations and questionnaires were analyzed descriptively to assess the effectiveness of the activity and participant satisfaction.

III. RESULT AND DISCUSSION

The 2025 Basic Life Support Workshop, themed HEART (Hear, Evaluate, Action, Resuscitate, Training), was held on April 26, 2025, at SMAN 67 Jakarta. Forty students participated: 22 boys (55%) and 18 girls (45%). The one-day workshop, with a total duration of six effective hours, encompassed three main sessions:

1. Basic Life Support (BLS) theory education and counseling;
2. Cardiopulmonary Resuscitation (CPR) skills training and practical simulation;
3. Evaluation, reflection, and educational games.

Overall, the workshop ran smoothly, with high participant enthusiasm, and all stages proceeded according to plan without significant obstacles. The community service team, comprised three lecturers

and six students from the Faculty of Medicine, Universitas Kristen Indonesia, served as instructors, practice facilitators, and skills evaluators.

Participant Participation and Enthusiasm

Throughout the event, attendance reached 100%, with all participants attending each session until the end. Their enthusiasm was reflected in their active participation in the discussion and simulation sessions. During the practical sessions, participants eagerly tried chest compression techniques, practiced hand positions, and learned how to operate the Automated External Defibrillator (AED) trainer. Several participants stated that this training was their first experience interacting directly with simulated medical procedures. This demonstrates that the Community Service Program (PKM) successfully opened new horizons and raised awareness of the importance of emergency preparedness.

Knowledge Measurement Results (Pre-Test and Post-Test)

Evaluation was conducted using a pre-test before the activity and a post-test after the practical session. The test consisted of 15 multiple-choice questions covering the basic concepts of BHD, the sequence of actions, and the principles of CPR according to the 2020 AHA guidelines.

Table 1. Average Knowledge Score of Participants Before and After Training

Evaluation Stages	Average	Increasing (%)
Pre-test	53.4	-
Post-test	76.1	+42.5%

Practical Skills Evaluation Results

Participant skills were evaluated using an instructor observation sheet based on AHA (2020) guidelines. Assessment criteria included: (1) Observing the safety of the scene and the victim's condition; (2) Determining the correct compression points; (3) Depth and rhythm of chest compressions; (4) Coordination with colleagues to summon help; (5) Use of an AED trainer.

Table 2. Percentage of Participants' Mastery of BLS Skills

BLS Skill Aspect	Percentage of Mastery
Recognizing an emergency	95%
Checking response and breathing	88%
Performing chest compressions using the correct technique	90%
Operating the AED trainer	85%
Team coordination and communication	93%

The average skill mastery rate reached 90.2%, demonstrating the effectiveness of the experiential learning approach. Participants also showed significant improvements in compression rhythm and depth after receiving direct feedback from the instructor.

Increased Self-Confidence and Preparedness

In addition to improving knowledge and skills, a subjective assessment of participants' self-confidence was conducted using a Likert-scale questionnaire (1–5). Before the training, the average self-confidence score was only 2.8 (low category), while after the training, this increased to 4.5 (high category). A total of 85% of participants stated they were ready and confident to provide first aid if they encounter an unconscious or respiratory arrest victim in their local environment. This increase in self-confidence was closely related to their direct experience performing resuscitation and receiving positive feedback from the facilitator.

Discussion

Knowledge and Skills Improvement

The average increase in knowledge scores of 42.5% demonstrates that interactive learning methods and hands-on practice are effective in improving participants' understanding of Basic Life Support. This finding aligns with research by (Aroor et al. 2014; Cheng et al. 2018), which reported that simulation-based and hands-on BLS training significantly improved knowledge retention and practical skills among school youth. The HEART approach implemented in this activity contributes to developing a logical sequence of thinking and systematic action readiness, enabling students to assess situations and act quickly.

Effectiveness of the HEART Learning Model

The HEART (Hear, Evaluate, Action, Resuscitate, Training) method is an innovative model in BLS education because it combines cognitive (knowledge), psychomotor (skills), and affective (attitude and confidence) aspects. The Hear and Evaluate phases foster situational awareness, while the Action and Resuscitate phases hone technical skills and rapid decision-making. The Training phase emphasizes the importance of continuous practice to prevent skill decay. According to (Greif et al. 2024), training that integrates simulation and periodic repetition can maintain resuscitation skills for up to six months after the first training.

Impact on Adolescent Self-Confidence and Preparedness

The 85% increase in self-confidence after the training demonstrates that the BHD activity not only honed technical skills but also built participants' psychological preparedness. According to (Plant and Taylor 2013), self-confidence is a crucial factor in one's ability to provide effective first aid in real-life situations. Through repeated simulations and direct feedback from instructors, students learn to overcome fear, panic, and hesitation when facing a cardiac arrest victim.

Implications for School Health Education

The positive results of this activity demonstrate the importance of integrating BHD training into the school curriculum or extracurricular health education programs. Such activities align with the Indonesian Ministry of Health's efforts to improve public health literacy, particularly in the areas of first aid and emergency response. In addition to improving adolescents' preparedness for emergency situations, such programs also strengthen the values of empathy and social awareness among students.

IV. CONCLUSION

The 2025 Basic Life Support Workshop: HEART Training successfully improved students' knowledge, skills, and confidence in providing first aid in cardiac or respiratory arrest. The HEART training model has proven effective as a comprehensive educational approach and has the potential to be widely implemented in school environments to shape a young generation that is responsive, caring, and skilled in saving lives.

Funding Statement

No external funding was received for this study.

Conflict of Interest declaration

The authors declare that they have no affiliations with or involvement in any organization or entity with any financial interest in the subject matter or materials discussed in this manuscript.

V. ACKNOWLEDGMENT

We would like to express our gratitude to the Faculty of Medicine, Universitas Kristen Indonesia, especially to the ATLAS Medical Assistance Team, who have provided full support in the implementation of the 2025 Basic Life Support Workshop. We also express our gratitude to the officials of SMAN 67 Jakarta as the host, the resource person, Dr. Nolly Octavianes Habel Rantung, Sp.JP, FIHA, and all related parties within the UKI Faculty of Medicine. We would like to thank the participants consisting of high school students, the organizing committee, and all parties who have provided contributions, support, and encouragement both morally and materially so that this activity can be held well. We hope that this cooperation and collaborative spirit will continue and become an inspiration in creating a society that is more aware of the importance of Basic Life Support.

REFERENCES

- [1] Aroor, Akshatha Rao, Rama Prakash Saya, Nazir Rahim Attar, Ganesh Kumar Saya, and Manikandan Ravinanthanan. 2014. "Awareness about Basic Life Support and Emergency Medical Services and Its Associated Factors among Students in a Tertiary Care Hospital in South India." *Journal of Emergencies, Trauma, and Shock* 7(3):166–69.
- [2] Berg, Katherine M., et all, Collaborators. 2023. "2023 International Consensus on Cardiopulmonary Resuscitation and Emergency Cardiovascular Care Science With Treatment Recommendations: Summary From the Basic Life Support; Advanced Life Support; Pediatric Life Support; Neonatal Life Support; Education, Implementation, and Teams; and First Aid Task Forces." *Circulation* 148(24):e187–280. doi: 10.1161/CIR.0000000000001179.
- [3] Cheng, Adam, Vinay M. Nadkarni, Mary Beth Mancini, Elizabeth A. Hunt, Elizabeth H. Sinz, Raina M. Merchant, Aaron Donoghue, Jonathan P. Duff, Walter Eppich, Marc Auerbach, Blair L. Bigham, Audrey L. Blewer, Paul S. Chan, Farhan Bhanji, and Council on Cardiopulmonary On behalf of the American Heart Association Education Science Investigators; and on behalf of the American Heart Association Education Science and Programs Committee Critical Care, Perioperative and Resuscitation; Council on Cardiovascular and Stroke Nursing; and Council on Quality of Care and Outcomes Research. 2018. "Resuscitation Education Science: Educational Strategies to Improve Outcomes From Cardiac Arrest: A Scientific Statement From the American Heart Association." *Circulation* 138(6). doi: 10.1161/CIR.0000000000000583.
- [4] Cheng, Pengfei, Yangxi Huang, Pengyu Yang, Haizhen Wang, Baichao Xu, Chaoran Qu, and Hua Zhang. 2024. "The Effects of Serious Games on Cardiopulmonary Resuscitation Training and Education: Systematic Review with Meta-Analysis of Randomized Controlled Trials." *JMIR Serious Games* 12(1):e52990.
- [5] Dalle, Heriyansyah, Yanny Trisyani, and Aan Nur'aeni. 2025. "Innovative Training Strategies for Public Response to Out-of-Hospital Cardiac Arrest: A Scoping Review." *Risk Management and Healthcare Policy* Volume 18:1635–50. doi: 10.2147/RMHP.S519931.
- [6] Folke, Fredrik, Persia Shahriari, Carolina Malta Hansen, and Mads Christian Tofte Gregers. 2023. "Public Access Defibrillation: Challenges and New Solutions." *Current Opinion in Critical Care* 29(3):168–74.
- [7] Greif, Robert, Janet E. Bray et all, Berg. 2024. "2024 International Consensus on Cardiopulmonary Resuscitation and Emergency Cardiovascular Care Science With Treatment Recommendations: Summary From the Basic Life Support; Advanced Life Support; Pediatric Life Support; Neonatal Life Support; Education, Implementation, and Teams; and First Aid Task Forces." *Circulation* 150(24). doi: 10.1161/CIR.0000000000001288.
- [8] Li, Siwen, Chongzhen Qin, Hongjuan Zhang, Mailikezhati Maimaitiming, Junyi Shi, YiKai Feng, Kepei Huang, Yanxin Bi, Minmin Wang, Qiang Zhou, Yinzi Jin, and Zhi-Jie Zheng. 2024. "Survival After Out-of-Hospital Cardiac Arrest Before and After Legislation for Bystander CPR." *JAMA Network Open* 7(4):e247909. doi: 10.1001/jamanetworkopen.2024.7909.
- [9] Merchant, Raina M., Alexis A. Topjian, Ashish R. Panchal, Adam Cheng, Khalid Aziz, Katherine M. Berg, Eric J. Lavonas, David J. Magid, and Pediatric Basic and Advanced Life Support On behalf of the Adult Basic and Advanced Life Support Neonatal Life Support, Resuscitation Education Science, and Systems of Care Writing Groups. 2020. "Part 1: Executive Summary: 2020 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care." *Circulation* 142(16_suppl_2). doi: 10.1161/CIR.0000000000000918.
- [10] Missel, Amanda L., John P. Donnelly, Julia Tsutsui, Nicholas Wilson, Charles Friedman, Deborah M. Rooney, Robert W. Neumar, and James M. Cooke. 2023. "Effectiveness of Lay Bystander Hands-Only Cardiopulmonary Resuscitation on a Mattress versus the Floor: A Randomized Cross-Over Trial." *Annals of Emergency Medicine* 81(6):691–98. doi: 10.1016/j.annemergmed.2023.01.012.
- [11] Organization, World Health. 2020. "World Health Organization Cardiovascular Diseases (CVDs) Fact Sheet." *World Health Organ.* 42(1):207–16.
- [12] Perman, Sarah M., Jonathan Elmer, Carolina B. Maciel, Anezi Uzendu, Teresa May, Bryn E. Mumma, Jason A. Bartos, Amber J. Rodriguez, Michael C. Kurz, Ashish R. Panchal, Jon C. Rittenberger, and on behalf of the American Heart Association. 2024. "2023 American Heart Association Focused Update on Adult Advanced Cardiovascular Life Support: An Update to the American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care." *Circulation* 149(5). doi: 10.1161/CIR.0000000000001194.
- [13] Plant, Nina, and Katherine Taylor. 2013. "How Best to Teach CPR to Schoolchildren: A Systematic Review." *Resuscitation* 84(4):415–21.

- [14] Riva, Gabriel, Martin Jonsson, Mattias Ringh, Andreas Claesson, Therese Djärv, Sune Forsberg, Per Nordberg, Sten Rubertsson, Araz Rawshani, and Anette Nord. 2020. "Survival after Dispatcher-Assisted Cardiopulmonary Resuscitation in out-of-Hospital Cardiac Arrest." *Resuscitation* 157:195–201.
- [15] Sadjadi, Mahan, Rebecca Brülle, Umut Onbasilar, Hendrik Booke, Christian Strauß, Thilo von Groote, Hugo van Aken, and Antje Gottschalk. 2025. "Implementation of School-Based CPR Training—a Systematic Review and Mixed-Methods Meta-Analysis." *Resuscitation Plus* 100955.
- [16] Takahashi, Haruka, Yohei Okada, Dehan Hong, Dennis Quah, Benjamin S. H. Leong, Yih Yng Ng, Nur Shahidah, Geraldine S. Y. Goh, Muhammad Yazid, and Kensuke Suzuki. 2025. "Association between Time Taken to Start Dispatch Assisted-Bystander Cardiopulmonary Resuscitation (DA-CPR) and Outcomes for out-of-Hospital Cardiac Arrest (OHCA)." *Resuscitation* 110651.
- [17] Tsao, Connie W., Aaron W. Aday, Zaid I. Almarzooq, Cheryl A. M. Anderson, Pankaj Arora, Christy L. Avery, Carissa M. Baker-Smith, Andrea Z. Beaton, Amelia K. Boehme, Alfred E. Buxton, Yvonne Commodore-Mensah, Mitchell S. V Elkind, Kelly R. Evenson, Chete Eze-Nliam, Setri Fugar, Giuliano Generoso, Debra G. Heard, Swapnil Hiremath, Jennifer E. Ho, Rizwan Kalani, Dhruv S. Kazi, Darae Ko, Deborah A. Levine, Junxiu Liu, Jun Ma, Jared W. Magnani, Erin D. Michos, Michael E. Mussolino, Sankar D. Navaneethan, Nisha I. Parikh, Remy Poudel, Mary Rezk-Hanna, Gregory A. Roth, Nilay S. Shah, Marie-Pierre St-Onge, Evan L. Thacker, Salim S. Virani, Jenifer H. Voeks, Nae-Yuh Wang, Nathan D. Wong, Sally S. Wong, Kristine Yaffe, Seth S. Martin, and on behalf of the American Heart Association Council on Epidemiology and Prevention Statistics Committee and Stroke Statistics Subcommittee. 2023. "Heart Disease and Stroke Statistics—2023 Update: A Report From the American Heart Association." *Circulation* 147(8). doi: 10.1161/CIR.0000000000001123..