

Dispatch Assisted CPR in Singapore

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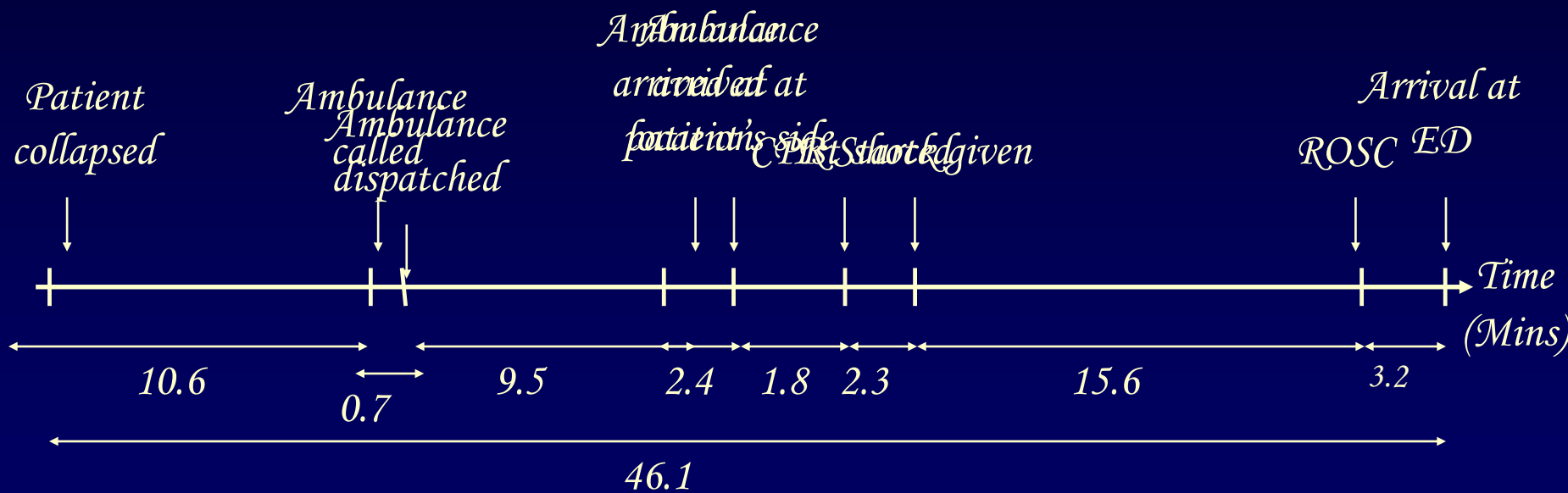


Chain of Survival



Early Access

CARE Study: EMS Response Time



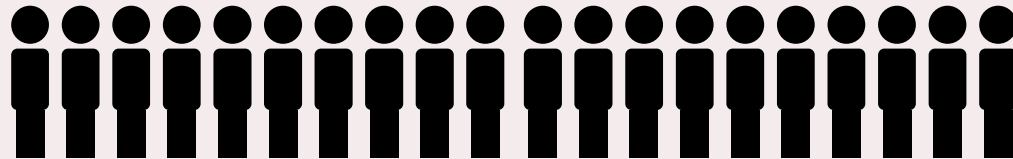
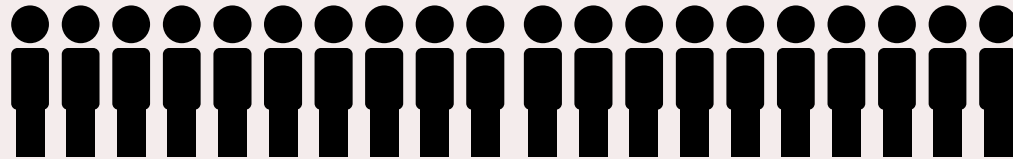
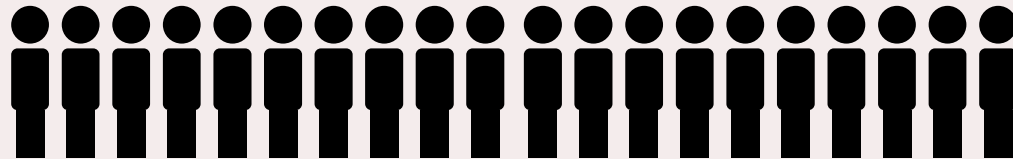
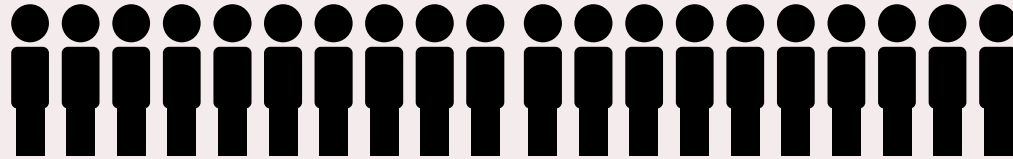
Solution!



Fail....

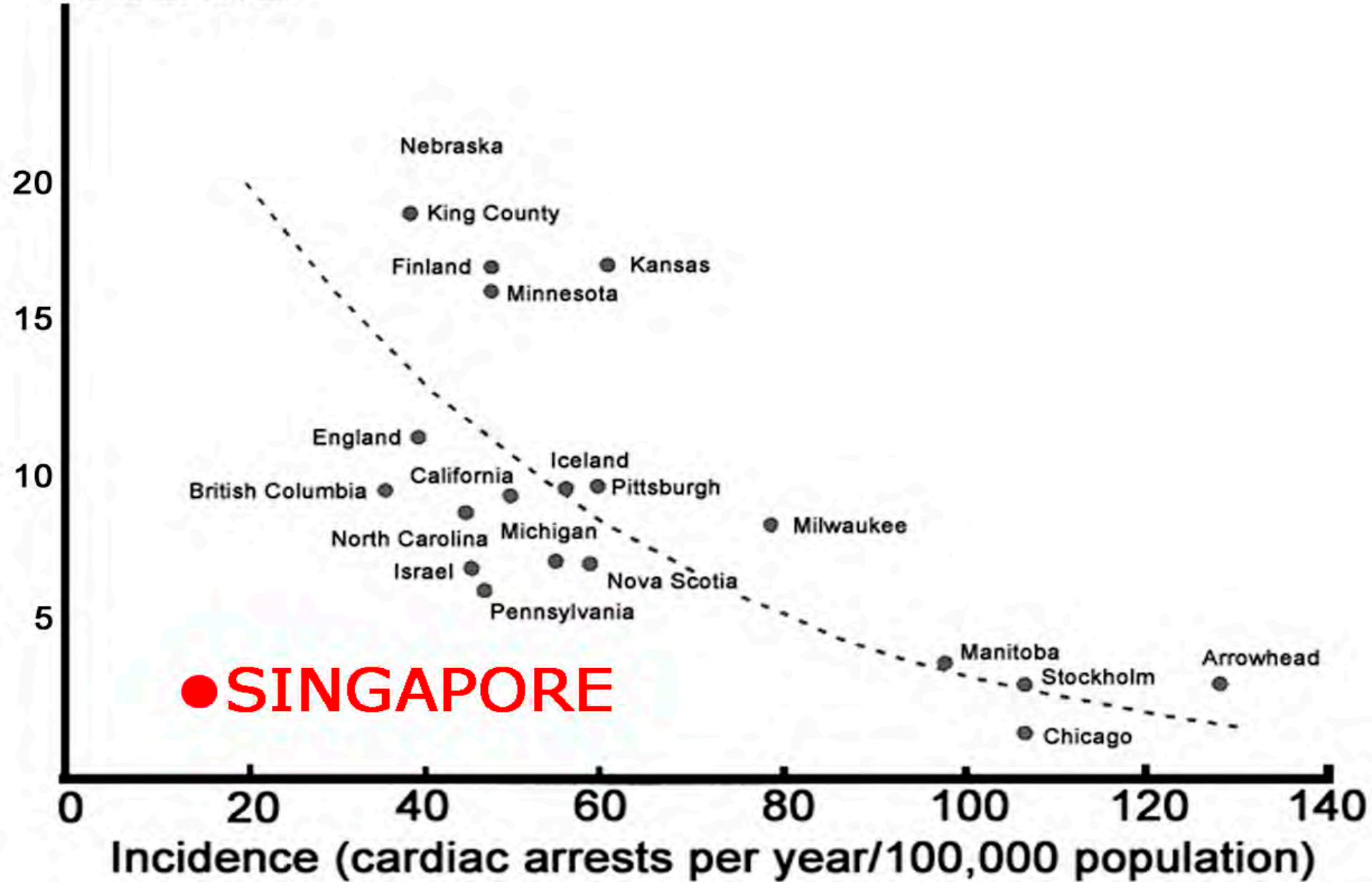


Only **20%** of bystanders



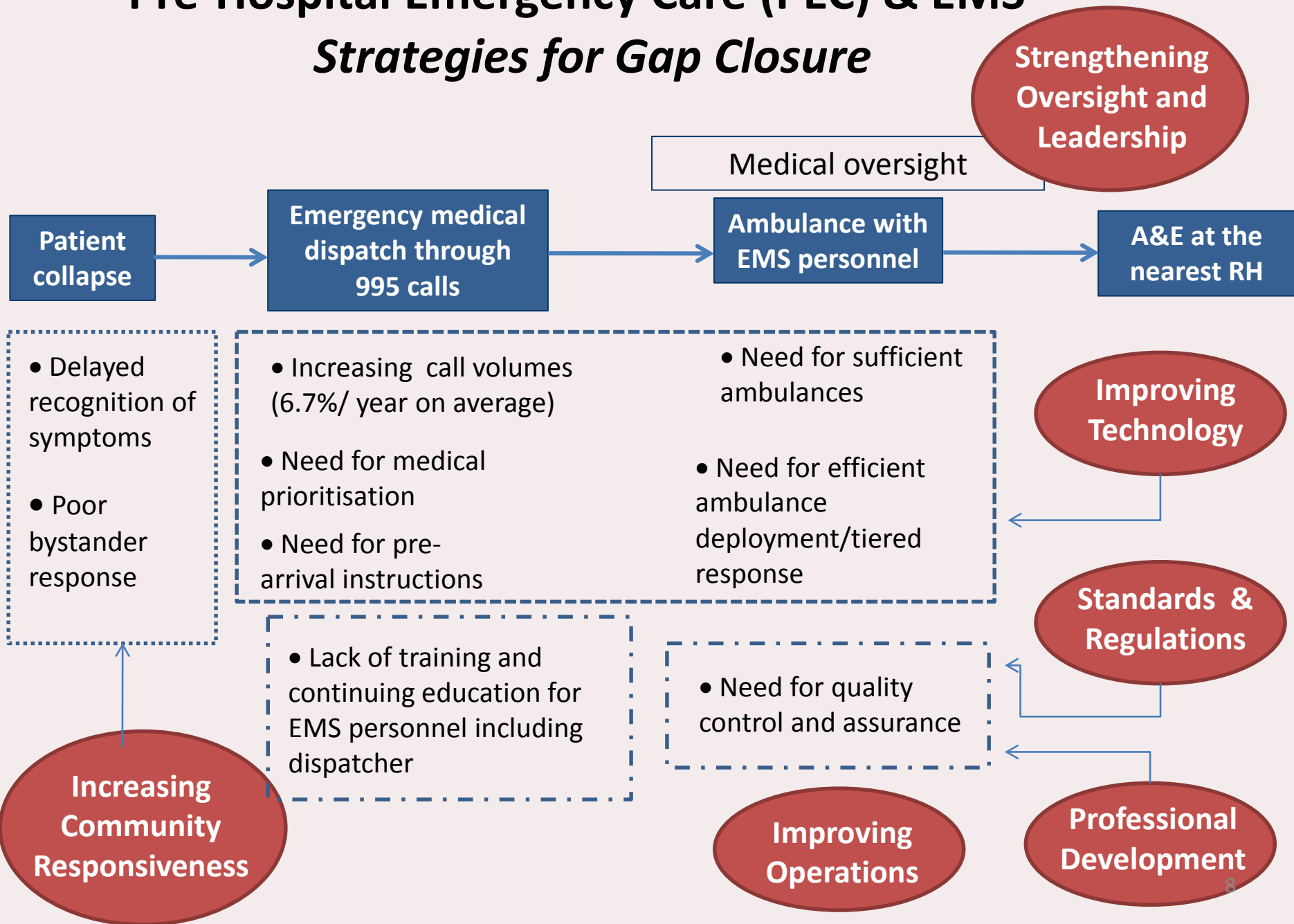
**perform
CPR**

% Survival



● SINGAPORE

Pre-Hospital Emergency Care (PEC) & EMS - Strategies for Gap Closure



The *first*
first
responder:

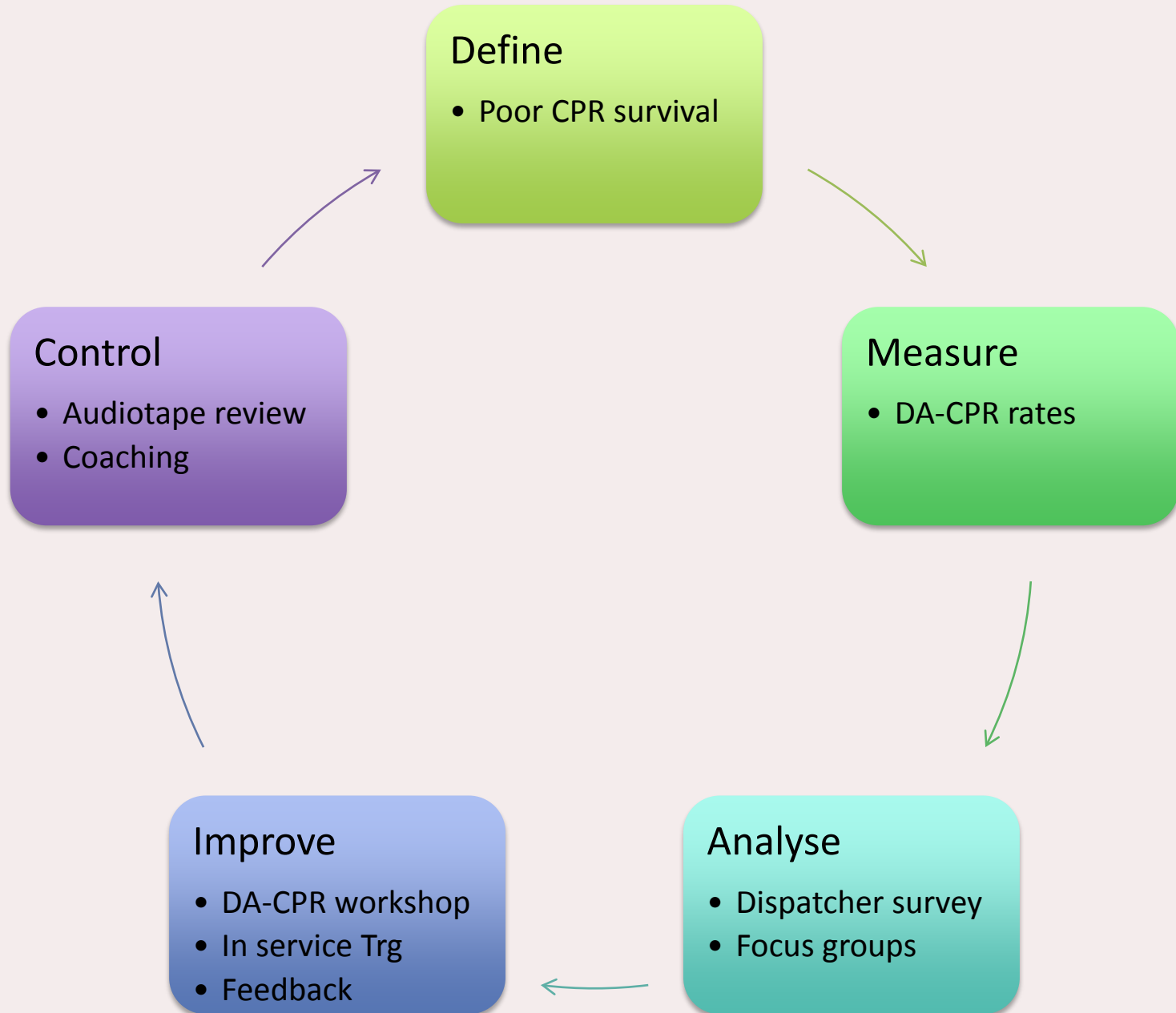
995



Project Focus



Data Driven Improvement Cycle



Implementation Process

DA-CPR Courses



In service trainings



DACPR Course



1. Chest compression only CPR - Singapore current protocol

995, what is your ADDRESS?

- a. Do you know the postal code?
- b. What's the nearest street address?
- c. <read back- "The address is _____">

1

What is your phone number?

2

How OLD is he?

(Is it a child or an adult?)

3

Is the person MALE or FEMALE?

4

Is he/she awake?

5

Is he/she breathing normally?

6

Not breathing:

=> START CPR

7

Not breathing normally
Can you describe it?

If groaning, moaning
choking, snoring

=> START CPR

If not sure, unable to tell:

Is it slow or shallow breathing?

Yes => START CPR

No => Bring the phone to his mouth
so I can hear it

If agonal breathing

=> START CPR

7

Start CPR

An ambulance is on the way. I need you to start chest compression only-CPR.

8

Can you put your phone in speaker mode?

"No"

OK. Follow my instructions. You may need to put the phone down briefly.
Do not hang up. Stay on the line with me.

9

Put the patient on his back on the floor
Kneel by the side of the patient

10

Shout for help and ask someone to get an AED if one is available

11

Put YOUR left hand on the center of the chest, and put YOUR right hand on the top of YOUR left hand.

Lean over with your arms straight, lock your elbows, and push down more than 5 cm using your body weight **HARD AND FAST**

12

I want you to **COMPRESS** the **CHEST** in 10 sets of 10. Count together with me.

1, 2, 3, 4, 5, 6, 7, 8, 9, 10

2, 2, 3, 4, 5, 6, 7, 8, 9, 10

3, 2, 3, 4, 5, 6, 7, 8, 9, 10

Continue to count each time you press

13

If there is a 2nd rescuer on scene, ask to swap the CPR giver every 200 compressions.

Encourage them to speed up if compressions are not fast enough

If there is one extra person, send him to guide the paramedic to the location when nearby

Continue chest compressions until the paramedic takes over
(or unless the patient wakes up).

Do not give up

14

(After ca. 50 compressions):

You can stop now, the ambulance has arrived and the paramedics are ready to take over

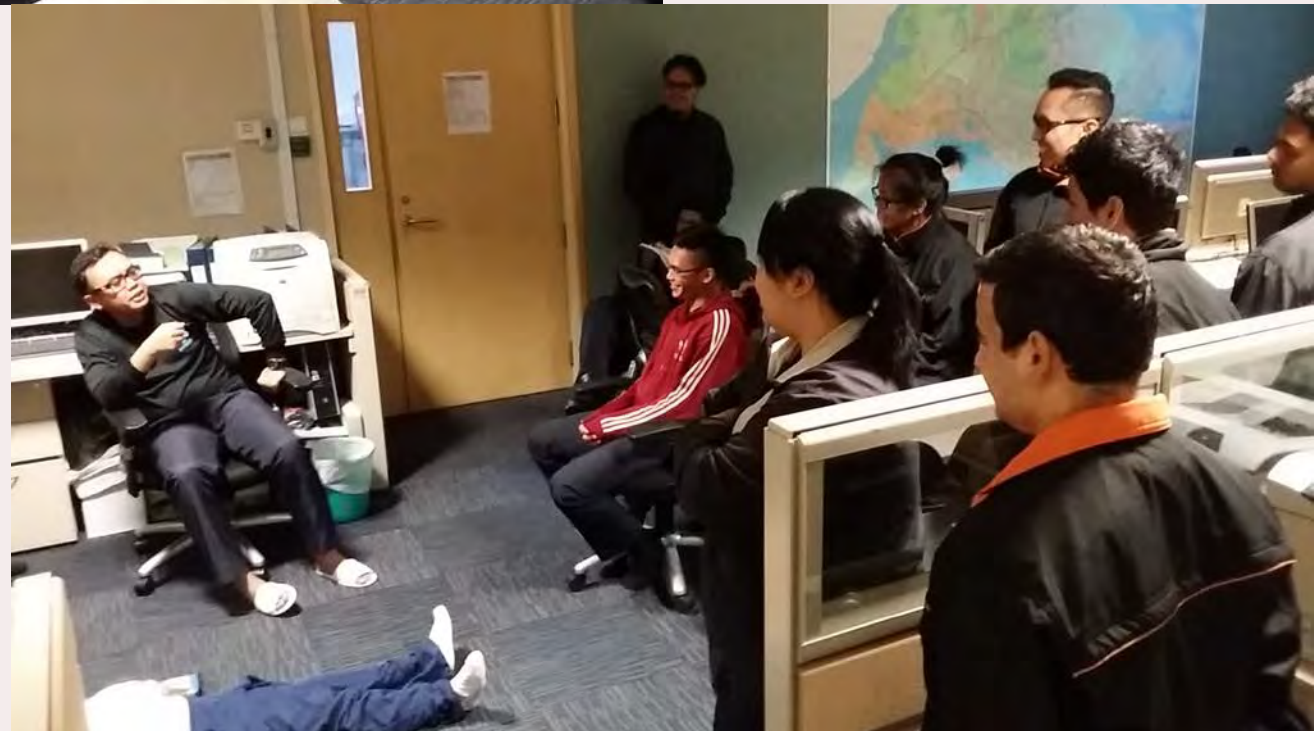
15

Change roles





Regular
training /
practice



Nurses in Dispatch Centre



- QI / QA
- Coaching
- Call Taking

Starting CPR quickly with a script

Standardised instructions

- 'Put your phone in speaker mode'
- 'Lie the patient on the floor'
- 'Put YOUR left hand on the middle of HIS chest'
- 'Put YOUR right hand on top of YOUR left hand'
- 'Push hard 5cm deep and 100 times a minute'
- 'Count out loud with me'
- '1, 2, 3, 4, 5, 6, 7, 8, 9, 10'
- '1, 2, 3, 4, 5, 6, 7, 8, 9, 10...'

Early lessons

- “Are you able to do CPR?”
 - No I can’t
- “Anybody there who can do CPR?”
 - No WE can’t
- “So you are not able to do CPR, is it?”
 - No.



Cultural/Social Barrier

- “But he’s a guy” <female caller>



Confidence in making the diagnosis

- Listen to this call – Raise your hand when its clear that the patient needs CPR
- Unconscious Not breathing
 - 24 seconds
- Check Pulse
 - 37 seconds



Compressing correctly?

- “1,2,3....10”
 - “Up is it?”
- “1,2,3....10”
 - “Then I let go is it?”



Dispatcher related challenges

- Medical knowledge
- Compliance to DA-CPR protocol
- Failure to recognise
- Confidence and persuasion in recruiting bystanders
- Improving positive feedback to dispatchers

Other reasons for “non-compliance”

- Calls routed from other PSAPS
 - 999 (police)
 - Public transport communications centres
- Caller not with patient
- Caller uncooperative / distressed
- Language barrier

Reasons for not starting compressions

- Bystander already doing CPR
- Caller uncooperative / distressed
- Caller not with patient
- Language barrier
- Unable to position patient
- EMS arrived really quickly

Barriers to DACPR

Barriers to DACPR for 430 calls.

Barriers to DACPR	n (%)
Couldn't move patient	118 (27)
Caller refused	64 (15)
Hung up phone	47 (11)
Patient's status changed	31 (7)
Caller left phone	30 (7)
Overly distraught	23 (5)
Caller not with patient	20 (5)
Difficult access to patient	16 (4)
Language barrier	15 (3)
Others: Quality of instructions, Technical difficulties, Help arrived	117 (27)

Effects of Barriers

Effect of encountering barriers during call on reaching key stages of dispatcher assisted cardiopulmonary resuscitation.

	Total (n = 1157)	No barriers (n = 727)	One or more barriers (n = 430)	P-value
Recognized need for CPR? (%)	1128 (97.5)	720 (99.0)	408 (94.9)	<0.001
CPR instructions started? (%)	1056 (91.3)	715 (98.3)	341 (79.3)	<0.001
Chest compression started? (%)	1007 (87.0)	715 (98.3)	292 (67.9)	<0.001

Reduced recognition
Reduced instructions
Reduced compressions

Comparison of time taken to reach key stages of dispatcher-assisted cardiopulmonary resuscitation between calls encountering barriers and calls that did not.

Key stages	All		No Barrier		Barrier		P-value
	Median	Interquartile range	Median	Interquartile range	Median	Interquartile range	
Time dispatcher recognizes need for CPR, secs (n = 1032)	62	45–100	60	43–93	68	48–114	<0.001
Time dispatcher begins instructions, secs (n = 711)	140	102–190	131	100–175	159	110–219	<0.001
Time to first compression, secs (n = 890)	211	164–270	200	160–254	240	180–330	<0.001

Prolonged time to recognition
Prolonged time to instructions
Prolonged time to compressions

Closed loop feedback from SCDF → MOH → to the last man on the ground!

To: PM Toh Chin Fong

Regarding Incident: 20120705/0521

Patient's Particular: Mr Ng Ban Cheong, S0607250Z, 12/12/1934, Male, Chinese
Location: Blk 523 AMK Ave 5 #05-4192

This was a routine review of cardiac arrest case notes by our MOH appointed EMS physicians and the Department. I would like to feedback to you the outcome of your patient as well as how you had managed the overall situation

Mr Ng Ban Cheong was successfully resuscitated by your team! Due to your rapid response and timely actions, he has survived the cardiac arrest and discharged from TTSH on the 8th Aug 2012.

Media

28/03/2013

He teaches panicky 995 callers to do CPR



He teaches panicky 995 callers to do CPR



Tuesday, Feb 12, 2013
The Straits Times
By Jalelah Abu Baker

Lifeline

March 22, 2014 - 12:34am

[Like](#) 352 people like this. Be the first of your friends.

By: [Tan Tam Mei](#)



TNP PHOTO: MOHD ISHAK

She was making out a receipt to a customer just before 5pm on March 12 when she saw a man collapse outside the bicycle shop.

Miss Jeannie Toh, 25, who works at the Lavender Street shop, called the Singapore Civil Defence Force (SCDF) and shouted for her colleague to alert her boss.

SCDF Sergeant Ramli Selamat answered her call and guided her on how to perform chest compressions on the man.

Miss Toh completed 30 chest compressions on the man before two SCDF officers arrived and took over. They continued performing cardiopulmonary resuscitation and used an Automated External Defibrillator to try to revive his pulse.

Miss Toh's boss, Madam Vivian Yuan, said she now hopes that all her employees can undergo CPR training. "You never know when you need to administer CPR. With such skills, you can help to save lives."

Tags: [Singapore Civil Defence Force \(SCDF\)](#)

Public outreach

👍 “Survivor Awards”

- Viral Campaign



STAY ON THE LINE



PUSH HARD AND FAST



AED



Primary steps towards saving lives

By LINETTE LAI

SAVING lives starts young, as pupils at St. Anthony's Primary can tell you. About 60 of them took part in a hands-on workshop yesterday...



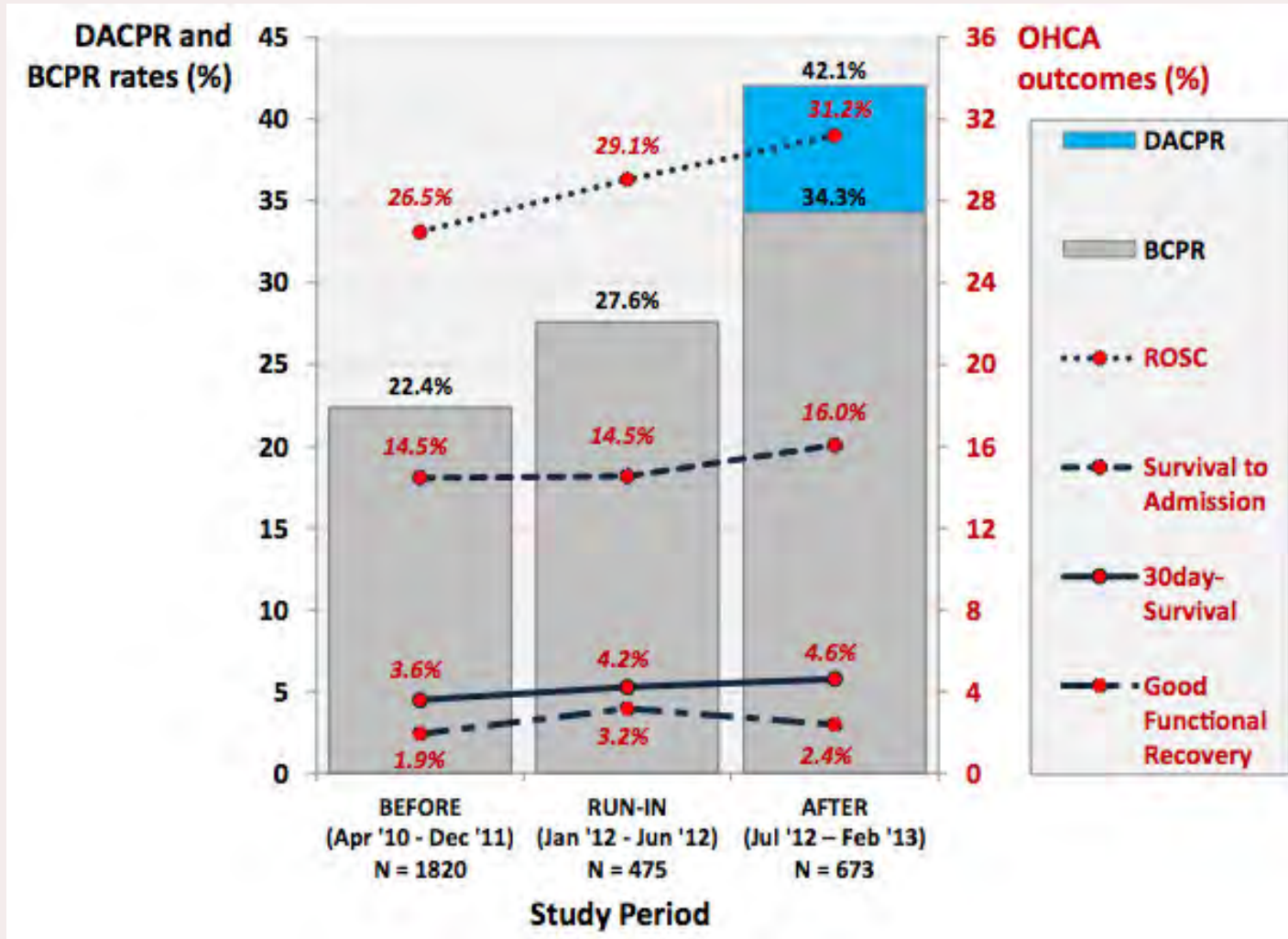
Pupils taking part in a hands-on workshop yesterday where they learnt what to do in case of a cardiac arrest. ST PHOTO: DESMOND FOO



EVERY 1 MINUTE DELAY RESTARTING THE HEART REDUCES SURVIVAL BY 10%. DO SOMETHING ALREADY! #DARETOSAVEAHEART



DACPR and BCPR in Singapore



Good Case



Part 1



Part 2

Ministry of Home Affairs 3i Awards

Home Team Innovation of the Year
(Process/Policy) – **Platinum Award!!**

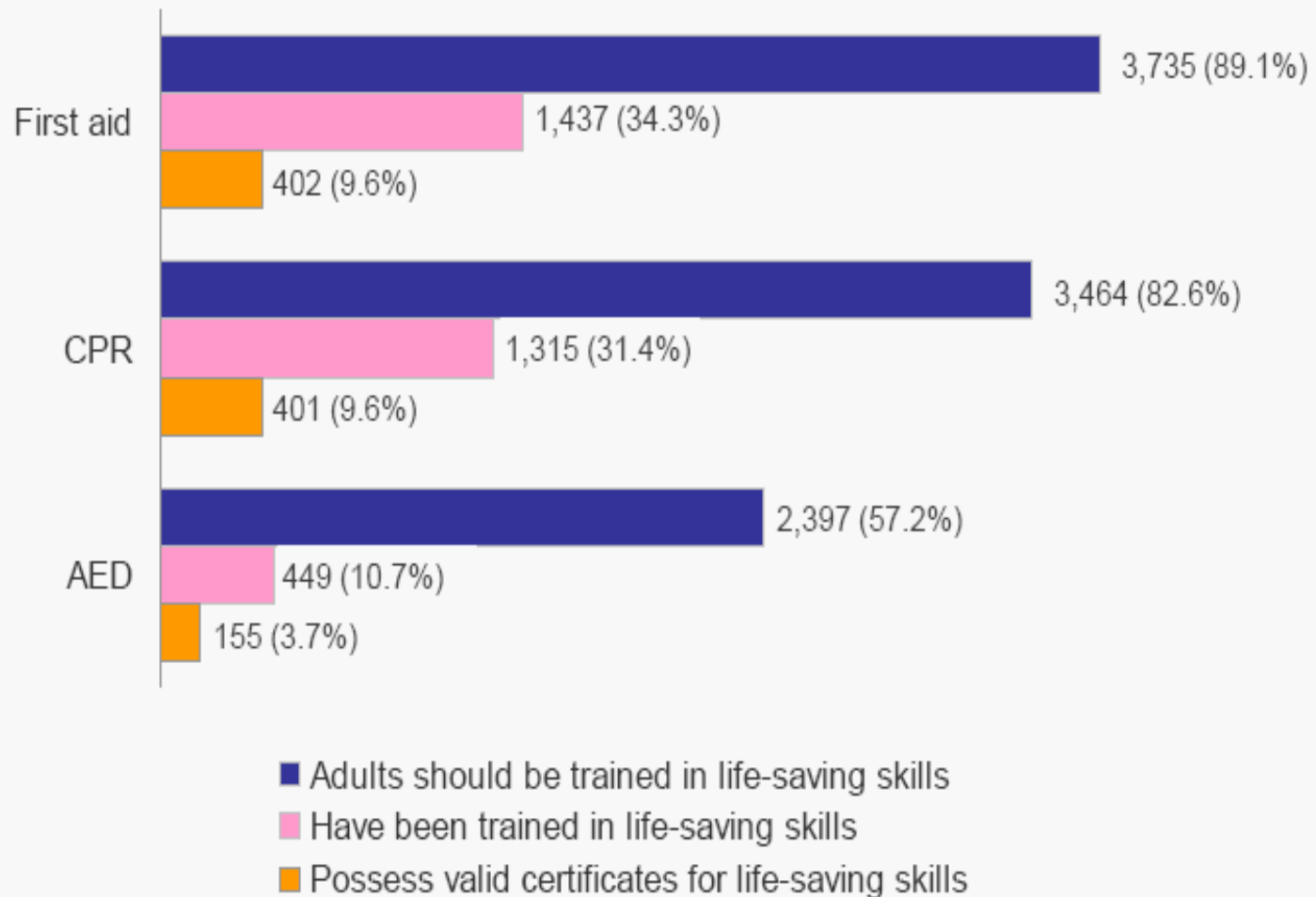


Public Service 21 Excel Awards

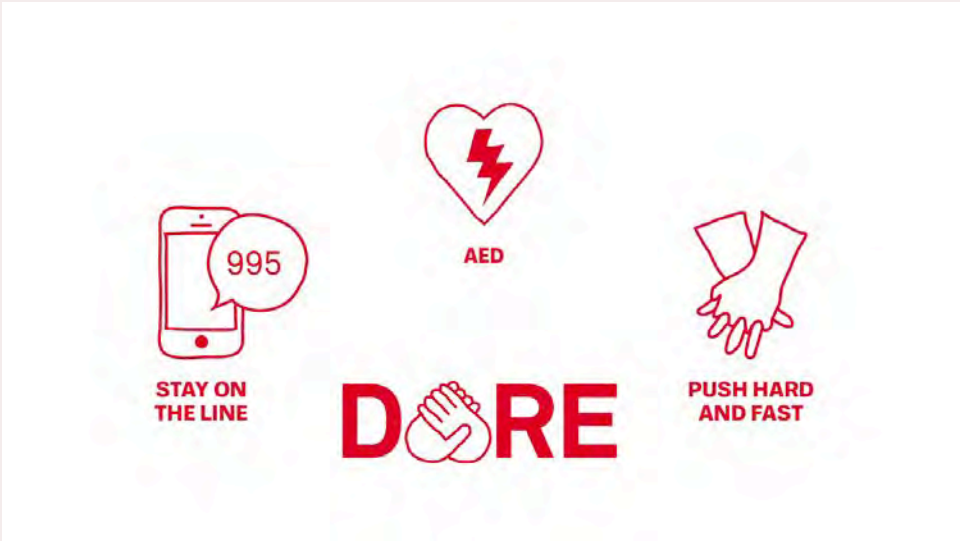
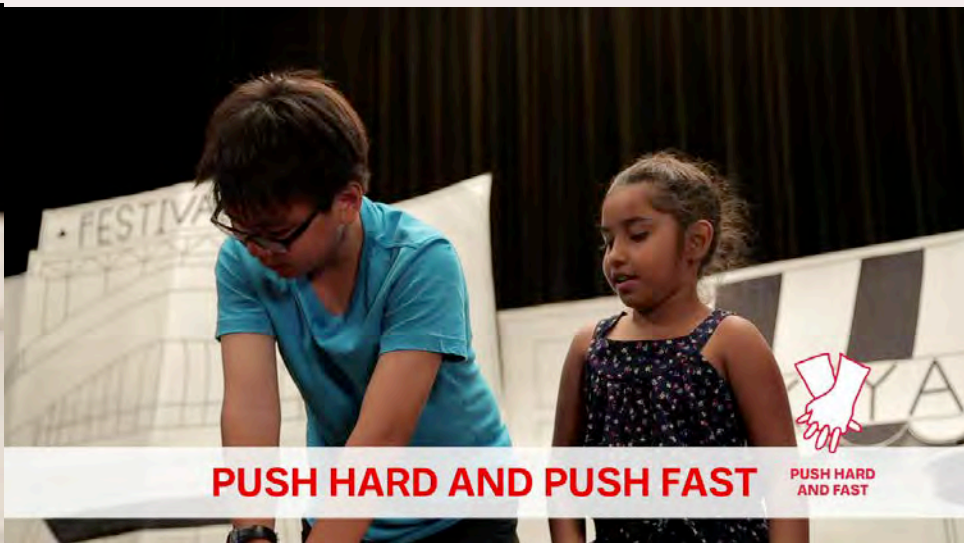
Most Innovative Project /
Policy – **Silver award!!**



State of CPR Training in our Population



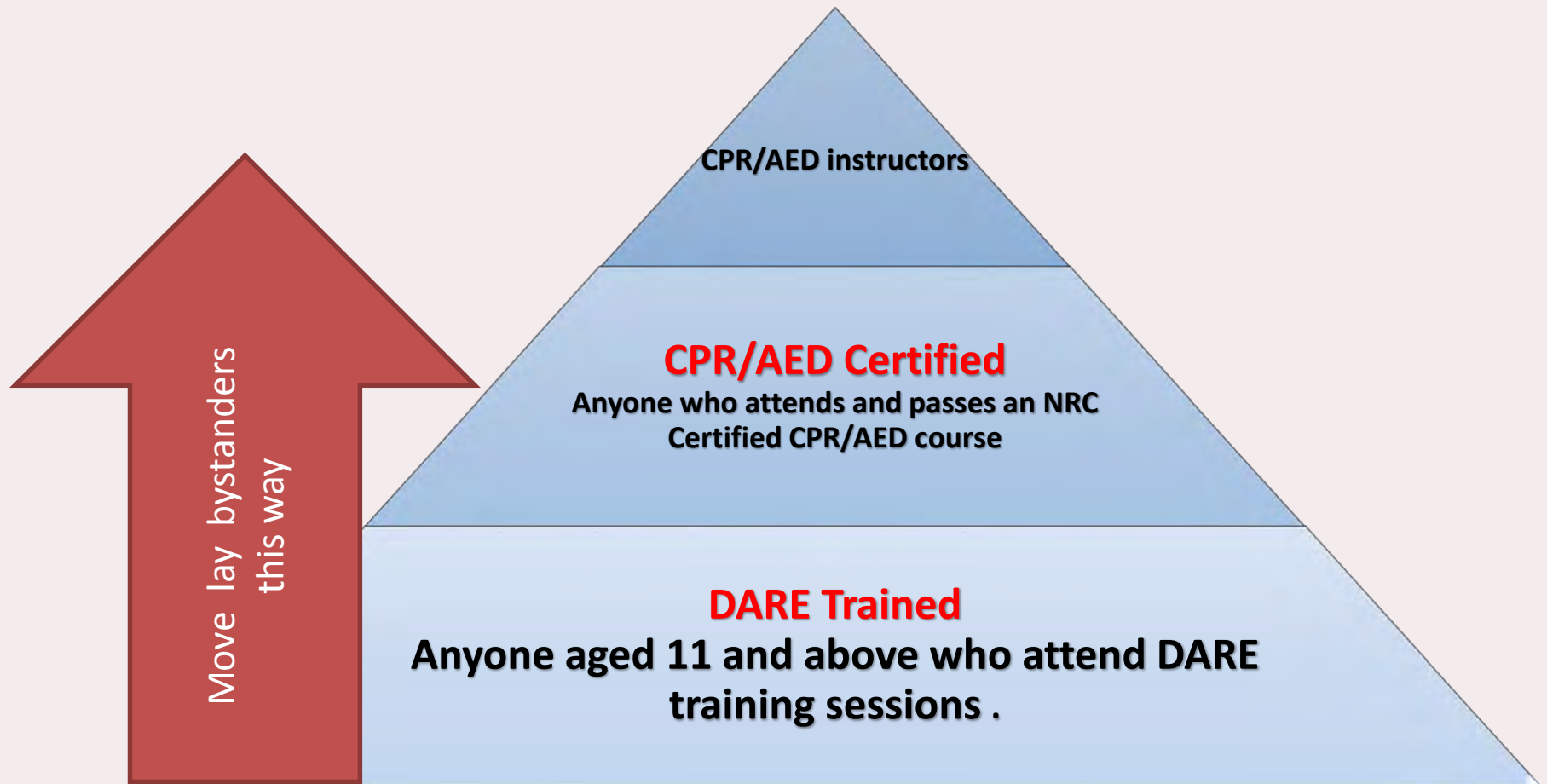
DARE Program



Would you DARE to save a life?



Pyramid of First Responder Preparedness



DARE Aware: Everyone becomes aware of what we teach in DARE through social media, traditional media, or by word of mouth.

DARE to go places

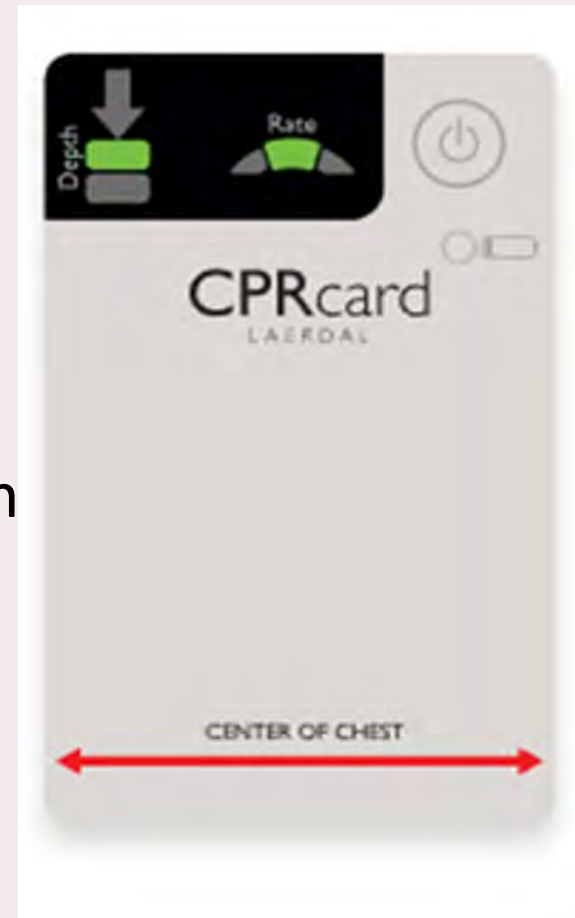
- Schools
- SportsHub
- SCDF Volunteers
- Temasek group
- Private organisations
- Places of worship
- etc





Improving CPR Quality: DARE CPRcard™

- Personal credit card size device
- Addresses major barriers to conducting CPR
- Assists with land-marking
- Provides visual depth indication
- Indicates rate of compressions
- Stores data on quality of chest compressions



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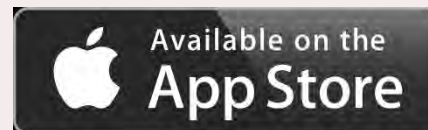
Dial 995 and send your geo-location at the same time



3



Know where the nearest AED is located

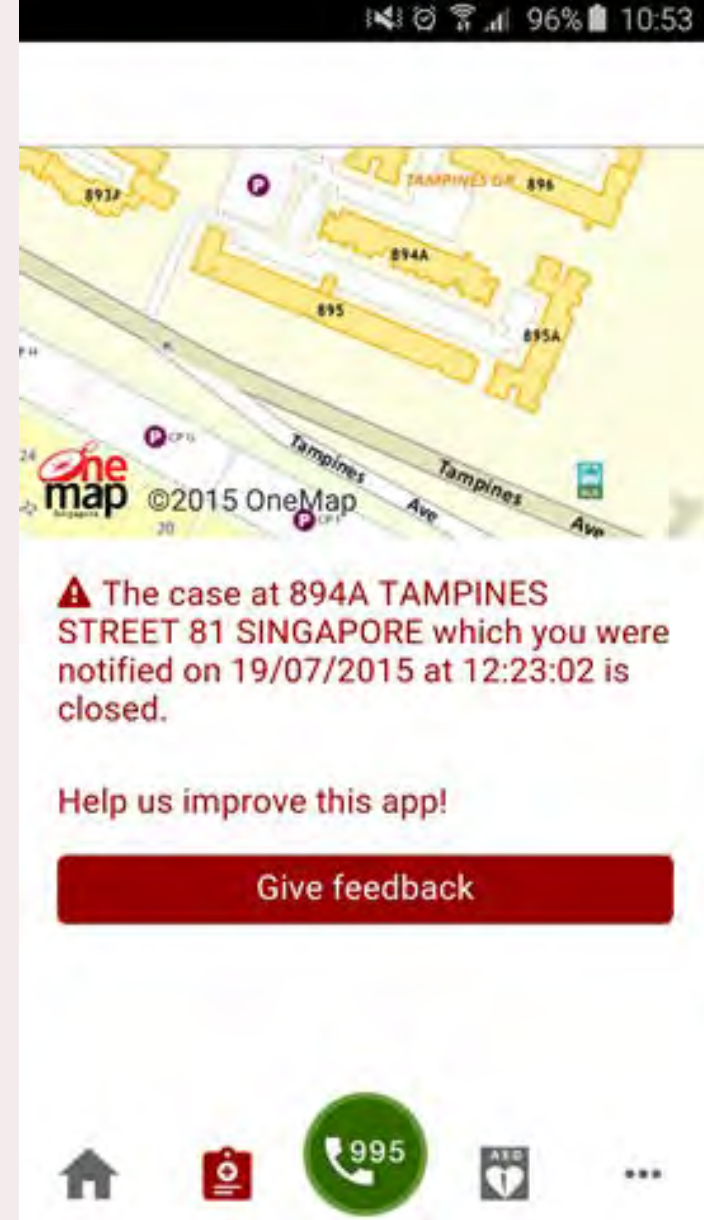


Sign up as a volunteer responder



Activation of first responders

- Alerts first responder (within 400m)
- Ring tone & vibration
- Shows nearby AEDs
- No obligation to respond
 - Respond only when able to



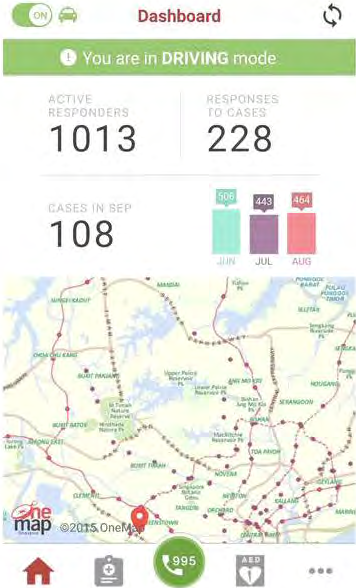
AED Installation by SCDF

- SCDF installing 385 AEDs near lifts
- Trainees will be informed of the nearest unit



AED on Wheels Program

AED On Wheels



International Multi-Center
Controlled Trial of Dispatcher-
Assisted Cardio-Pulmonary
Resuscitation Intervention
Package

**Pan-Asian Resuscitation Outcomes
Study Phase 2**

Pan-Asian Resuscitation Outcomes Study Phase 2

Out-of-Hospital Cardiac Arrest Presenting to the EMS Dispatch in the Asia Pacific

Sites Implementing Dispatcher-assisted Cardiopulmonary Resuscitation (Intervention)

Sites Not Implementing Dispatcher-assisted Cardiopulmonary Resuscitation

Sites
Phase 1 'historical' data (2009-2011)/minimum 6 months 'run-in' period before implementation

Sites
Phase 1 'historical' data (2009-2011)/minimum 6 months 'run-in' period before implementation

Phase 1 'historical' data

- Basic Package Implementation**
- Dispatcher-CPR protocol
 - Training program

- Comprehensive Package Implementation**
- Dispatcher-CPR protocol
 - Training program
 - Quality measurement tool
 - Quality Improvement Program
 - Community Education Program

Collection of Out-of-Hospital Cardiac Arrest data only

Collection of Out-of-Hospital Cardiac Arrest and Dispatcher CPR data

Watch this space!

