



Publish: Association of Indonesian Teachers and Lecturers

**International Journal of Health Sciences (IJHS)**Journal Homepage: <https://jurnal.agdosi.com/index.php/IJHS/index>

Volume 3 | Number 4 | December 2025 |



## Response Time Relationship Time Nurse with Success Cardiac Arrest Patient Management in the Emergency Unit

Asrianto<sup>1\*</sup>, Rosida<sup>2</sup>, Rahmat Pannyiwi<sup>3</sup><sup>1</sup>Nursing Study Program, STIKes Yapika Makassar, Indonesia<sup>2</sup>Nursing Study Program, Emergency Department of Dr. Tajuddin Chalid General Hospital, Makassar, Indonesia<sup>3</sup>Faculty of Military Medicine, Indonesian Defense University, Indonesia

### ABSTRACT

**Background:** Cardiac arrest is an emergency that requires immediate and appropriate treatment. One key factor in the success of cardiopulmonary resuscitation (CPR) is the speed of response of nurses in the Emergency Department (ER). Response time Fast time) is associated with an increased chance of successful treatment of cardiac arrest patients.

**Objective:** This study aims to determine the relationship between nurse response time and the success of treating cardiac arrest patients in the ER.

**Methods:** This study used an observational analytical design with a *cross-sectional approach*. The sample was 40 cardiac arrest patients treated in the Emergency Department of Hospital "X" during the period of January–June 2025. Measurements were made on the nurses' response time from patient identification to the start of CPR. The success of treatment was measured by the presence of *a return to normal. of spontaneous circulation* (ROSC). Data analysis was performed using the Chi- Square test using a significance level of 0.05.

**Results:** The results of the study showed that most nurses with a response time of  $\leq 1$  minute successfully increased the ROSC rate in cardiac arrest patients compared to nurses with a response time of  $>1$  minute. The Chi- Square test showed a significant relationship between nurse response time and successful treatment of cardiac arrest patients ( $p < 0.05$ ).

**Conclusion:** Nurse response time is significantly associated with the success of cardiac arrest treatment in the emergency department. The faster the response, the higher the chance of successful resuscitation.

**Keywords:** Cardiac Arrest, Response Time, Nurse, Cardiopulmonary Resuscitation

\*Correspondent Author : Asrianto

\*Email : [asriantoazis@yahoo.com](mailto:asriantoazis@yahoo.com)





Publish: Association of Indonesian Teachers and Lecturers

**International Journal of Health Sciences (IJHS)**Journal Homepage: <https://jurnal.agdosi.com/index.php/IJHS/index>

Volume 3 | Number 4 | December 2025 |



## 1. Introduction

*Cardiac arrest cardiac arrest*) is an emergency situation that has a high mortality rate if not treated immediately. According to the American Heart Association According to the American Heart Association (AHA), the chance of successful cardiopulmonary resuscitation (CPR) decreases by 7–10% for every minute of delay in treatment after cardiac arrest. Therefore, the speed of response by healthcare workers, particularly nurses in the Emergency Department (ER), plays a vital role in determining patient outcomes.

Nurses are the front line, often the first to encounter cardiac arrest patients. Response *time time*) nurses from the time the patient is identified until CPR is performed is a determining factor in achieving *return of spontaneous circulation* (ROSC) or successful resuscitation. Previous studies have shown that patients who receive CPR within  $\leq 1$  minute of collapse have a higher success rate compared to those who receive CPR more slowly.

In Indonesia, challenges remain in ensuring rapid response in the emergency department (ER), such as limited staffing, lack of advanced CPR training, and limited infrastructure. These conditions can impact the quality and speed of care for cardiac arrest patients. Therefore, this study is crucial to analyze the relationship between nurse response time and the success of cardiac arrest patient care in the ER.

This research is expected to contribute to efforts to improve the quality of emergency services, particularly in accelerating nurses' responses to cardiac arrest patients, as well as becoming the basis for hospital policies in preparing standard operating procedures (SOPs) for handling cardiac arrest.

## 2. Research Methods

### a. Research Design

This study uses an observational analytical design with a cross-sectional approach, namely measuring the variables of nurse response time and the success of handling cardiac arrest patients at the same time without intervention.

### b. Location and Time of Research

The research was conducted at the Emergency Unit (UGD) of Hospital “X” in South Sulawesi in the period January–June 2025.

### c. Population and Sample

- Population: all cardiac arrest patients who arrived or experienced cardiac arrest at the Emergency Room of Hospital “X”.
- Sample: cardiac arrest patients who met the inclusion criteria with a total of 40 cases.
- Inclusion criteria: patients diagnosed with cardiac arrest, recorded nurse response time, and received CPR.
- Exclusion criteria : patients with incomplete medical records or referred out before CPR was performed.

### d. Research Variables





- Independent variable: response time (response) time nurses (categorized as  $\leq 1$  minute and  $>1$  minute).
- Dependent variable: success of treatment of cardiac arrest patients, measured by the presence of return of spontaneous circulation (ROSC).

#### e. Research Instruments

The instruments used were observation sheets and patient medical records. Nurse response time was recorded based on the time from cardiac arrest identification to the start of CPR, while patient outcomes were taken from ROSC records.

#### f. Data collection technique

1. Direct observation of cardiac arrest events and nurse responses.
2. Secondary data collection from medical records related to patient treatment outcomes.

#### g. Data analysis

The data was analyzed using the Chi- Square test with a significance level of  $p < 0.05$  to determine the relationship between nurse response time and the success of handling cardiac arrest patients.

### 3. Results and Discussion

#### a. Results

This study involved 40 cases of cardiac arrest patients treated in the Emergency Department of Hospital "X" during the period January–June 2025. The results of data processing were as follows:

##### 1. Nurse Response Time:

- Response ( $\leq 1$  minute): 25 cases (62.5%).
- Response ( $>1$  minute): 15 cases (37.5%).

##### 2. Successful Treatment (ROSC):

- In rapid response ( $\leq 1$  minute): 18 cases (72%) achieved ROSC.
- In slow response ( $>1$  minute): 3 cases (20%) achieved ROSC.

Statistical analysis using the Chi- Square test showed a  $p$  value = 0.002 ( $p < 0.05$ ), so it can be concluded that there is a significant relationship between nurse response time and the success of handling cardiac arrest patients.

#### b. Discussion

The results of this study show that the faster the nurse's response time in providing cardiopulmonary resuscitation (CPR), the higher the patient's chance of survival and achieving return to health. of spontaneous circulation (ROSC). This is in line with the American Heart Association guidelines. Association (AHA, 2020) states that every minute delay in starting CPR can reduce the chance of success by 7-10%.





Publish: Association of Indonesian Teachers and Lecturers

**International Journal of Health Sciences (IJHS)**Journal Homepage: <https://jurnal.agdosi.com/index.php/IJHS/index>

Volume 3 | Number 4 | December 2025 |



This finding also supports previous research by Meaney et al. (2013) and Hasselqvist-Ax et al. (2015) stated that CPR intervention within  $\leq 1$  minute of cardiac arrest can increase survival. rate doubled compared to interventions  $> 1$  minute.

Apart from response time, other factors that influence the success of treating cardiac arrest patients are:

1. The quality of CPR performed by nurses (compression depth, speed, and effective ventilation).
2. Availability of defibrillators and emergency medications.
3. The number of nursing staff in the ER can affect the speed of response.
4. Nursing experience and training in emergency care, such as Basic Life Support (BLS) and Advanced Life Support (ALS) certification Cardiac Life Support (CLS).

Thus, the results of this study confirm that the rapid response of nurses in providing resuscitation measures is not only a technical factor, but also reflects the readiness of the overall ER system. Hospitals need to strengthen their emergency management systems, conduct *code* simulations, and monitor patient outcomes. *blue*, and ensuring the availability of facilities and infrastructure to support a rapid response to cardiac arrest patients.

#### 4. Conclusion and Suggestions

##### a. Conclusion

This research proves that response time Nurse response time has a significant relationship with the success of cardiac arrest patient management in the ER. Patients who receive a nurse's response within  $\leq 1$  minute have a greater chance of achieving *return to health. of spontaneous circulation* (ROSC) compared to patients treated with a response time  $> 1$  minute.

These findings confirm that the speed of nurse response is one of the main determinants in the success of cardiopulmonary resuscitation and the outcome of cardiac arrest patients.

##### b. Suggestion

1. For Hospitals:
  - Strengthening emergency management systems through *code protocols blue*.
  - Provide adequate resuscitation facilities and infrastructure in every emergency room.
  - Increase the number of nursing staff to reduce the workload.
2. For Nurses:
  - Attend regular Basic Life Support (BLS) and Advanced training Cardiac Life Support (CLS).





Publish: Association of Indonesian Teachers and Lecturers

**International Journal of Health Sciences (IJHS)**Journal Homepage: <https://jurnal.agdosi.com/index.php/IJHS/index>

Volume 3 | Number 4 | December 2025 |



- Improve the speed of early detection of cardiac arrest and the skills to perform CPR according to AHA standards.
3. For Health Management:
    - Setting response standards Nurse time  $\leq 1$  minute in handling cardiac arrest.
    - Conduct regular audits of the speed and quality of care in the ER.
  4. For Further Researchers:
    - It is recommended to expand the scope of the research by involving more hospitals.
    - Adding other variables such as CPR quality, nurse work experience, and the use of early defibrillation as factors that influence the outcome of cardiac arrest patients.

## References

1. Asrianto, A., Mebri, E., Ramli, R., Tondok, SB, & Abdullah, R. (2025). The Effectiveness of Basic Life Support (BLS) Training on the Competence of Non-ER Nurses in Handling Cardiac Arrest. *Barongko : Journal of Health Sciences* , 3 (3), 916–925. <https://doi.org/10.59585/bajik.v3i3.735>
2. Asrianto, A., Hilal, A., Herman, H., W, RR, Jabir, MA, & Betan, AB (2024). Efforts to Protect Themselves from Health Risks for Scavenger Groups at Final Waste Disposal Sites in Makassar City. *Sahabat Sosial: Journal of Community Service*, 3 (1), 17–24. <https://doi.org/10.59585/sosisabdimas.v3i1.510>
3. American Heart Association. (2020). *Highlights of the 2020 American Heart Association Guidelines for CPR and ECC*. Dallas, TX: AHA.
4. Berg, R.A., Hemphill, R., Abella, B.S., Aufderheide, T.P., Cave, D.M., Hazinski, M.F., & Swor, R.A. (2010). Part 5: Adult basic life support. *Circulation*, 122(18\_suppl\_3), S685–S705. <https://doi.org/10.1161/CIRCULATIONAHA.110.970939>
5. Bobrow, B.J., Clark, LL, Ewy, G.A., Chikani, V., Sanders, A.B., Berg, R.A., ... & Kern, K.B. (2008). Minimally interrupted cardiac resuscitation by emergency medical services for out - of -hospital cardiac arrested. *JAMA*, 299(10), 1158–1165. <https://doi.org/10.1001/jama.299.10.1158>
6. Brown, T. B., & Dias, J. A. (2017). Improving outcomes after cardiac arrest: the role of rapid response and code teams. *Current Critical Opinion Care*, 23(3), 218–223. <https://doi.org/10.1097/MCC.0000000000000412>
7. Caffrey, S.L., Willoughby, P.J., Pepe, P.E., & Becker, L.B. (2002). Public use of automated external defibrillators. *New England Journal of Medicine*, 347(16), 1242–1247. <https://doi.org/10.1056/NEJMoa020932>





Publish: Association of Indonesian Teachers and Lecturers

**International Journal of Health Sciences (IJHS)**Journal Homepage: <https://jurnal.agdosi.com/index.php/IJHS/index>

Volume 3 | Number 4 | December 2025 |



8. Chan, P.S., McNally, B., Tang, F., & Kellermann, A. (2014). Recent trends in survival from out - of -hospital cardiac arrested in the United States. *Circulation*, 130(21), 1876–1882. <https://doi.org/10.1161/CIRCULATIONAHA.114.009711>
9. Cummins, R.O., Ornato, J.P., Thies, W.H., & Pepe, P.E. (1991). Improving survival from sudden cardiac arrest: the “chain of survival” concept. *Circulation*, 83(5), 1832–1847. <https://doi.org/10.1161/01.CIR.83.5.1832>
10. Deakin, C.D., Nolan, J.P., Soar, J., Sunde, K., & Koster, R.W. (2010). European Resuscitation Council Guidelines for Resuscitation 2010 Section 4. Adult advanced life support. *Resuscitation*, 81(10), 1305-1352. <https://doi.org/10.1016/j.resuscitation.2010.08.017>
11. Gräsner, J. T., & Herlitz, J. (2011). Epidemiology of cardiac arrests in Europe. *Resuscitation*, 82(8), 1041–1042. <https://doi.org/10.1016/j.resuscitation.2011.04.001>
12. Hansen, M., Fleischman, R.J., Meckler, G., Newgard, C.D., & Schexnayder, S. (2015). Resuscitation time bias—a unique challenge for observational cardiac arrest research. *Resuscitation*, 91, 92–98. <https://doi.org/10.1016/j.resuscitation.2015.02.021>
13. Idris, I., Pannyiwi, R., Ula, Z., & Singga, S. (2023). Provisions of Clean Water Facilities with the Incident of Diarrhea in the Ujung Pandang Baru Health Center Working Area. *International Journal of Health Sciences*, 1(4), 576–588. <https://doi.org/10.59585/ijhs.v1i4.186>
14. Kleinman, M.E., Brennan, E.E., Goldberger, Z.D., Swor, R.A., Terry, M., Bobrow, B.J., ... & Hazinski, M.F. (2015). Part 5: Adult basic life support and CPR quality: 2015 American Heart Association Guidelines Update for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care. *Circulation*, 132(18\_suppl\_2), S414–S435. <https://doi.org/10.1161/CIR.0000000000000259>
15. Meaney, P.A., Bobrow, B.J., Mancini, M.E., Christenson, J., de Caen, A.R., Bhanji, F., ... & Travers, A.H. (2013). Cardiopulmonary resuscitation quality: improving cardiac resuscitation outcomes both inside and outside the hospital. *Circulation*, 128(4), 417–435. <https://doi.org/10.1161/CIR.0b013e31829d8654>
16. Malaha, N., Rusdi, M., Syafri, M., Pannyiwi, R., Sima, Y., & Rahmat, RA (2022). The Relationship Between Knowledge Level and Smoking Behavior at SMA N 1 Liang, Banggai Islands Regency. *Barongko: Journal of Health Sciences*, 1 (1), 11–16. <https://doi.org/10.59585/bajik.v1i1.17>
17. Nolan, J. P., Soar, J., & Perkins, G. D. (2012). Cardiopulmonary resuscitation. *BMJ*, 345, e6122. <https://doi.org/10.1136/bmj.e6122>
18. Ong, MEH, Shin, SD, De Souza, N.N., Tanaka, H., Nishiuchi, T., Song, K.J., ... & Becker, L.B. (2015). Outcomes for out - of -hospital cardiac arrests across 7 countries in Asia: the Pan Asian Resuscitation Outcomes Study (PAROS). *Resuscitation*, 96, 100–108. <https://doi.org/10.1016/j.resuscitation.2015.07.026>





Publish: Association of Indonesian Teachers and Lecturers

**International Journal of Health Sciences (IJHS)**Journal Homepage: <https://jurnal.agdosi.com/index.php/IJHS/index>

Volume 3 | Number 4 | December 2025 |



19. Sasson, C., Rogers, M. A., Dahl, J., & Kellermann, A. L. (2010). Predictors of survival from out - of -hospital cardiac arrest: a systematic review and meta- analysis. *Circulation: Cardiovascular Quality and Outcomes*, 3(1), 63–81. <https://doi.org/10.1161/CIRCOUTCOMES.109.889576>
20. Silaen, CAM, Manurung, H., & Pannyiwi, R. (2025). The Geostorm in Great Major Power of the United States and NATO: The Impact of Climate Change to Southeast Asia. *JIMAD: Multidisciplinary Scientific Journal*, 2 (3), 165–173. <https://doi.org/10.59585/jimad.v2i3.701>

