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## Philippines – Culture of Excellence

# Implementation of the 10 Steps to Improve Cardiac Arrest Survival at the Southern Philippines Medical Center

## BRIEF BACKGROUND

The Global Resuscitation Alliance was developed to internationally spread the reach and utility of the Resuscitation Academy concept to improve cardiac arrest survival. In 2016, the Southern Philippines Medical Center in Davao City recognized the community's need to adapt a successfully proven system in resuscitation to bridge the gap from pre-hospital to definitive care through collaborative training of first responders, dispatchers, EMTs and the receiving facility, as well as through their partnership with the PAROS.

From the baseline OHCA study at the center, the majority of patients were males ages 45-64, in which the unwitnessed cardiac arrest commonly occurred at home, and the patients transported by non-EMS. The bystander CPR rate was only 9% with 15% of cases conducted by EMS services. The sustained ROSC rate was 17%, and the survival-to-hospital discharge recorded at 1.54%.

Systematic assessment of resuscitation performance at community, first responder and hospital levels is crucial to devise and institute targeted interventions to catalyze improvements for survival. Thus, an effective resuscitation system should overcome several gaps — failure to recognize cardiac arrest, low bystander CPR rates, variation in CPR quality, defibrillator availability and use, EMS response and variation in quality of post-resuscitation care.

## STEPS TAKEN

The facility worked to implement the GRA's 10 steps to improve OHCA survival:

### Ten Steps to Improve Cardiac Arrest Survival

1. Establish a cardiac arrest registry
2. Begin Telephone-CPR with ongoing training and QI
3. Begin high-performance EMS CPR with ongoing training and QI
4. Begin rapid dispatch
5. Measure professional resuscitation using the defibrillator recording (and voice if possible)
6. Begin an AED program for first responders, including police officers, guards, and other security personnel.
7. Use smart technologies to extend CPR and public access defibrillation programs to notify volunteer bystanders who can respond to nearby arrest to provide early CPR and defibrillation
8. Make CPR and AED training mandatory in schools and the community
9. Work toward accountability – submit annual reports to the community
10. Work toward a culture of excellence

### CHALLENGES

Dispatchers had problems initiating assisted CPR instructions when the answers to the following questions were unknown:

*1. Is the patient conscious?* and *2. Is the patient breathing normally?*

Among most callers who responded “unknown” to either question, EMTs on scene were likely to find a patient in cardiac arrest.

Additional challenges included:

- Lack of community members’ knowledge to perform compression-only CPR
- Unavailability of AEDs in public areas
- No smart technology to notify bystander volunteers of nearby arrests

### RESULTS

Of the 10 steps to improve cardiac arrest, the Southern Philippines Medical Center was able to accomplish seven:

- A cardiac arrest registry was already established.
- Central 911 personnel were trained for telephone-assisted CPR and performance of high-quality CPR.
- Lectures and monthly audits were performed to improve the EMS system.
- Smart technologies were established to extend CPR and PAD.
- CPR and AED training became mandatory in schools.
- With these new laws enacted, the community can continue to develop a culture of working toward excellence.



A comparison of the time-critical dispatch information activity and survival to-hospital discharge rate is summarized below:

DISPATCH INFORMATION ACTIVITY		
TIME-CRITICAL EMS ACTIVITIES	2016-2017 Data	2018-2019 Data
Call-to-arrival at scene	0:13:30 (Mean in minutes)	0:15:22 (Mean in minutes)
Call-to-arrival at hospital	0:27:40 (Mean in minutes)	0:26:05 (Mean in minutes)
OTHER PARAMETER	2016-2017 Data	2018-2019 Data
Mode of transportation	EMS- 15 % Non-EMS- 85 %	All EMS No data for Non-EMS
Bystander CPR rate	9 %	20 %
Sustained ROSC rate	17 %	25 %
Survival-to-hospital discharge rate	1.54 %	5 %

Geographically, Davao City is the largest city in the Philippines in terms of land area. There were delays from call-to-arrival at scene from the 2018-2019 partial data since most of the OHCA occurred in areas far from main road access, adding to the challenge of retrieving patients. (PAROS Phase II (2018-2019 data) utilized only those OHCA patients transported by EMS.) The bystander CPR rate, sustained ROSC rate and overall survival rate improved in 2018-2019. A big contributor for this improvement has been recorded since the utilization of the GRA framework which provided improved EMS services in the community.

### OUTLOOK

The development of an AED ordinance in Davao City has been proposed, which will require all private and public establishments to offer at least one accessible public AED and its personnel to undergo hands-only CPR or basic life support training.

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