



Udayana One Health Collaborating Center (OHCC) initiated Bali's first mass, integrated basic life support training



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ABSTRACT

Basic Life Support (BLS) is a first-aid training that can be utilized in case of emergency until the victims are retained by medical professionals. Mastering BLS skills can be the difference between life and death. A cardiopulmonary resuscitation (CPR) performed by a passer-by is important to ensure a successful resuscitation in out-of-hospital

cardiac arrest. Yet, improving the survival rate for out-of-hospital cardiac arrest is still a major problem. Starting in 2019, Udayana One Health Collaborating Center (Udayana OHCC) will implement the first mass and integrated BLS training in Bali. The goals are to introduce BLS to more people and to produce BLS-friendly environment in Bali.

Keywords: OHCC, basic life support, cardiopulmonary resuscitation, Bali

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INTRODUCTION

Out-of-hospital cardiac arrest (OHCA) is an international health issue.^{1,2} OHCA survival may be enhanced by reducing the response time, comprising early cardiopulmonary resuscitation (CPR), early defibrillation, and early advanced care.² Basic life support (BLS) training with a hands-on drill may develop a better response during simulated cardiac arrest. BLS is a first-aid training that can be utilized in case of emergency until the victims are retained by medical professionals. Mastering BLS skills can be the difference between life and death.

BLS skills are essential for medical professionals. However, it's not limited to only these professions. Pool attendants, lifeguard, teachers, social workers, and security personnel are some professions that are worth mentioning. With nearly half of deaths due to heart attack happened at non-hospital setting, it is up to a first-rescuer to perform BLS when needed, thus making it important that they have both the knowledge and skills that need to be performed.³

A CPR performed by a passer-by is important to ensure a successful resuscitation in OHCA.⁴ CPR training was initiated during the late 1970s by the American Heart Association, and previous studies have highlighted that CPR education improves the skills of the bystanders.^{5,6} Yet, improving the survival rate for OHCA is still a major problem.^{7,8} Several kinds of research showed that a lack of CPR familiarity, concerns about adverse effects of CPR, and

unwillingness to make mouth-to-mouth breathing contribute to the low passer-by CPR rate.^{9,10}

WHAT WE LEARNED FROM PAST TRAINING

In the past, we have provided multiple BLS training for diverse attendants. At the end of the training, we gave the attendants a questionnaire of 10 simple yes or no questions. The result of the questionnaire is displayed in [Table 1](#).

We can see that 92 (55.09%) of the attendants want to be able to help someone in medical distress and 162 (97.01%) found the training to be useful. And while 158 (94.61%) of the attendants thought that they were able to provide medical help after the training, only 130 (77.84%) of them answered that they actually would help someone in a medical emergency. The reasons were not explored and that is something that we look forward too.

We did not collect the age, gender, and educational background in the past training, but we will build on that in the future training, in the sight that it would provide us more information about how Balinese respond and react to BLS/CPR training.

WHAT CAN BALI CONTRIBUTE TO THE PROBLEM?

Located at the south of Indonesia, Bali is a destination to more than six million travelers from around the globe in 2018. Bali, the famed "Island

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Table 1 The post-training questionnaire results we deliver in BLS training in 2018 (N=167)

Q	Questions	Yes	No
1	Before this training, when you spot someone in medical distress, do you want to be able to help him/her?	38 (22.8%)	129 (87.2%)
2	Do you want to be able to help someone properly?	92 (55.09%)	75 (44.91%)
3	Do you think this training is useful for you?	162 (97.01%)	5 (2.99%)
4	After this training, do you think you are able to provide medical help in case of emergency?	158 (94.61%)	9 (5.39%)
5	After this training, would you help someone in a medical emergency?	130 (77.84%)	37 (22.16%)
Do you think this training will be better if:			
6	We present the materials using video more	131 (78.44%)	36 (21.56%)
7	More simulation, less lectures	99 (59.28%)	68 (40.82%)
8	We provide a student book for you to bring home	88 (52.69%)	79 (47.31%)
9	We provide more in-depth training	125 (74.85%)	42 (25.15%)
10	We present real-life survivor in our class	91 (54.49%)	76 (45.51%)

of the Gods", stakes a thoughtful statement to be "paradise on earth". Its diverse landscape of mountainous terrain, coastlines, and sandy beaches, rice terraces, and volcanic hillsides provide an attractive environment to its colorful, spiritual, and unique culture. The island of Bali has been inscribed on the UNESCO World Heritage list.

While a BLS training for bystanders is a common thing in the western hemisphere, it's still not the case for Bali. Most Balinese still think that saving someone's life is a physician's duty. CPR skills and the will to act can be trained at an early age.¹¹⁻¹⁴ Teaching students about CPR and how to operate automated external defibrillator (AED) devices are considered a significant module in an environment to increase the OHCA survival rate.¹⁵ In 2015, the World Health Organization (WHO) authorized the 'Kids Save Lives' joint statement, which claims that an effective method of refining bystander CPR is to deliver BLS/CPR training in schools.¹⁶

An increasing number of international travel and tourism to Bali brings Bali now facing a challenge like never before. Complex problem, such as the lack of understanding in BLS and CPR in Balinese, cannot be solved alone. To face such a health challenge, we must work across sectors and establish multi-disciplinary collaborations among physicians and other professionals.

One Health concept emphasizes that the health of human is closely related to the health of animals

and the environment. This concept is also pointed out that collaboration, multi-sectors, and multi-disciplinary collaborative are essential to gain optimal approach to better health outcomes and fight the health problems with no boundaries. Udayana One Health Collaborating Centre (OHCC) as a study center under Udayana University concerns about sustaining One Health concept implementation to this matter.

By collaborating with Department of Anesthesia, Pain Medicine, and Intensive Care of Faculty of Medicine under Udayana University direction, they will implement the first mass and integrated BLS training in Bali, aiming to introduce BLS to more people and to produce BLS-friendly environment in Bali. The attendants will be those who work in the travel and tourism industry, such as hotel staffs, restaurant employees, lifeguards, and emergency respondents.

Aside from that, there will also be free CPR training to school students across Bali. As stated above, skills and the willingness to act in emergency situations can be taught and trained at an early age. We do now understand that early bystander CPR is essential for survival from OHCA. Youths are potentially essential to be trained as bystander CPR providers, as BLS training can be taught widely as part of the school curriculum.¹⁷ Hopefully, such an integrated approach will familiarize more Balinese to BLS and CPR.

As always, some barriers can be expected in implementing such a new thing for Balinese people. A study in China reported that the top four motives for one being reluctant to perform CPR were lack of confidence, fear of legal issues, fear of communicable diseases, and feeling embarrassed.¹⁸ And of course, we expect to encounter those barriers as well. Changes and adjustments are needed to be implemented throughout the program to formulate the best curriculum and method in teaching BLS to the attendants. This all to create a better, friendlier tourism environment to Balinese and all those who come to Bali.

REFERENCES

- Abolfotouh MA, Alnasser MA, Berhanu AN, *et al.* Impact of basic life-support training on the attitudes of health-care workers toward cardiopulmonary resuscitation and defibrillation. *Health Services Research.* 2017; 17:674. DOI: [10.1186/s12913-017-2621-5](https://doi.org/10.1186/s12913-017-2621-5)
- Ong ME, Yap S, Chan KP, *et al.* Knowledge and attitudes towards cardiopulmonary resuscitation and defibrillation amongst Asian primary health care physicians. *Open Access Emerg Med.* 2009; 1:11. Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4806819/>
- Shrestha R, Batajoo KH, Piryani RM, *et al.* Basic life support: knowledge and attitude of medical/paramedical professionals. *World J Emerg Med.* 2012; 3(2): 141-145. DOI: [10.5847/wjem.j.issn.1920-8642.2012.02.011](https://doi.org/10.5847/wjem.j.issn.1920-8642.2012.02.011)
- Sasson C, Rogers MAM, Dahl J, *et al.* Predictors of survival from out-of-hospital cardiac arrest: a systematic review and meta-analysis. *Circulation: Cardiovascular Quality and Outcomes.* 2010; 3(1):63-81. DOI: [10.1161/CIRCOUTCOMES.109.889576](https://doi.org/10.1161/CIRCOUTCOMES.109.889576)
- Nielsen AM, Isbye DL, Lippert FK, *et al.* Engaging a whole community in resuscitation. *Resuscitation.* 2012; 83(9):1067-1071. DOI: [10.1016/j.resuscitation.2012.04.012](https://doi.org/10.1016/j.resuscitation.2012.04.012)
- Nielsen AM, Isbye DL, Lippert FK, Rasmussen LS. Persisting effect of community approaches to resuscitation. *Resuscitation.* 2014; 85(11):1450-1454. DOI: [10.1016/j.resuscitation.2014.08.019](https://doi.org/10.1016/j.resuscitation.2014.08.019)
- Taniguchi T, Sato K, Fujita T, *et al.* Attitudes to bystander cardiopulmonary resuscitation in Japan in 2010. *Circulation Journal.* 2012; 76(5): 1130-1135. DOI: [10.1253/circj.CJ-11-0054](https://doi.org/10.1253/circj.CJ-11-0054)
- Vaillancourt C, Stiell IG, Wells GA. Understanding and improving low bystander CPR rates: a systematic review of the literature. *Canadian Journal of Emergency Medicine.* 2008; 10(1):51-65. DOI: [10.1017/S1481803500010010](https://doi.org/10.1017/S1481803500010010)
- Cho GC, Sohn YD, Kang KH, *et al.* The effect of basic life support education on laypersons' willingness in performing bystander hands-only cardiopulmonary resuscitation. *Resuscitation.* 2010; 81(6):691-694. DOI: [10.1016/j.resuscitation.2010.02.021](https://doi.org/10.1016/j.resuscitation.2010.02.021)
- Swor R, Khan I, Domeier R, *et al.* CPR training and CPR performance: do CPR trained bystanders to perform CPR? *Academic Emergency Medicine.* 2006; 13(6):596-601. DOI: [10.1197/j.aem.2005.12.021](https://doi.org/10.1197/j.aem.2005.12.021)
- Bollig G, Myklebust AG, Østringen K. Effects of first aid training in the kindergarten--a pilot study. *Scand J Trauma Resusc Emerg Med.* 2011; 19:13. DOI: [10.1186/1757-7241-19-13](https://doi.org/10.1186/1757-7241-19-13)
- Fleischhackl R, Nuernberger A, Sterz F, *et al.* School children sufficiently apply life supporting first aid: a prospective investigation. *Crit Care.* 2009; 13: R127. DOI: [10.1186/cc7984](https://doi.org/10.1186/cc7984)
- Isbye DL, Meyhoff CS, Lippert FK, *et al.* Skill retention in adults and in children 3 months after basic life support training using a simple personal resuscitation manikin. *Resuscitation.* 2007; 74:296-302. DOI: [10.1016/j.resuscitation.2006.12.012](https://doi.org/10.1016/j.resuscitation.2006.12.012)
- Bohn A, Van Aken H, Lukas RP, *et al.* Schoolchildren as lifesavers in Europe - training in cardiopulmonary resuscitation for children. *Best Pract Res Clin Anaesthesiol.* 2013; 27:387-96. DOI: [10.1016/j.bpa.2013.07.002](https://doi.org/10.1016/j.bpa.2013.07.002)
- Kua PHJ, White AE, Ng WY, *et al.* Knowledge and attitudes of Singapore schoolchildren learning cardiopulmonary resuscitation and automated external defibrillator skills. *Singapore Med J.* 2018; 59(9): 487-499. DOI: [10.11622/smedj.2018021](https://doi.org/10.11622/smedj.2018021)
- Böttiger BW, Van Aken H. Kids save lives--Training school children in cardiopulmonary resuscitation worldwide is now endorsed by the World Health Organization (WHO). *Resuscitation.* 2015; 94: A5-7. DOI: [10.1016/j.resuscitation.2015.07.005](https://doi.org/10.1016/j.resuscitation.2015.07.005)
- Kanstad BK, Nilsen SA, Fredriksen K. CPR knowledge and attitude to performing bystander CPR among secondary school students in Norway. *Resuscitation.* 2011; 82(8):1053-9. DOI: [10.1016/j.resuscitation.2011.03.033](https://doi.org/10.1016/j.resuscitation.2011.03.033)
- Lu C, Jin Y, Meng F, *et al.* An exploration of attitudes toward bystander cardiopulmonary resuscitation in university students in Tianjin, China: A survey. *Int Emerg Nurs.* 2016; 24:28-34. DOI: [10.1016/j.ienj.2015.05.006](https://doi.org/10.1016/j.ienj.2015.05.006)



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