



Survival from Out-of-Hospital Cardiac Arrests: Report of Resuscitation Outcomes and Modifiable Factors from a Philippine Emergency Medical Systems (EMS) Out-of-Hospital Cardiac Arrest (OHCA) Registry

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Pan-Asian Resuscitation Outcomes Study Group*



**Survival after cardiac
arrest from ventricular
fibrillation ranges from
3%-40%**

Links of the Chain of Survival



Absence of signs of circulation and/or considered for resuscitation

n =

Resuscitation not attempted

All cases	n =
DNAR	n =
Considered futile	n =

Resuscitation attempted

All cases	n =
Any defibrillation attempt	n =
Chest compressions	n =
Assisted ventilation	n =

Location of arrest

Out-of-hospital	n =
Home	n =
Public place	n =
Other	n =
In-hospital	n =
Ward	n =
Emergency Department	n =
Operating Room	n =
CCU/ICU	n =
Other	n =

First monitored rhythm

Shockable		n =
VF	n =	
VT	n =	
Nonshockable		n =
Asystole	n =	
PEA	n =	
Unknown		n =

Arrest witnessed/monitored	n =
By layperson/bystander	n =
By healthcare personnel	n =
Arrest not witnessed	n =

CPR before EMS arrival	n =
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Etiology

Presumed cardiac	n =
Trauma	n =
Submersion	n =
Respiratory	n =
Other noncardiac	n =
Unknown	n =

Outcome (recorded for all categories)

Any ROSC		
Yes	n =	
No	n =	
Unknown	n =	
Survived event	n =	
Discharged alive	n =	
Neurologic outcome at discharge		
CPC 1 or 2	n =	
CPC 3 or 4	n =	
CPC 5	n =	

INTRODUCTION/BACKGROUND

- *“In Asian countries like the Philippines, significant barriers still exist. There is scarce funding, infrastructure is not uniform and standards for training and service delivery are minimal,”*

Teodoro J. Herbosa, MD,
Undersecretary of Health, DOH



Caramoan Islands, Camarines Sur

Research Questions:

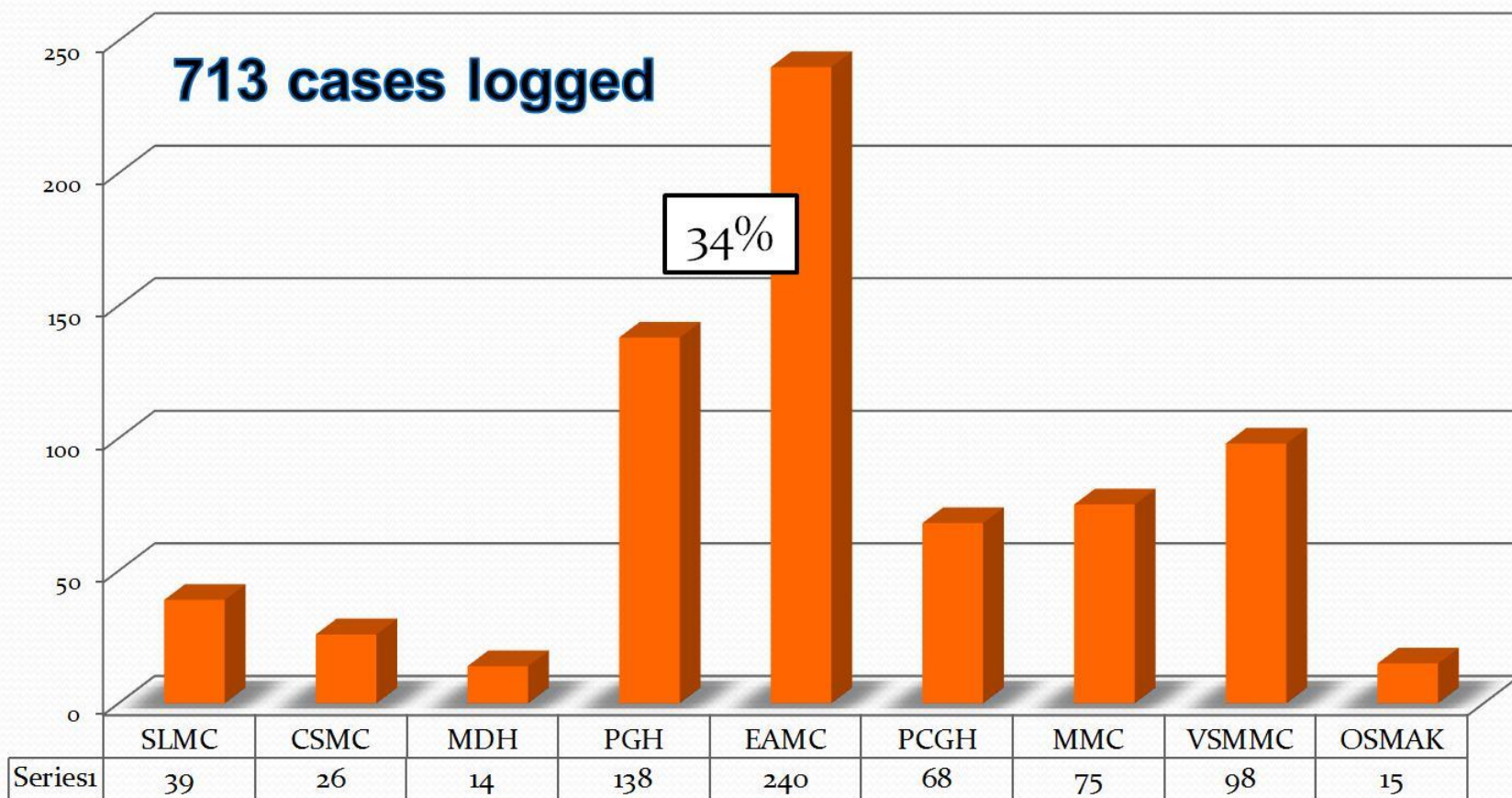
- What is the incidence of out-of-hospital cardiac arrests in the Philippines?
- *Sub-problems: What is the impact of modifiable factors – bystander CPR, public access defibrillation, decrease EMS response time and early advanced life support on survival from out-of-hospital cardiac arrests in the Philippines?*
- *What is the survival outcome of these out-of-hospital cardiac arrests?*

DESIGN

- Prospective multi-center cohort study of out-of-hospital cardiac arrest in the Philippines.
- Primary outcome is survival rate (survival to admission or 30-days post cardiac arrest)
- Secondary outcomes are return of spontaneous circulation, survival to hospital admission and neurological status (measured by the Glasgow-Pittsburg Outcome Categories) on hospital discharge or on the 30th day post cardiac arrest if not discharged.

RESULTS

DISTRIBUTION OF OHCA CASES PER INSTITUTION

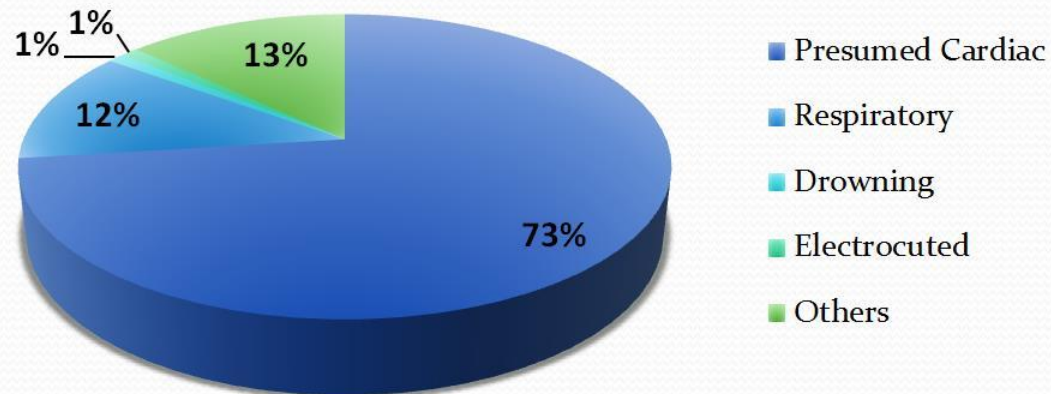


RESULTS

Gender	Cause of arrest						p-value*
	Trauma		Non-trauma		Total		
	n	%	n	%	n	%	
Male	33	7.6%	399	92.4%	432	100.0%	0.001
Female	3	1.4%	210	98.6%	213	100.0%	

* Statistical test – Chi-square test

CAUSE OF ARREST (NON-TRAUMA)



RESULTS

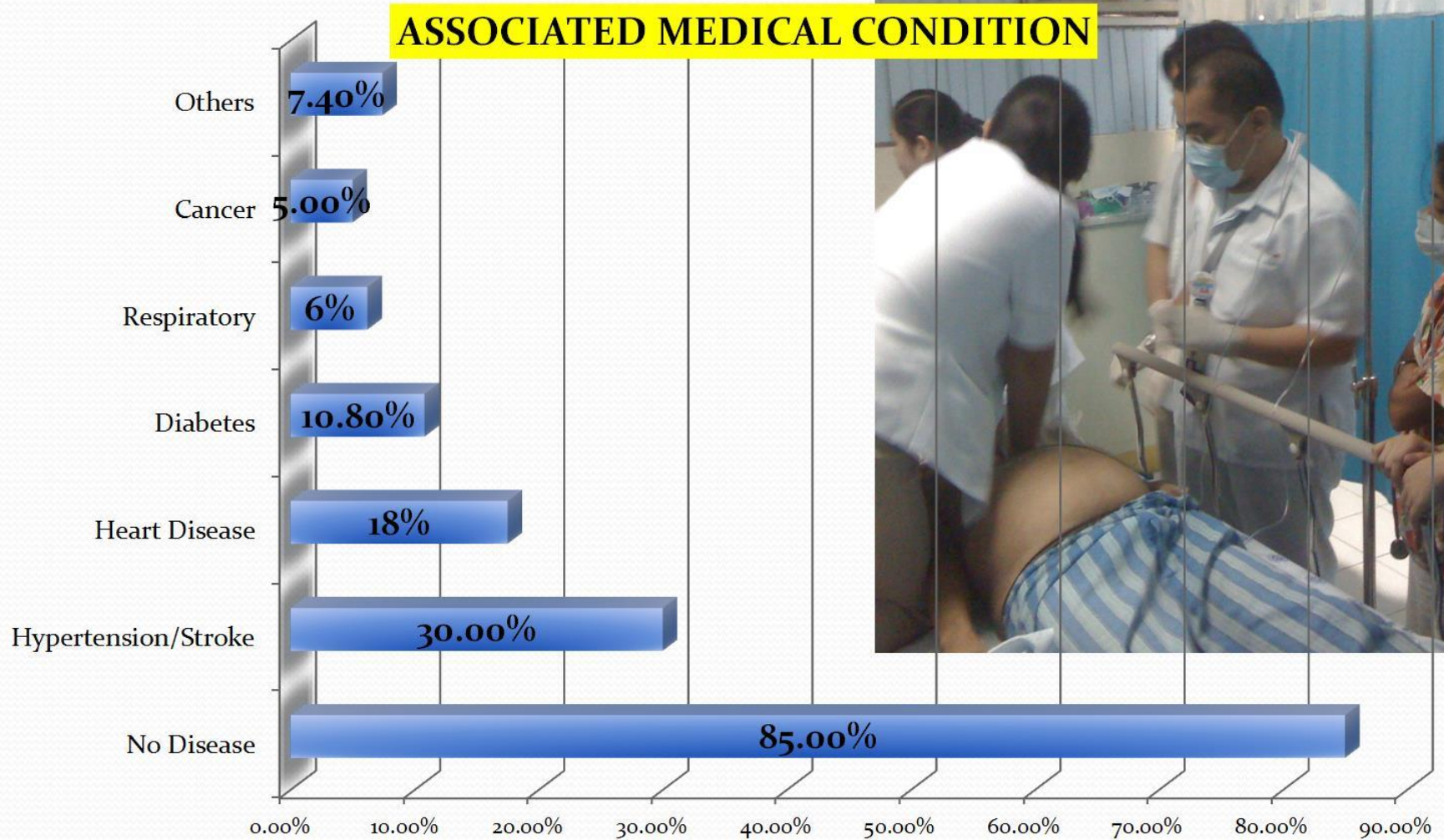
41.7% belonged to the 45-64 age group;
33.3% belonged to the >65 age group

Age group	Cause of arrest						p-value
	Trauma		Non-trauma		Total		
	n	%	n	%	n	%	
Below 15	0	0.0%	18	100.0%	18	100.0%	
15 - 24	7	25.0%	21	75.0%	28	100.0%	
25 - 44	15	13.0%	100	87.0%	115	100.0%	<0.001*
45 - 64	13	4.8%	256	95.2%	269	100.0%	
65 & above	1	.5%	214	99.5%	215	100.0%	

* Statistical test – Chi-square test

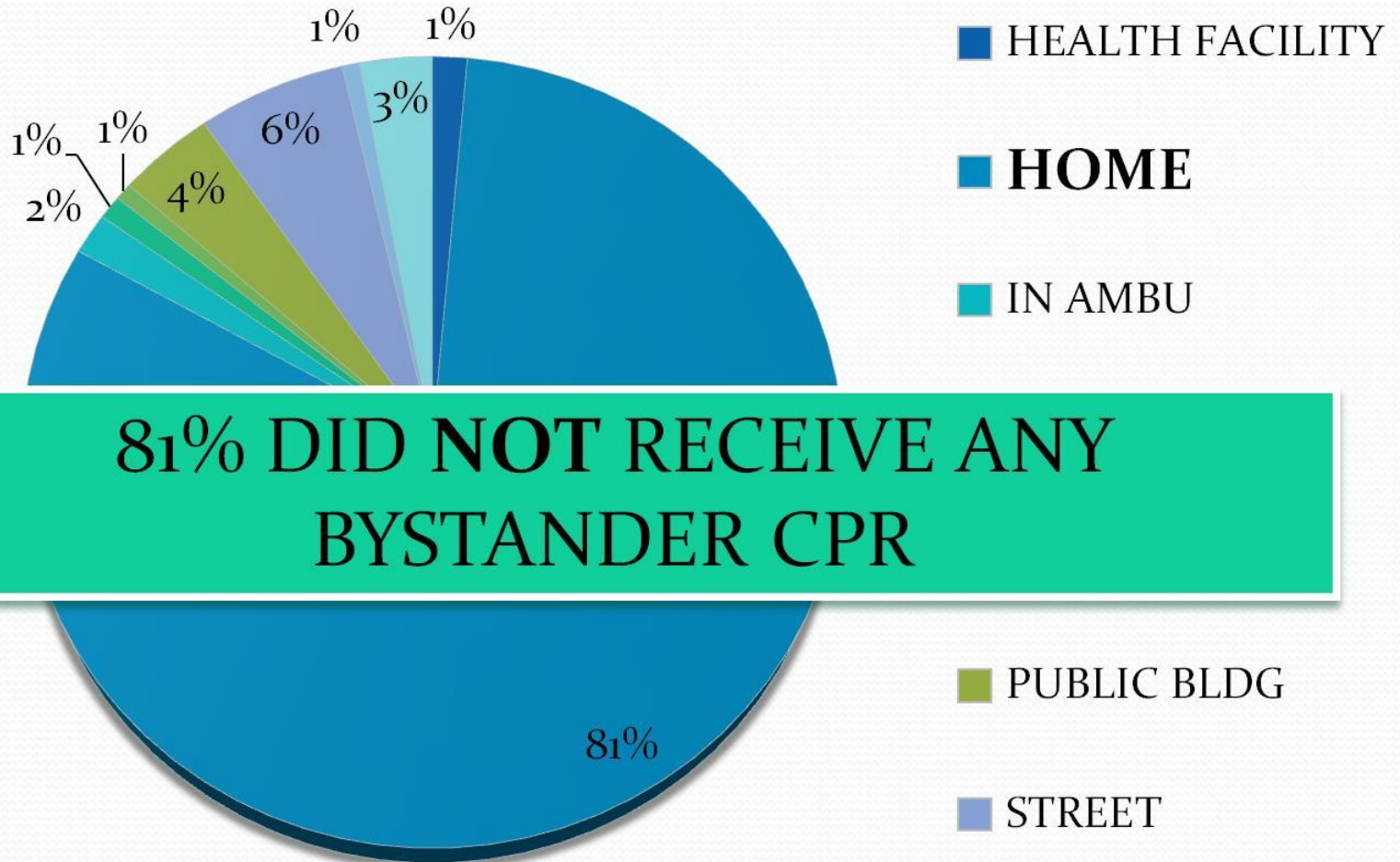


RESULTS



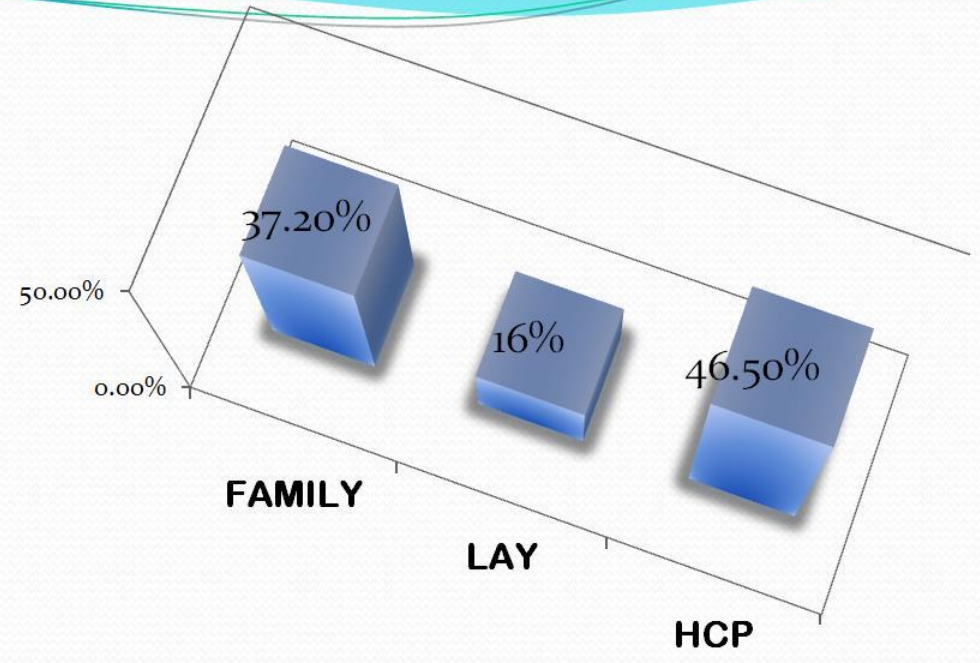
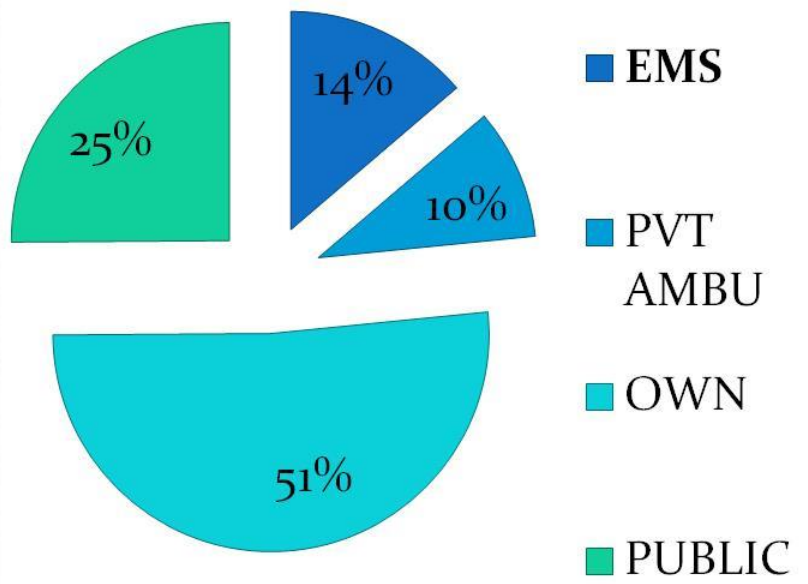
RESULTS

LOCATION OF ARREST



RESULTS

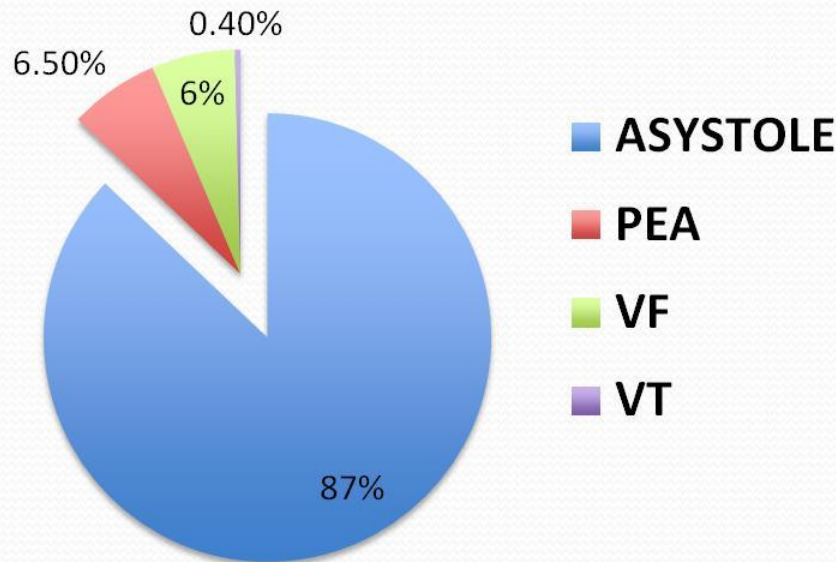
TRANSPORT TO ED



	Mean	Standard Deviation
Time Ambulance dispatched from call	3.2	3.60
Time Ambulance arrived at scene from dispatch	8.1	7.80
Time EMS arrived at patient from dispatch	8.6	7.89
Time patient arrived at ED from scene	22.9	18.37

EMS RESPONSE TIMES

RHYTHM UPON ED ARRIVAL



RESULTS



Patient brought in by	Return of spontaneous circulation at ED						p-value*
	Yes		No		Total		
	n	%	N	%	n	%	
EMS	11	11.8%	82	88.2%	93	100.0%	0.216
Private ambulance	5	7.2%	64	92.8%	69	100.0%	
Own/private transport	52	16.3%	267	83.7%	319	100.0%	
Public transport	21	13.3%	137	86.7%	158	100.0%	

* Statistical test – Chi-square test



RESULTS

- A **resuscitation success rate (ROSC rate)** of **9.5%** has been recorded in this study. All 67 cases successfully resuscitated were admitted to the hospital but 12 cases opted to transfer to another hospital. The 30-day **survival rate** was **0.7%**.

CONCLUSION

- Out-of-hospital cardiac arrests in the sites enrolled in this study had an incidence of 1.1%.
- Return of spontaneous circulation or resuscitation success rate for this study is 9.5% . Majority of patients were admitted.
- The survival to hospital discharge or survival to 30 days post cardiac arrest is 0.7%.
- Modifiable factors include bystander CPR and access to EMS services

RECOMMENDATIONS

- Most OHCA events are witnessed by bystanders like members of the family or significant others. However, 81% of cases did not receive bystander CPR and only 14% of these arrests were conducted by EMS SERVICES.
- Efforts to improve survival should focus on prompt delivery of CPR by those who witness the event and to improve the delivery of pre-hospital care in the country.
- Educating the community on OHCA and engaging local government units to invest in pre-hospital care services through collaborative endeavor will improve survival in out-of-hospital cardiac arrests.

COLLABORATIVE RESEARCH PROJECT TO ESTABLISH THE OHCA REGISTRY IN THE PHILIPPINES

In Partnership with PAN-ASIAN RESUSCITATION
OUTCOMES – CLINICAL RESEARCH NETWORK



A LIFE SAVED

.... his son, trained in bystander CPR immediately recognized the arrest and started to give his father chest compressions only. Their neighbors helped them transport his dad, his neighbor took turns with him in giving CPR. They arrived in Makati Medical Center within 15mins of collapse, resuscitation on-going.

