

# Integrating EMS into the Health System

## Professor Marcus Ong

Senior Consultant and Clinician Scientist

Dept of Emergency Medicine, Singapore General Hospital

Director Health Services and Systems Research (HSSR) • education

Duke-NUS Medical School

Director, Health Services Research Center (HSRC),  
Singhealth Services

Director, Health Services Research Institute

Medical Director, Unit for Prehospital Emergency Care  
(UPEC)

Senior Consultant, Ministry of Health, Hospital Services  
Division

Director, Prehospital and Emergency Research Center  
(PERC) Duke NUS Medical School

PATIENTS. AT THE HEART OF ALL WE DO.



Partners in Academic Medicine



Members of the SingHealth Group



Singapore  
General Hospital



KK Women's and  
Children's Hospital



National Cancer  
Centre Singapore



National Dental  
Centre Singapore



National Heart  
Centre Singapore



National  
Neuroscience Institute



Singapore National  
Eye Centre



Polyclinics  
SingHealth



Bright Vision  
Hospitals

# Learning Objectives



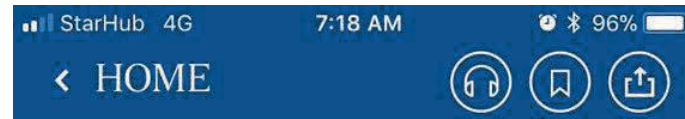
1. Understand the role of EMS within the health system
2. Use the 'Framework of Survival' as a conceptual framework to understand how EMS can impact society and outcomes
3. Explore the role of evidence and health services research to translate into implementation and impact
4. Understand the wider global health role of EMS



Clinician Practicing at SGH Department of Emergency Medicine

Scientist running a research program in Prehospital and Emergency Care

Director of Health Services Research program at Duke-NUS and Singhealth



PREMIUM

## SGH doctor on mission to boost CPR training



Associate Professor Marcus Ong, 48, has pushed for more people to be trained in cardiopulmonary resuscitation, including spearheading training sessions in schools, offices, community clubs and religious organisations through the Dispatcher Assisted first Responder programme. ST PHOTO: KEVIN LIM

PUBLISHED APR 05, 2018, 5:00 AM SGT

Providing immediate help can raise cardiac-arrest

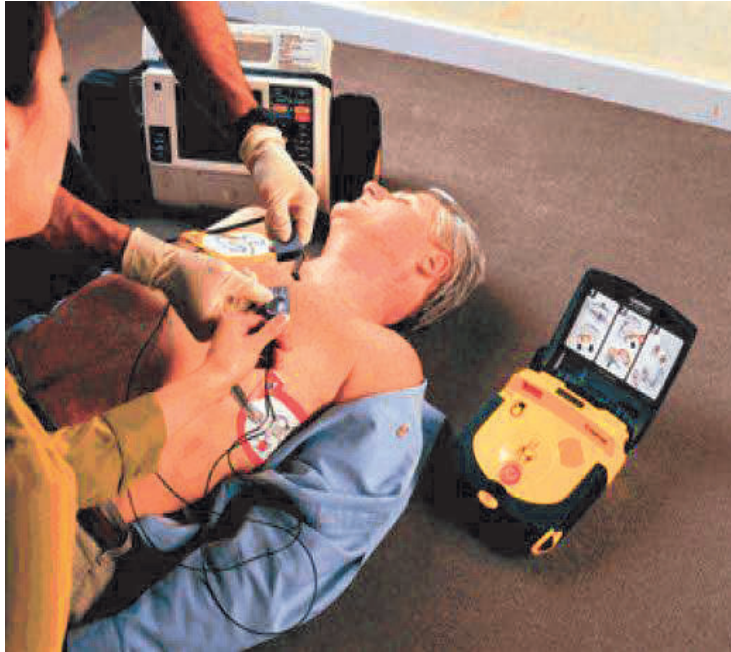


Started Data Science research unit at Singhealth

National EMS Medical Director, Unit for Prehospital Emergency Care (UPEC)

Chairman of Pan Asian Resuscitation Outcomes Study and Past President of Asian Association for EMS

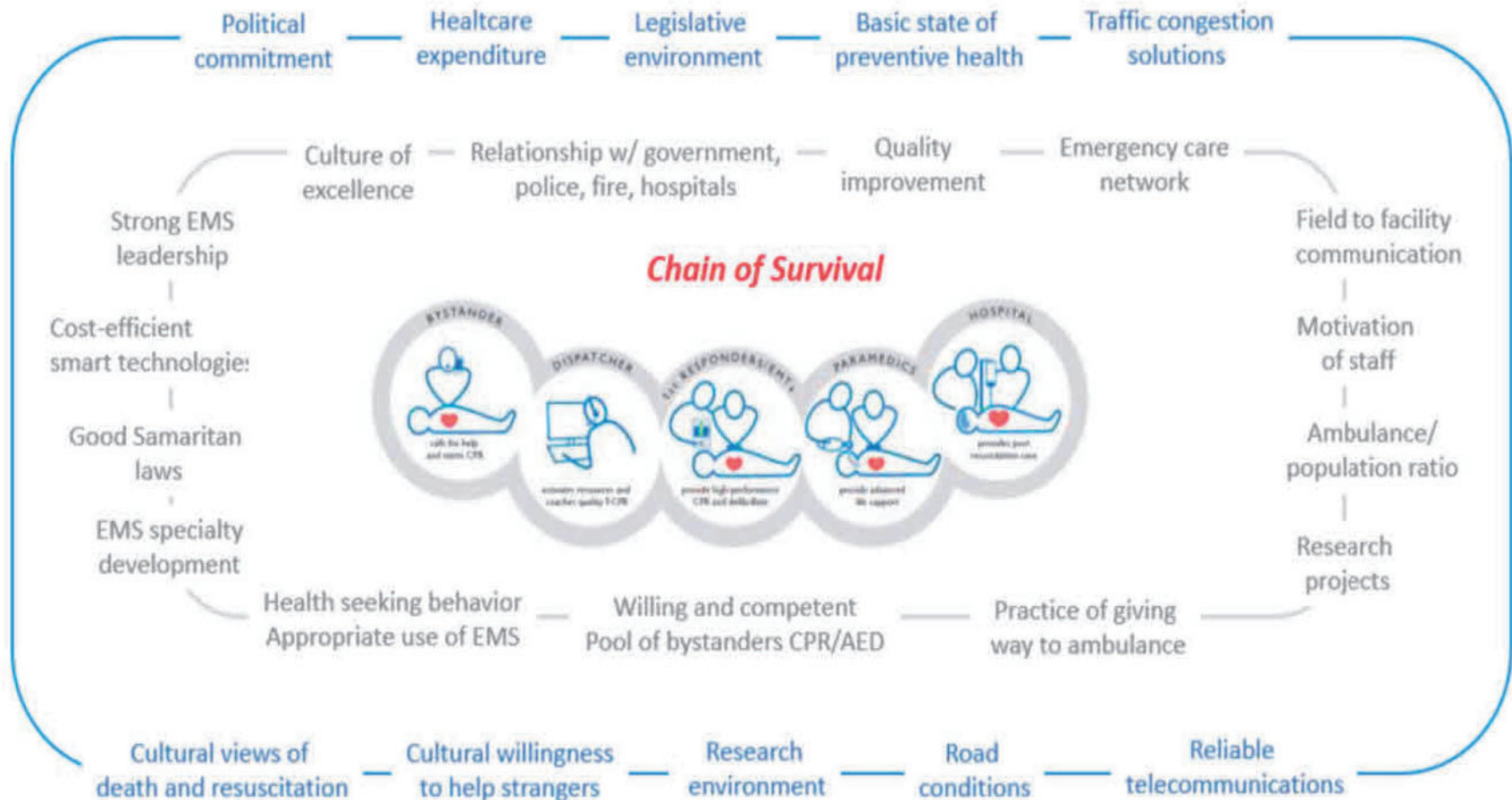




**EMS is part of a  
system.  
It's about  
understanding and  
improving the  
system!**

**It takes a system to  
save a life!**

**Frame of Survival**  
 for improving OHCA outcomes in developing EMS systems



# Singapore: Then and Now



- **National Health Care Expenditure (Singapore) – 4.4% of GDP in 2017**
- **National Health Care Expenditure (US) - 17.7% of GDP in 2018**

	Life expectancy <sup>i</sup>	IMR(/1000) <sup>ii</sup>	MMR(/100,000) <sup>iii</sup>	Estimated death due to cardiac cause <sup>iv</sup> (per 100,000)*
Korea	79.05	4.16	18	71.8
Singapore	82.14	2.32	9	126.0
Taiwan	78.32	5.18	NA	NA
Japan	82.25	2.78	10	172.2
Thailand	73.6	16.38	48	128.8
Malaysia	73.79	15.02	31	112.8
Australia	81.81	4.61	8	174.5
Turkey	72.5	23.94	23	162.7
UAE	76.51	11.94	10	50.0

<sup>i</sup> The World Factbook by CIA, available in <https://www.cia.gov/library/publications/the-world-factbook/rankorder/2102rank.html>

<sup>ii</sup> The World Factbook by CIA, available in <https://www.cia.gov/library/publications/the-world-factbook/fields/2091.html>

<sup>iii</sup> Trends in maternal mortality: 1990 to 2008, World Health Organization, 2010

<sup>iv</sup> Estimated deaths per 100,000 population by cause, sex and Member State, WHO, 2008

# Our Public Healthcare System

Healthcare delivery is provided by the *public, private* and *people* sectors.

- **Primary care provision**

- 80% private GPs
- 20% Polyclinics in NHG and SingHealth

- **Wellness care**

- Mainly private sector
- Some public sector involvement, e.g. HPB



- **Secondary / Tertiary care**

- 20% private
- 80% SingHealth, NUHS, Alexandra Health, Eastern Alliance, Jurong Health & NHG.

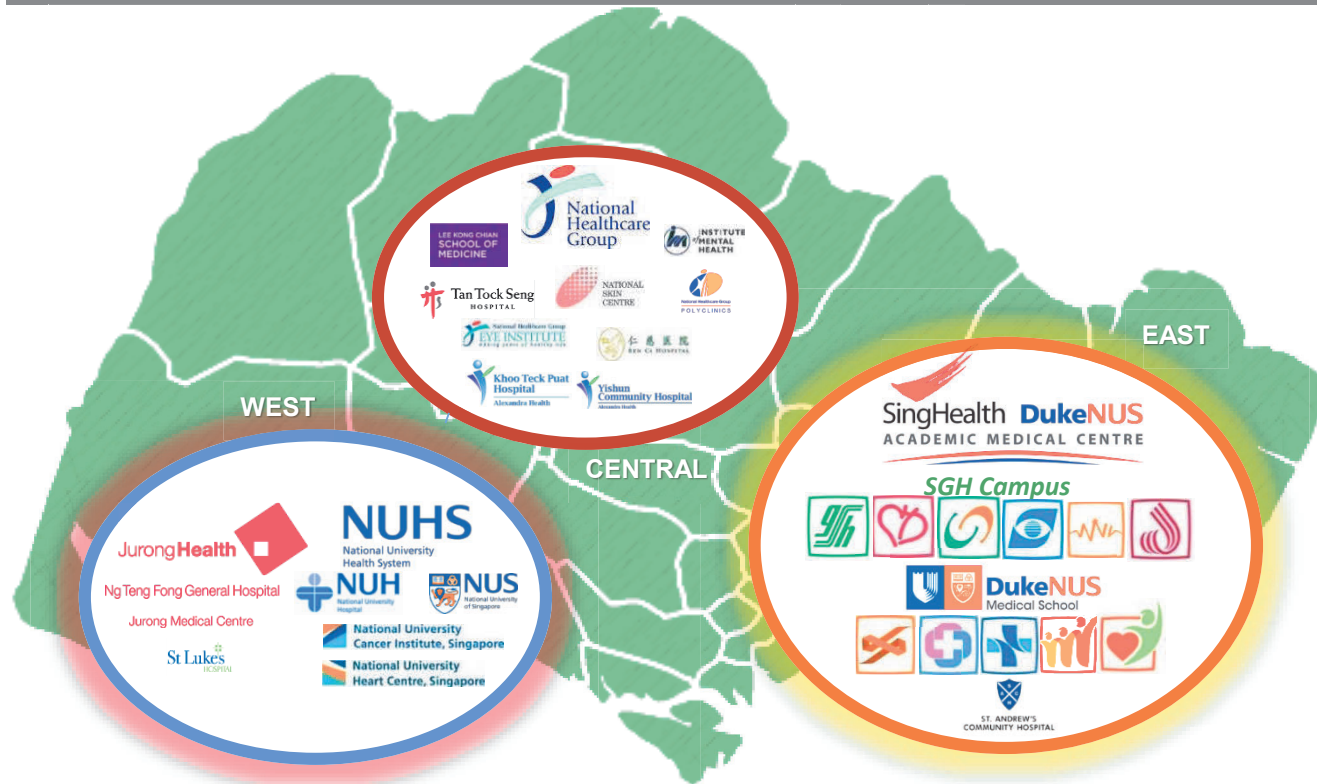
- **Continuing care**

- Approx 70% by public sector, 30% by private sector
- Community hospitals, nursing homes, hospices, day care centres, renal dialysis centre

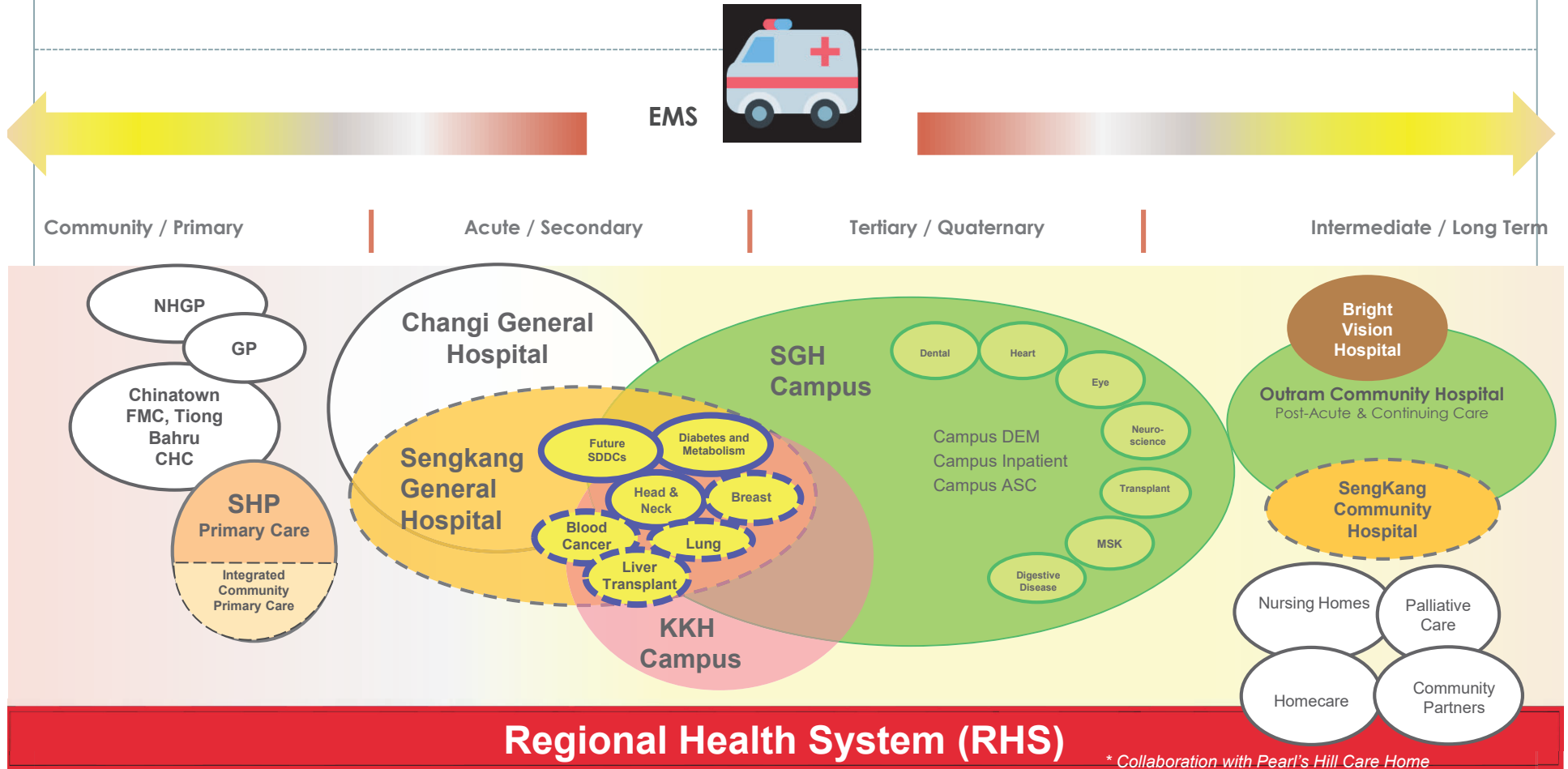


# Public Healthcare Delivery Network





3 Regional Health Systems including 2 Tertiary Centres of Excellence



# EMS and the Care of Patients Across the Continuum



# Multi-Agencies involved in EMS

<b>Ministry of Home Affairs</b> 	<b>Ministry of Health</b> 	<b>Ministry of Education</b> 	<b>Ministry of Defence</b> 
SCDF CDA & PAD	Hospitals ED, UPEC, NRC, NFAC, IAN	NYP and ITE	SAF, SMTI and Medical Centres
<ul style="list-style-type: none"> <li>• Provision of EMS</li> <li>• Training and continuous education for Paramedics and EMTs</li> <li>• Community training</li> </ul>	<ul style="list-style-type: none"> <li>• Medical oversight</li> <li>• Oversight of ambulances &amp; MTS</li> <li>• Accreditation of PEC professionals</li> <li>• Coordinating agency (UPEC)</li> <li>• EMT training</li> </ul>	<ul style="list-style-type: none"> <li>• Academic training for Paramedics</li> <li>• Continuing education for prehospital care professionals</li> </ul>	<ul style="list-style-type: none"> <li>• Primary training site for EMTs and Paramedics vocational training</li> <li>• Largest employer of Paramedics and EMTs</li> </ul>

# We have come very far!



- ◆ 1917: A Motor Ambulance was acquired by the Hospitals Board
- ◆ 1928: An ambulance service for accident cases was established under the Fire Brigade
- ◆ 1977: Integrated both central ambulance and trauma ambulance service into one single-tier system manned by nurses and midwives from Ministry of Health
- ◆ 1998: Singapore Civil Defence Force officially took over the emergency ambulance service with trained paramedics

# Singapore EMS



- Area 719 km<sup>2</sup>
- Urban / Suburban
- Population 5.47 mil
- Multi-racial/cultural/religion
- Currently **80** Emergency Ambulances
- **191,468** EMS calls in **2019**
- Total about **300** Active Paramedics



# UPEC- Who are we?



- In 2013, the **Unit for Pre-hospital Emergency Care (UPEC)** was established by the Ministry Of Health Singapore, comprising EM physicians & nurses, EMS professionals and healthcare administrators, to
  - coordinate, monitor and implement the various PEC strategies
  - provide clinical and operational oversight
  - assist in various operational PEC initiatives, such as quality audit for dispatch triage system, training and standards for PEC personnel, ambulance audits, etc.

# Areas of Focus

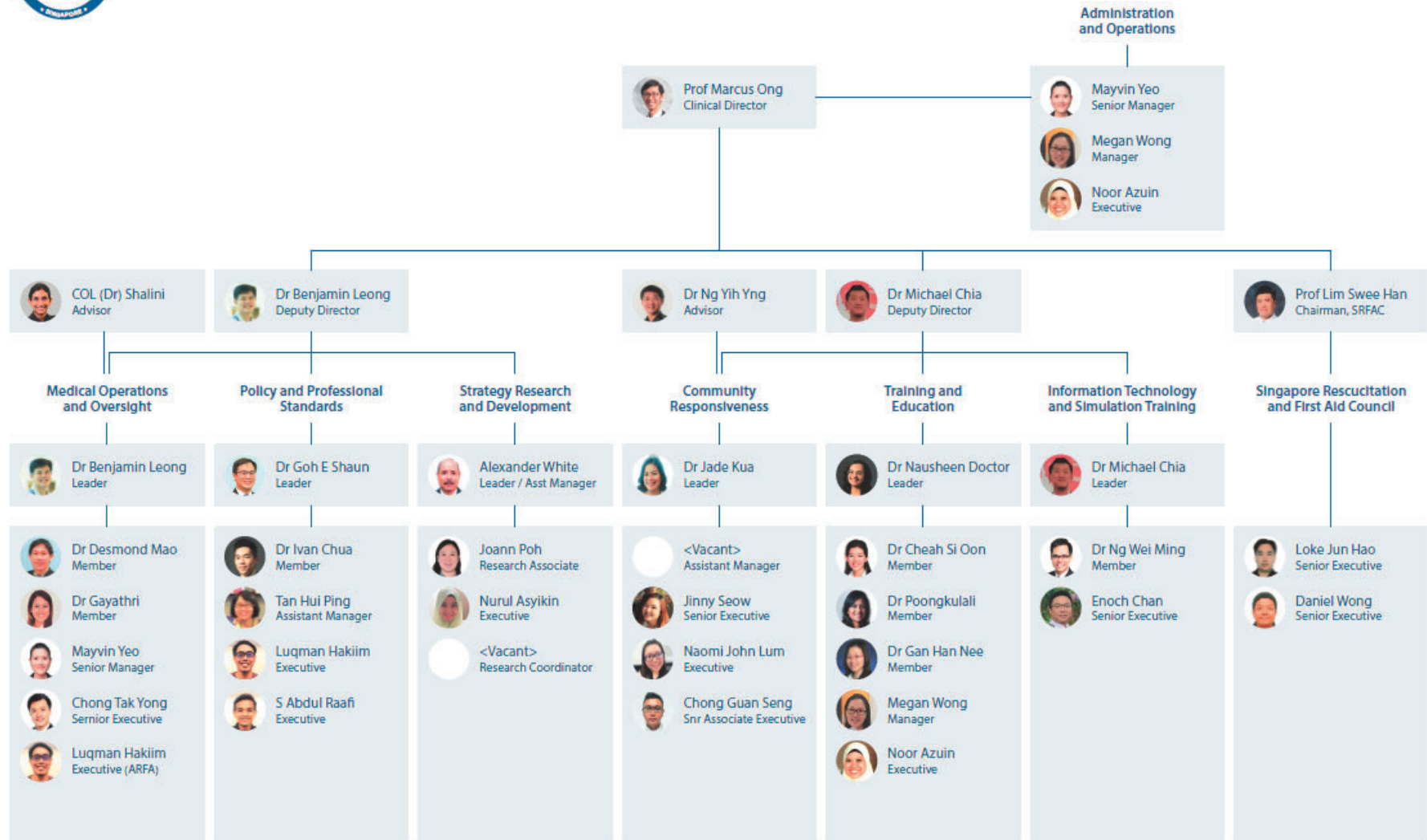


- Medical operations and oversight
- Training and Education
- Professional Standards
- Community Responsiveness
- Information Technology
- Policy, Research and Development





# UNIT FOR PRE-HOSPITAL EMERGENCY CARE / ORGANISATION CHART





# Singapore Healthcare Landscape

## Key Challenges

1. Rapid Ageing of the Population
2. Increasing Burden of Chronic Diseases
3. Rising Cost of Healthcare
4. Limited Health Workforce and Competing Demands
5. Challenges from COVID-19

## Stresses on Our Resources



People

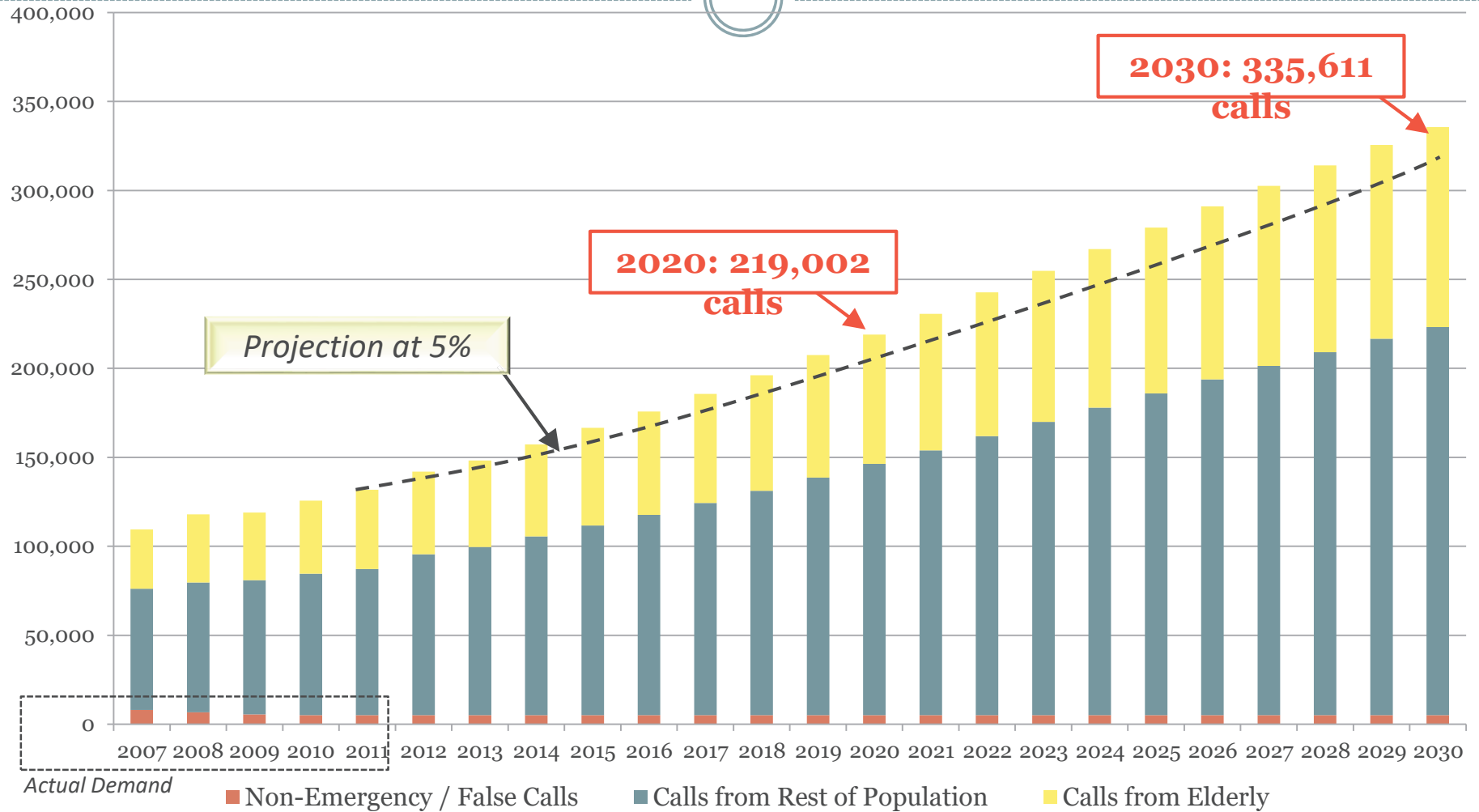


Space

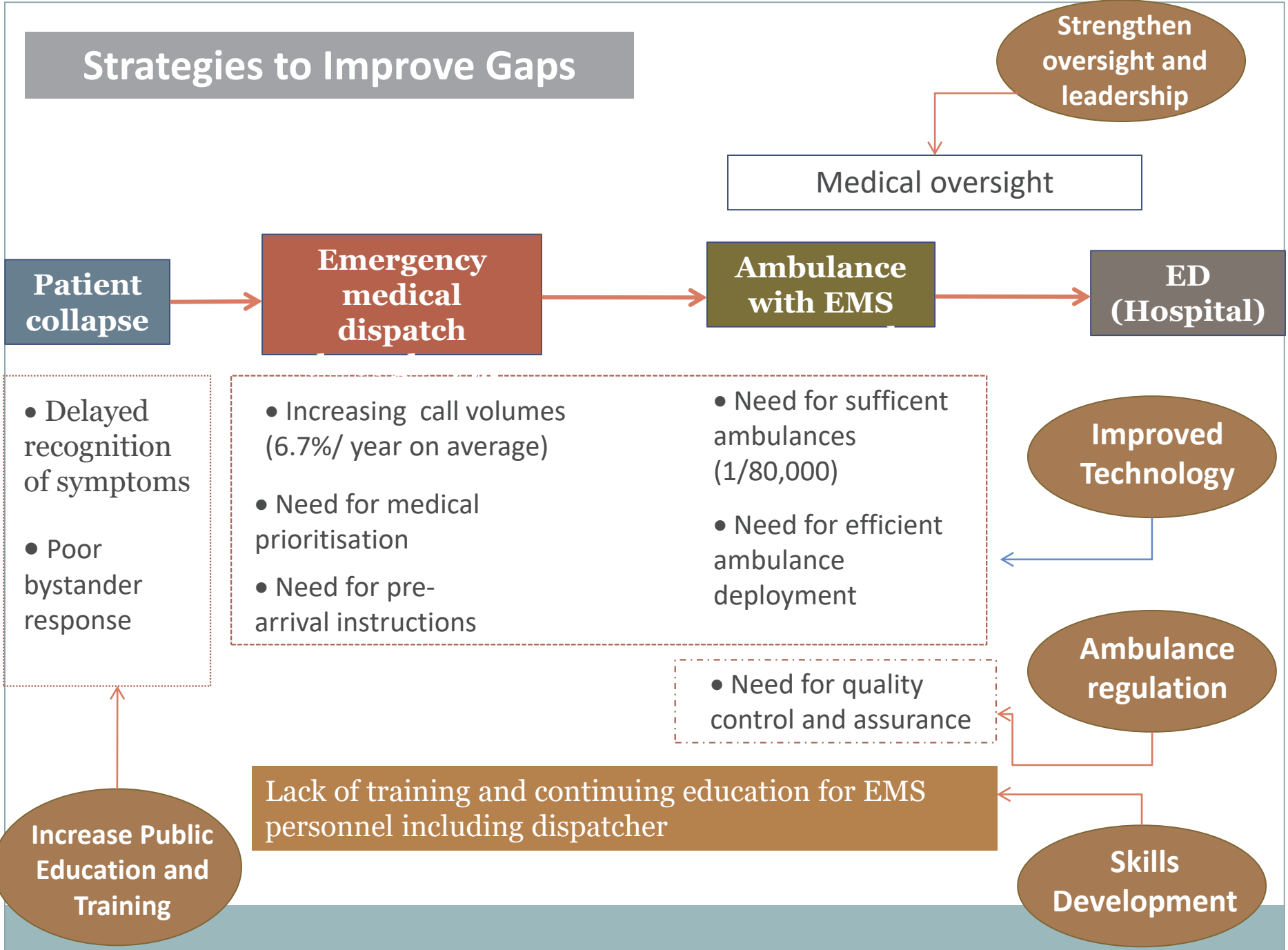


Money

# Projected EMS Demand



# Strategies to Improve Gaps



# Overview



- **Vision**
  - For Singapore to possess a **world-class** Pre-hospital Emergency Care (PEC) system, **readily accessible** to all, and providing **excellent patient outcomes**.

# Principles of Transformation



- **Aims**

- To develop a coherent and viable framework for collaboration and coordination in the long-term development of PEC in Singapore.
- To promote public responsiveness in pre-hospital emergencies.
- To strengthen Singapore's PEC to world-class standards.
- To ensure that PEC is seamlessly integrated into the healthcare system.
- To create a supportive environment for research into PEC to improve health outcomes.

## 3 Important Shifts for the Future

---

### Beyond Hospital to Community

*So Singaporeans can receive care in the community and nearer to home*

### Beyond Quality to Value

*To give every Singaporean the best value, whilst keeping our system sustainable*

### Beyond Healthcare to Health

*To help and support Singaporeans to live healthier lives*

**Better Health** • **Better Care** • **Better Life**

RESTRICTED

**MOH STANDARDS FOR EMERGENCY AMBULANCE SERVICE (2014)**

These standards are for the reference of agencies operating or intending to operate an emergency ambulance service.

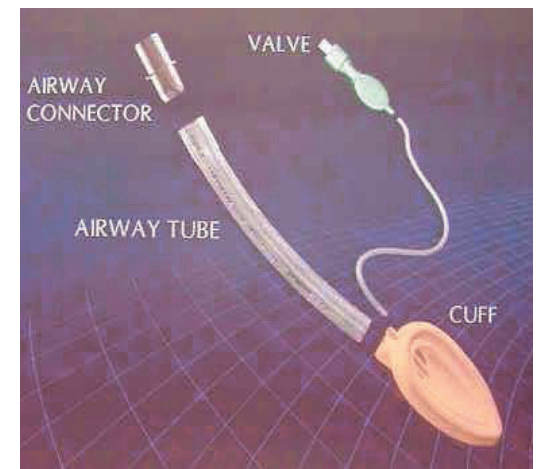
The standards spell out the minimum requirements which the agency must comply with when operating an emergency ambulance service.

**Contents:**

1. Definitions.....	2
2. Emergency Ambulance Service Provider .....	2
3. Emergency Ambulance Service Vehicle.....	3
4. Emergency Ambulance Service Crew.....	4
4.1 Composition.....	4
4.2 Medical Transporter/Ambulance Driver.....	4
4.3 Emergency Medical Technician.....	4
4.4 Ambulance Paramedic.....	5
4.5 Ambulance Nurse.....	6
4.6 Ambulance Doctor.....	6
5. Ambulance Vehicle Equipment and Medical Equipment.....	7
APPENDIX 1: Definition of Medical Emergency.....	8
APPENDIX 2: List of Approved Qualifications.....	10
APPENDIX 3: List of Medical Equipment for Ambulances.....	11

# Early basic and advanced care

- Oxygen
- Airway adjuncts
- Immobilise fractures and spinal injuries
- IV fluids
- Tamponade bleeding
- Laryngeal mask airway
- Aspirin (Oral)
- Salbutamol
- Dextrose
- GTN
- Adrenaline (intravenous)
- Oxytocin
- Diazepam for seizures
- Pentrox/Tramadol
- Intraosseous needles





# Improving Resuscitation Performance



Public Access  
Defibrillation



Defibrillator  
Code Review



Audio  
Recording



Body Worn  
Cameras

# PARAMEDIC TRAINING & EDUCATION

The Singapore Armed Forces (SAF) works closely with the Singapore Civil Defence Force (SCDF) and the Ministry of Health (MOH) to equip both SAF and SCDF medical personnel with professional skills and knowledge relevant for peacetime training and operations. The National Paramedic Training and Education Roadmap, leverages the four thrusts of SkillsFuture initiative and provides career paramedics with many pathways to success, regardless of their educational background.

## Who are Paramedics?

- Allied Health Professionals
- First responders to the injured and sick
- Operate with a crew comprising a medic and a transporter, and in pre-hospital setting, often with limited resources



## Paramedic Professional Standards Committee

Industry stakeholders	SAF and SCDF
Regulatory bodies	Unit for Prehospital Emergency Care (UPEC), Ministry of Education (MOE) and Workforce Developmental Agency (WDA)
Training educational providers	Institute of Technical Education (ITE), Nanyang Polytechnic (NYP) and SIM University

Looks at defining training competencies for Prehospital Emergency Care providers

## THE NATIONAL PARAMEDIC TRAINING AND EDUCATION ROADMAP

The multi-agency Paramedic Professional Standards Committee, together with various paramedic training stakeholders, established this roadmap that allows paramedics to make well-informed choices about opportunities for career development.

### BASIC

EMT

### INTERMEDIATE

EMS

ENHANCED!

Diploma in Paramedicine

Higher NITEC in Paramedic and Emergency Care

### ADVANCED

Advanced Diploma in Paramedicine

Degree with minor in Paramedicine

Launched in July 2015!

EMT: Emergency Medical Technician EMS: Emergency Medical Specialist NITEC: National Institute Of Technical Education Certificate

## Milestones of Paramedic training in Singapore

1996

The Defence and Home Affairs Ministries collaborated with the Justice Institute of British Columbia (JIBC) to launch the Paramedic Training Programme in Singapore. SAF became the national institution responsible for all Paramedic training

1996

SAF and SCDF sent 7 officers and combat medics to JIBC for training



1998

The first local Paramedic Matriculation course was conducted at the School of Military Medicine (SAF) to a group of SAF and SCDF medics



1998-2009

SAF and SCDF continued to send operational paramedics to JIBC for enhanced training

2008

ITE starts the Higher NITEC in Paramedic and Emergency Care Programme



2009

SAF Paramedic course gains JIBC accreditation for medic and paramedic training



2011

NYP starts the Advanced Diploma in Paramedicine course



2012

SAF and JIBC co-develop the Diploma in Health Sciences (Emergency Medical Services) and Primary Care Paramedic Programme

<sup>1</sup> The four key thrusts of SkillsFuture are: (i) help individuals make well-informed choices in education, training and careers, (ii) develop an integrated high-quality system of education and training that responds to constantly evolving needs, (iii) promote employer recognition and career development based on skills and mastery and (iv) foster a culture that supports and celebrates lifelong learning.

# Alternate Care Pathways

## SAS Clinical Model

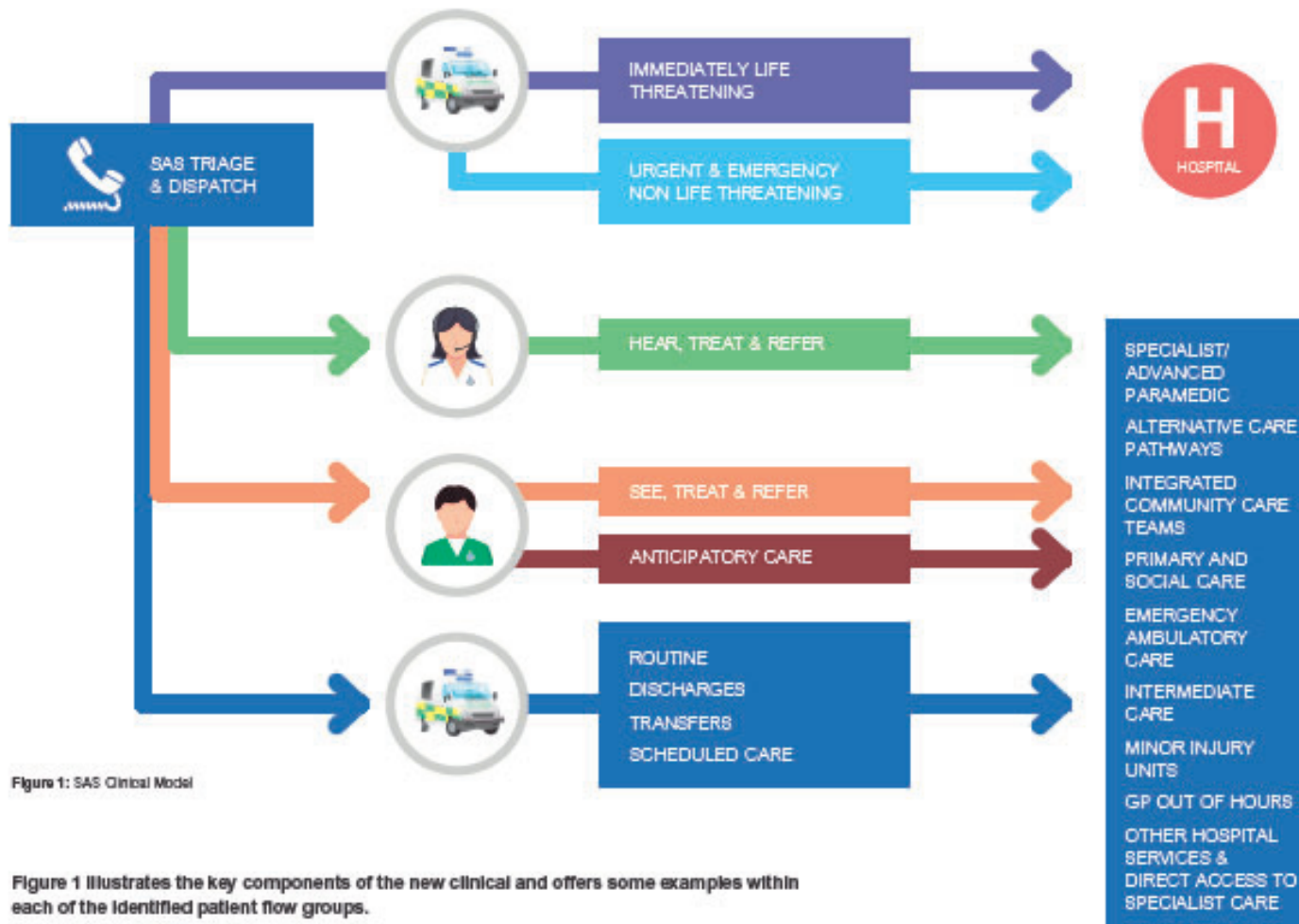
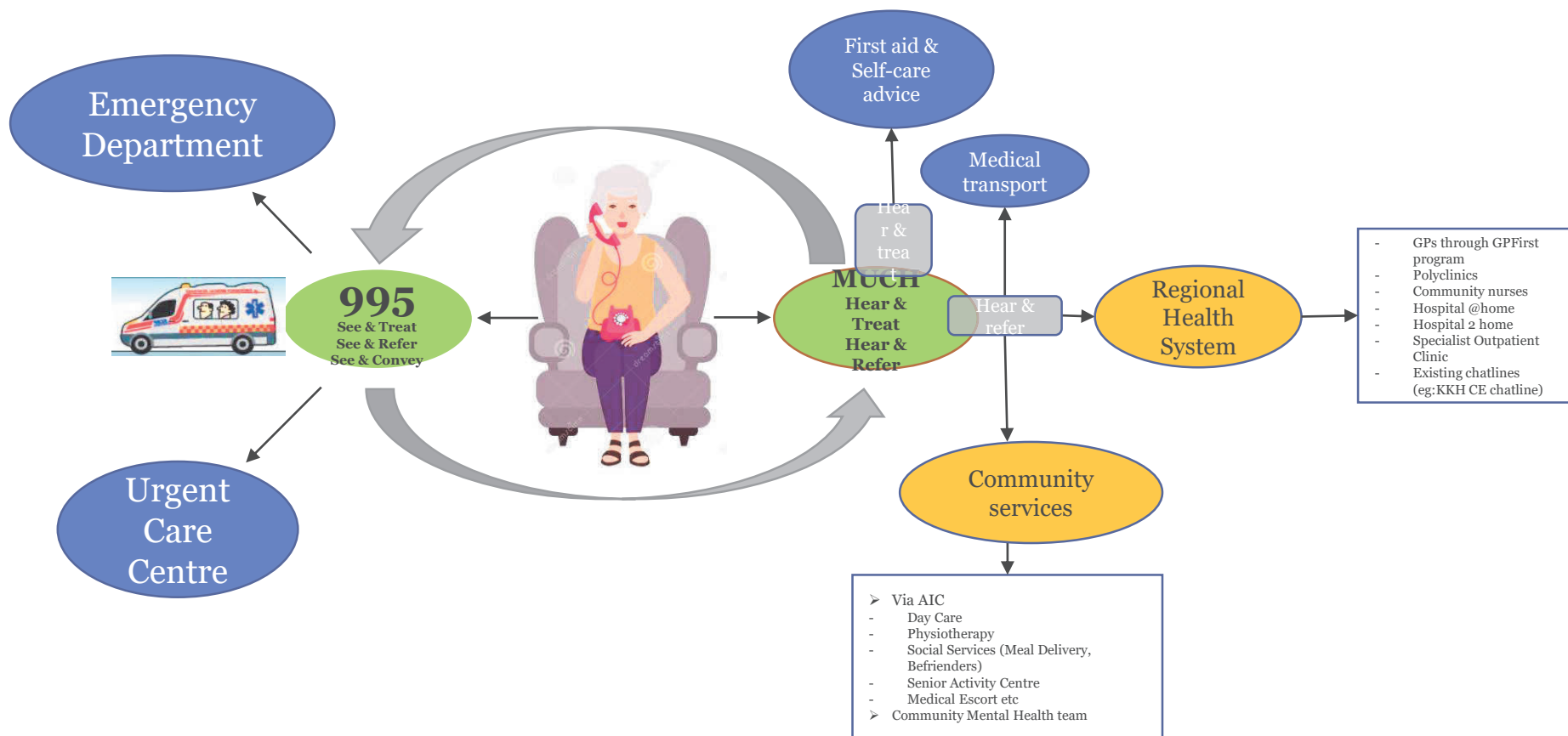


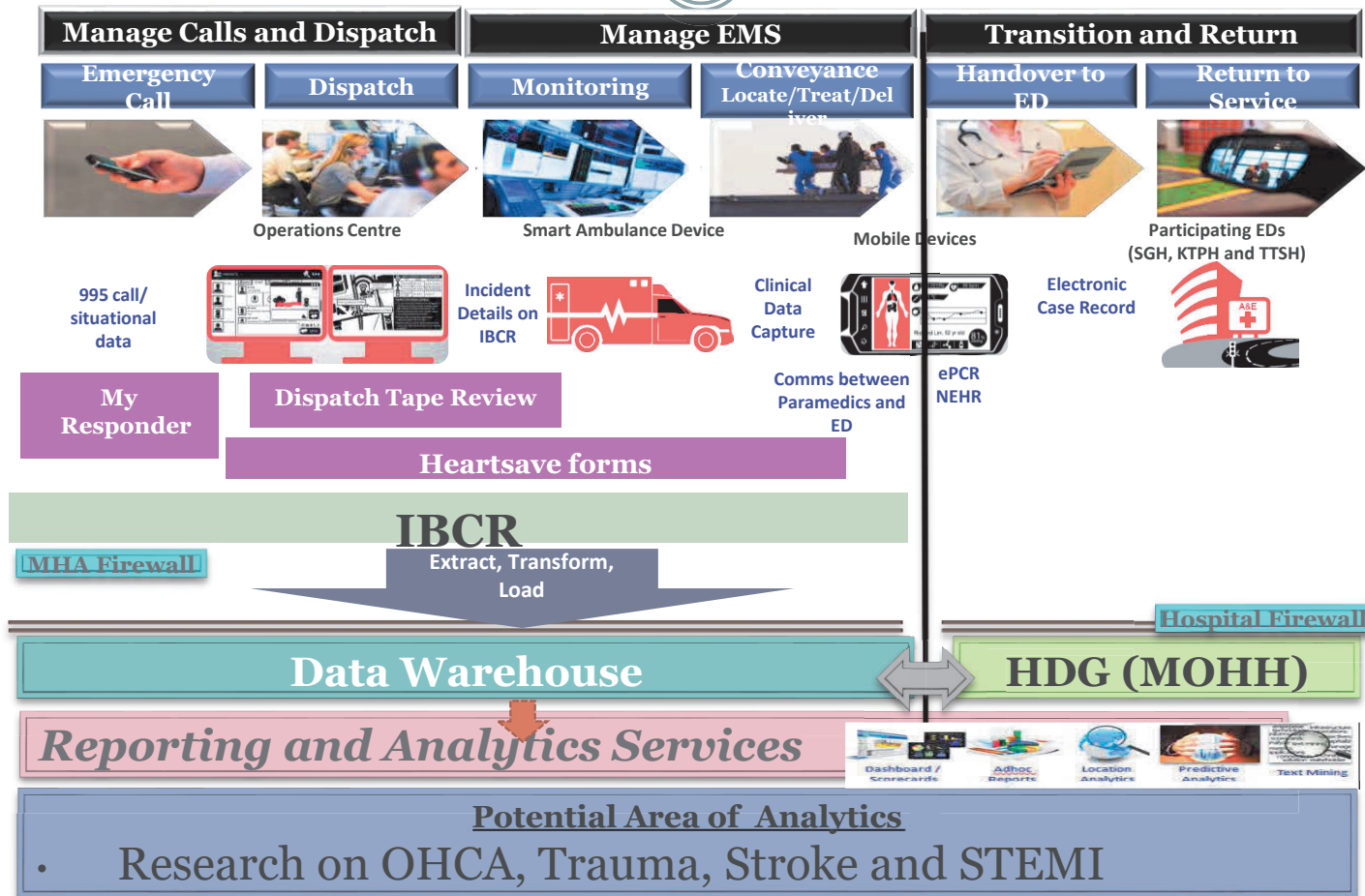
Figure 1: SAS Clinical Model

Figure 1 illustrates the key components of the new clinical and offers some examples within each of the identified patient flow groups.

# For Singapore: Medical Urgent Care Helpline (MUCH)

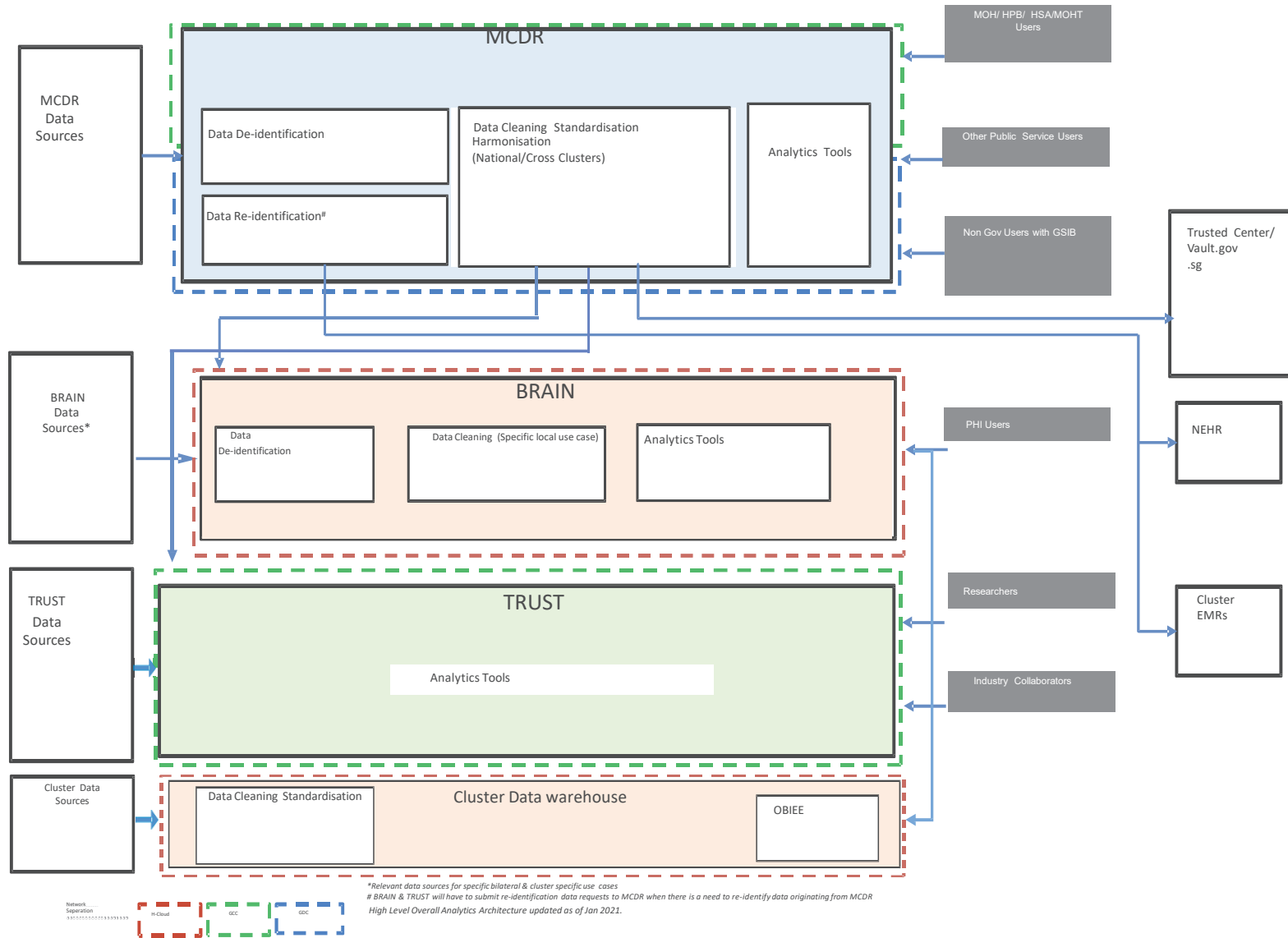


# PEC IT Blueprint and Analytics

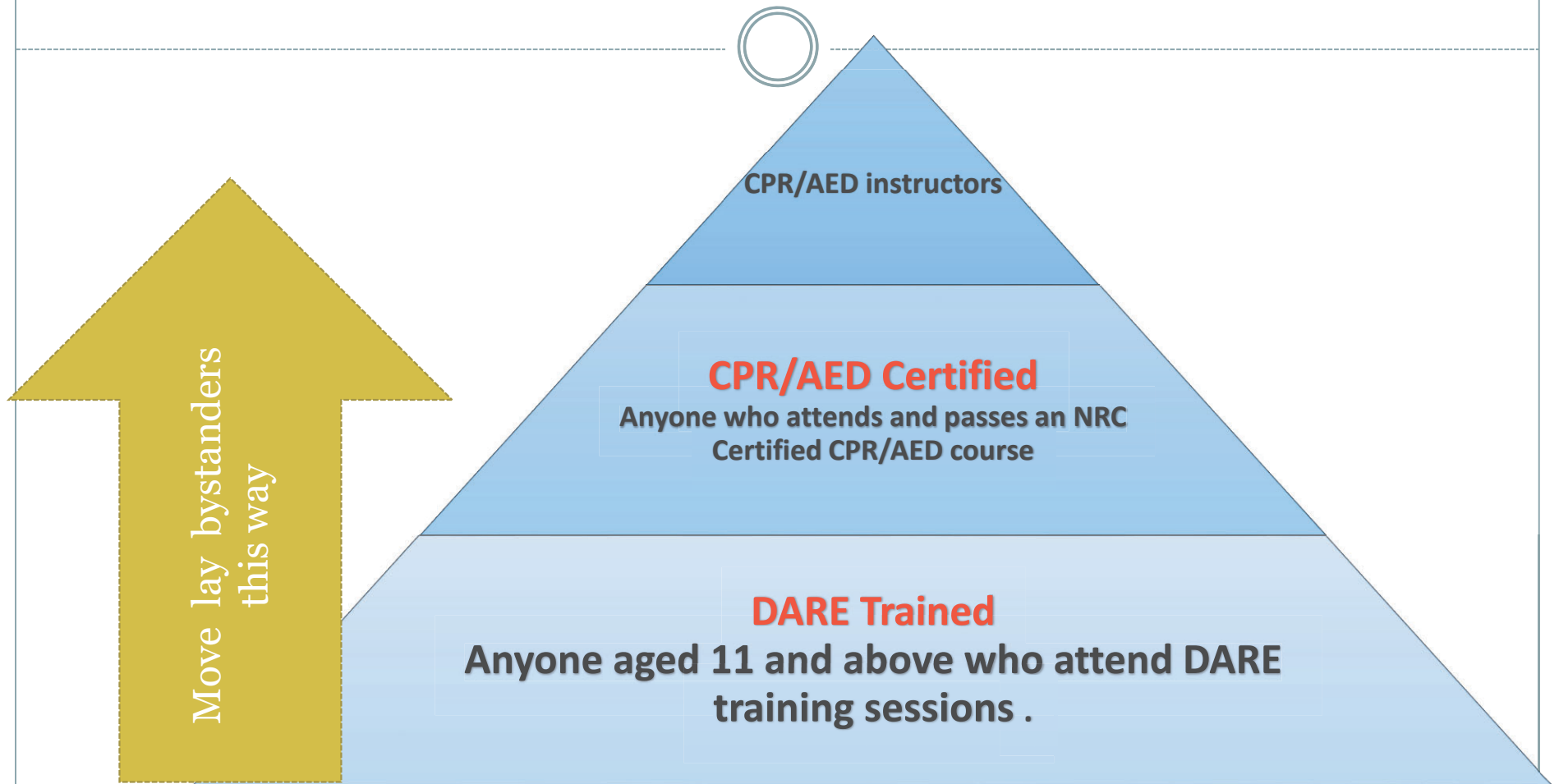




# MOH Analytics Framework – High Level Overall Analytics Architecture



# 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.



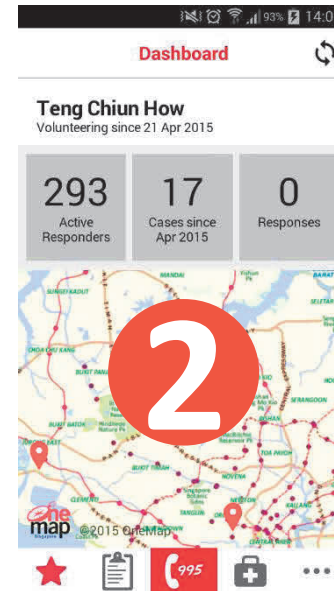


1

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



2



Sign up as a volunteer responder



Know where the nearest AED is located





# 我报 MyPaper

mypaper.sg MCI(P) 146/10/2014 星期五 2015年7月24日

## » 国人对新加坡社会看法改善

咨询公司对新加坡公民和永久居民展开调查,让他们选最能形容新加坡社会的词汇。结果显示,与3年前相比,国人眼中的新加坡社会较正面,是享有“教育机会”、“和平”及“安全”的国家。本地新闻B2

## » 希腊第2轮纾困投票通过

希腊国会从前晚就新纾困方案的第2轮投票进行辩论,一直讨论到昨天凌晨,终于以大比数顺利通过。当国会就纾困方案进行辩论时,约9000民众在国会外聚集,反对进一步财政紧缩。世界新闻B4

## » 金秀贤同父异母妹妹沾光被批

韩国歌手金珠娜发行为韩剧献唱的插曲,自曝是“金秀贤同父异母妹妹”携版面,间接曝光金秀贤歌手老爸金忠勋23年前疑“偷吃”往事,被网友狠批。娱乐B12



## 协助更多心脏病发者 救命App使用率待提高

苏文琪

通知公众就近协助疑似心脏病发者的手机应用软件,已推出超过3个月,用户使用率仍有待提高,以帮助更多患者,增加对方的存活机会。

民防部队于今年4月17日推出的“myResponder”应用软件,至今的下载量约2500次。该软件可指出设有自动心脏除颤器(AED)最靠近的地点,也可用于通知用户附近有心脏病发者。

当局接获疑似心脏骤停个案的通报后,会立刻用软件通知在事发地点400公尺内的用户。只有已注册为“社区急救员”的700多名用户才会接到通知。

过去3个月,民防部队共发出约1000则急救通知,当中六成确为心脏骤停个案,不

过,仅不到5%的通知获公众回应。45起获回应个案中,有15起确为心脏骤停个案。

民防部队总医务官黄毅莹医生上校说,即使没有接受过急救训练,公众还是可以注册为急救员。接获通知时,他们可帮忙取来最靠近的自动心脏除颤器,或在民防接线员的指导下为患者进行心肺按摩,或协助指引救护人员到事发地点。

他说:“心脏骤停的情况下,每一秒都非常重要,有人及时介入帮忙,将增加患者的存活机会。”

另外,软件现虽以处理心脏骤停个案为主,用户仍可借由软件通知民防部队其他紧急事故;当局会通过定位技术得知通报者的位置。

目前获回应个案中,未有心脏骤停者成功存活,但获援助的其他患者都从中受益。

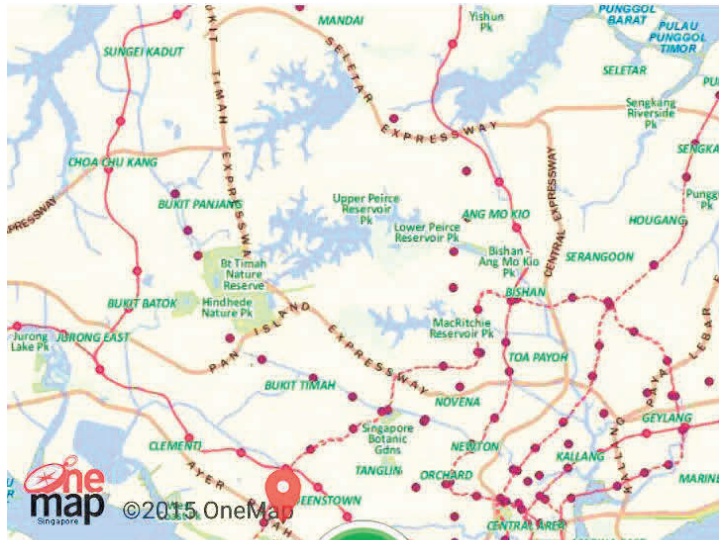


邻里主动应急计划志愿者彭秀翠(左)和拉詹在接获“myResponder”应用软件的 notification 后,能赶在救护车之前到场,及时为患者提供援助。(周柏荣摄)

You are in **DRIVING** mode

ACTIVE RESPONDERS  
**1013**

RESPONSES TO CASES  
**228**



SINGAPORE

# Automated External Defibrillators installed on 100 SMRT taxis

The initiative is part of a three-year pilot programme called SMRT-Temasek Cares AED on Wheels, which aims to increase the availability of AEDs within the community.

POSTED: 27 Nov 2015 21:43    UPDATED: 27 Nov 2015 23:59

VIDEOS PHOTOS



SMRT taxi driver Simon Ngiam Shu Leng with the AED which will be installed in his taxi. (Photo: SMRT)

# Public Housing AED Program: 70% of cardiac arrest cases occur in the 10,000 public housing estates!



# Dispatcher-Assisted First Responder Programme (DARE)



HOME B8

ST PHOTO: DESMOND FOO

## LEARN CPR? THEY'RE ALL EARS

You are never too young to learn how to save lives.

Pupils at St Anthony's Primary School proved just that yesterday when they learnt how to administer

cardiopulmonary resuscitation (CPR) and use an automated external defibrillator. About 2,300 students have attended this life-saving programme so far.



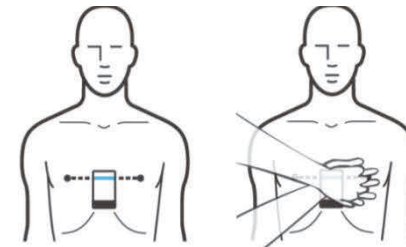
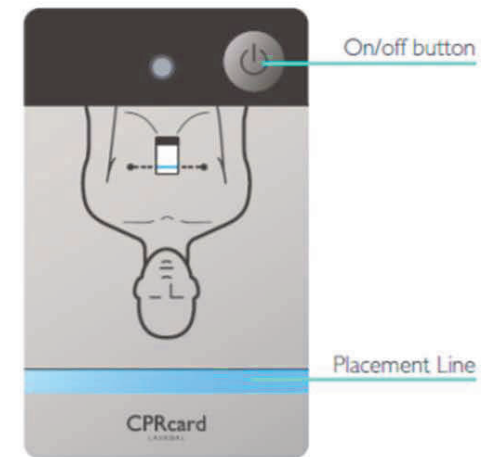
# 5-YEAR NATIONAL COMMUNITY EMERGENCY AND RESILIENCE (NCER) ROADMAP

Projects	Publicity & Awareness / Education	Training	Community Responsiveness & Resources	Technology	Research & Data Analytics	Policy & Legislation
Project 1	<p>Awareness Engagement – Storytelling at National Library Board (Partner: National Library Board)</p> <ul style="list-style-type: none"> <li>Kick-started 2 sessions in Dec 2021</li> <li>To continue conducting storytelling sessions at NLB</li> </ul>	<p>DARE training for NSmen during In-Camp Training (Partner: SAF)</p> <p>Spoken to SAF. SAF has agreed to explore the feasibility. Will follow up with SAF to conduct a few good training &amp; subsequently seek SAF's buy-in on TTT model.</p>	<p>Optimize the number of AEDs to cover whole Singapore (Partner: SCDF)</p> <p>The guidelines for optimal AED placement in Singapore, is currently being finalized. Thereafter, it will be shared with the stakeholders.</p>	<p>Increase Social Media presence (Tik Tok &amp; LinkedIn) – To raise awareness on DARE &amp; CPR AED</p> <p>Tik-Tok to engage the younger population while using LinkedIn to reach out to the corporate community.</p>	<p>Conduct census-related surveys : Proportion of Singapore population trained in CPR+AED/First Aid (HPB)</p> <p>UPEC has provided CPR/AED questions to HPB through MOH, for inclusion in National Population Health survey 2021. Results have not been shared.</p>	<p>Good Samaritan law</p> <p>One of the reasons that bystanders are not willing to perform CPR on a stranger, is the fear of being sued for inadvertently causing death or injuries.</p> <p>To propose introducing Good Samaritan Legislation in Singapore.</p>
Project 2	<p>Cardiac Arrest Survivors &amp; Supporters Club (Partner: SHF &amp; SCDF)</p> <p>Aims to provide information, care and support to cardiac arrest survivors, their caregivers &amp; families as well as volunteers responders. It will also comprise advocates and community activists of cardiac arrest support.</p> <p>SHF has agreed to partner while SCDF is still considering. This club is envisioned to sit under and supported administratively by SHF, with steering committee led by lay persons and advised by experts from the stakeholders.</p>	<p>Provision of DARE Training to post-secondary schools and Institutes of Higher Learning (Partners: MOE, IHLs)</p> <p>(i) DARE moved a notch higher with MOE's introduction of CPR/AED refresher for Sec 3. Thus, MOE rejected proposal to train post-secondary in DARE, e.g. JCs.</p> <p>(ii) IHLs have autonomy to decide on program &amp; curriculum. Polys cited issues of not having enough qualified people to conduct DARE.</p> <p>(iii) NUS &amp; SUSS will be organizing DARE TTT for their students.</p>			<p>National Registry of Electronic Certificates for Life-saving courses (Partner: SRFAC)</p> <p>To centrally issue certificates of life-saving courses, via national digital platform, Singpass</p> <p>Facilitate tracking of the status of certificates</p> <p>Allow tracking of the number of people who have been trained/certified in Singapore</p> <p>SRFAC will be proposing specifications and parameters to GovTech for further discussion.</p>	<p>Forming a Workgroup that is made up of the stakeholders of NCER Roadmap and to meet regularly for coordination, progress update and discussion on issues.</p> <p>(Partner: MINDEF, MHA, MOH, MOE, SHF, SCDF, SRFAC)</p> <p>To seek endorsement from DS</p>
Project 3	<p>CPR Race at Singapore Science Centre for visitors (Partner – Singapore Science Centre)</p> <p>There will be a CPR Race station at Science Centre from 08 to 10 Apr 2022. If it works out well, we will find opportunity to conduct such activities at Science Centre for the visitors.</p>	<p>To train NIE students in DARE TTT (Partners: NIE, MOE)</p> <p>UPEC's DARE Training Team will be having a meeting with NIE's Associate Dean on 22 Mar 2022 to discuss further on this initiative.</p>				
Project 4	<p>Events – School competition in CPR &amp; AED (Partner: MOE &amp; SHF)</p> <p>SHF and MOE have agreed to partner UPEC for this project.</p> <p>Students will be tested on their knowledge of CPR &amp; AED/cardiac arrest and CPR &amp; AED practical skills.</p>	<p>Revamping of annual fire drills to incorporate medical emergency basics, such as CPR &amp; AED (Partner: SCDF)</p> <p>SCDF will keep in view UPEC's proposal for SCDF to engage building managers to organize life-saving courses and promote myResponder app when arranging fire drills as there are no fire drills currently.</p>			<p>Legend:</p> <p>Green Box: To be actively handled by UPEC Light Blue Box : Farming out to partners</p> <p>Black Font colour : With progress White Font colour : Have not yet kick-started</p>	
Project 5	<p>Enhancing DARE program with optional add-on component - Child &amp; Infant CPR &amp; AED Awareness</p> <p>Re-purposing contents for Child &amp; Infant CPR/AED</p>				<p>Please refer to appendices in slide pages 12 to 26 for more details of the 5-year NCER Roadmap projects.</p>	

# The CPRcard™



- Personal credit card size device
- Assists with land-marking
- Provides visual rate and depth range of compressions
- Collects data re: quality of chest compressions





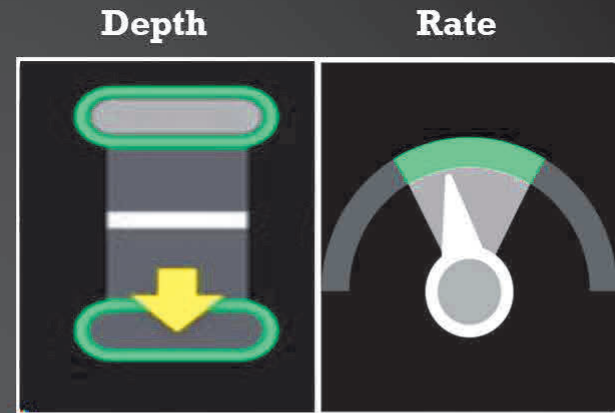




## Personal or Home Access Defibrillation

- Next gen defibs
  - Rebirth of the home AED?
  - Miniaturization
  - Improved affordability
  - IoT connectivity

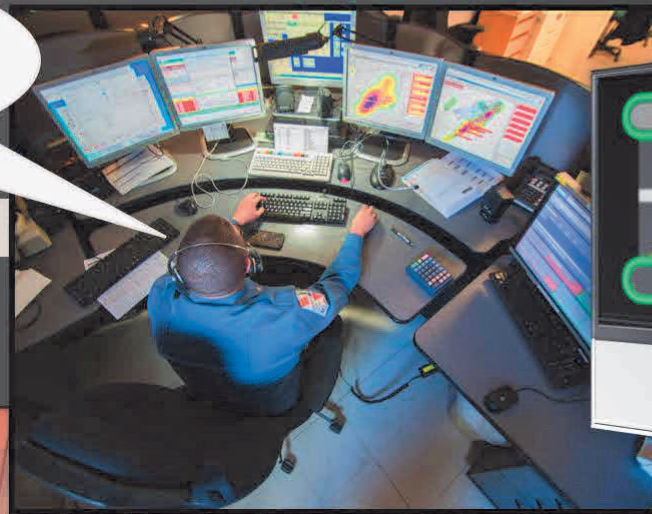


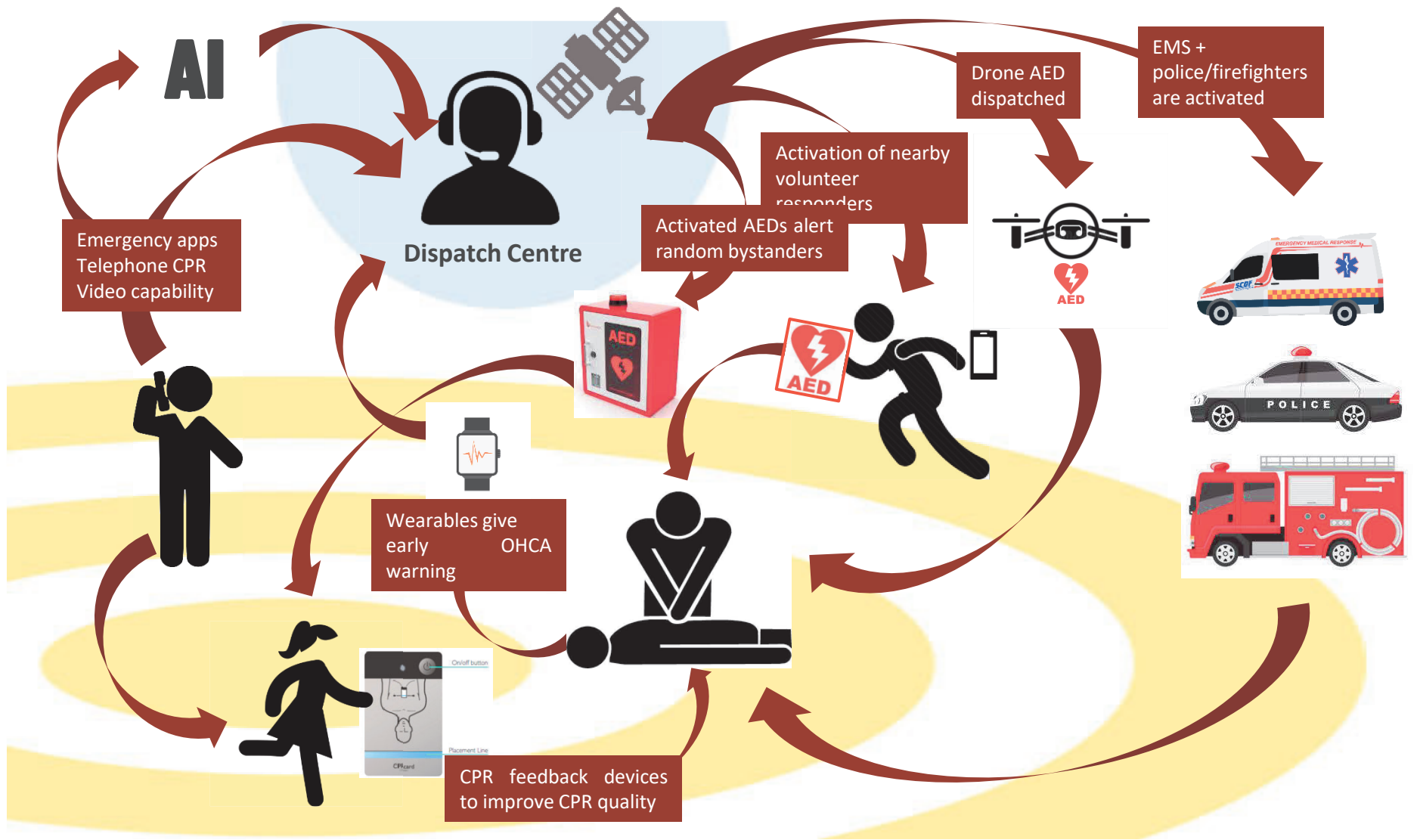


Compression telemetry to dispatcher

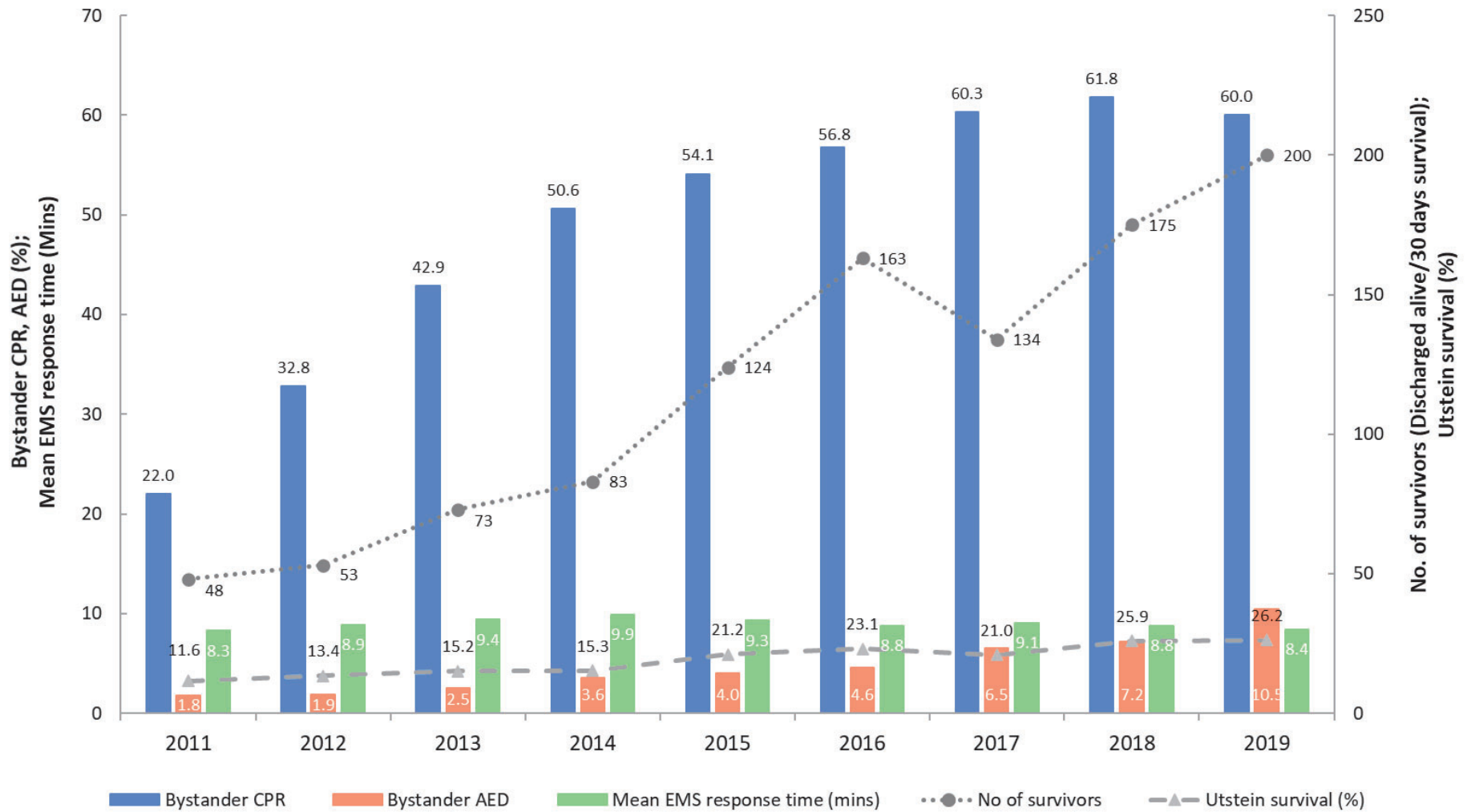
***“You’re doing great...push harder... ambulance is on the way.”***

**DA-CPR coaching to reinforce quality compressions**





# Overview

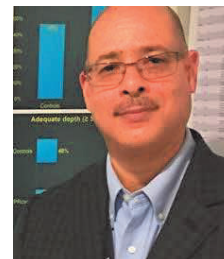


## Pre-Hospital and Emergency Research Center (PERC)

To be a centre of  
excellence in  
pre-hospital care  
and emergency  
medicine, while  
improving lives  
through  
emergency  
medical services  
research.



Prof Marcus ONG



## Theme IV: Global Resuscitation Alliance

Disseminate best practice for Cardiac Arrest management through the Global Resuscitation Alliance

### Community



### 995



### Ambulance



### Hospital



### Theme II: Future Ready SMART Community interventions

Develop and Implement Future Ready SMART Community interventions to improve the quality of CPR (increase optimal compressions (rate/depth) by 20%)

### Theme III: Future Ready Ambulance based interventions

Increase number of neurologically intact survivors by 20% through a bundle of Future Ready Ambulance based interventions

### Theme I: Data Science and AI Driven Clinical Policies

Build a Data Science Platform to support AI Driven Clinical Policies

Future-Ready Interventions for Survival after Cardiac Arrest (FRISCA):  
From Quantity to Quality Survivorship

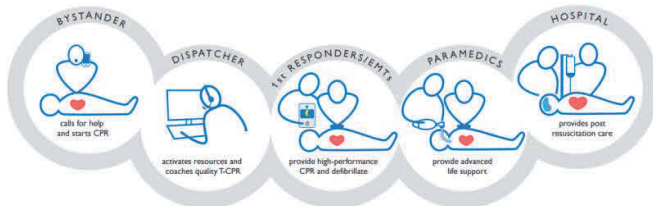
# Global Health Programs



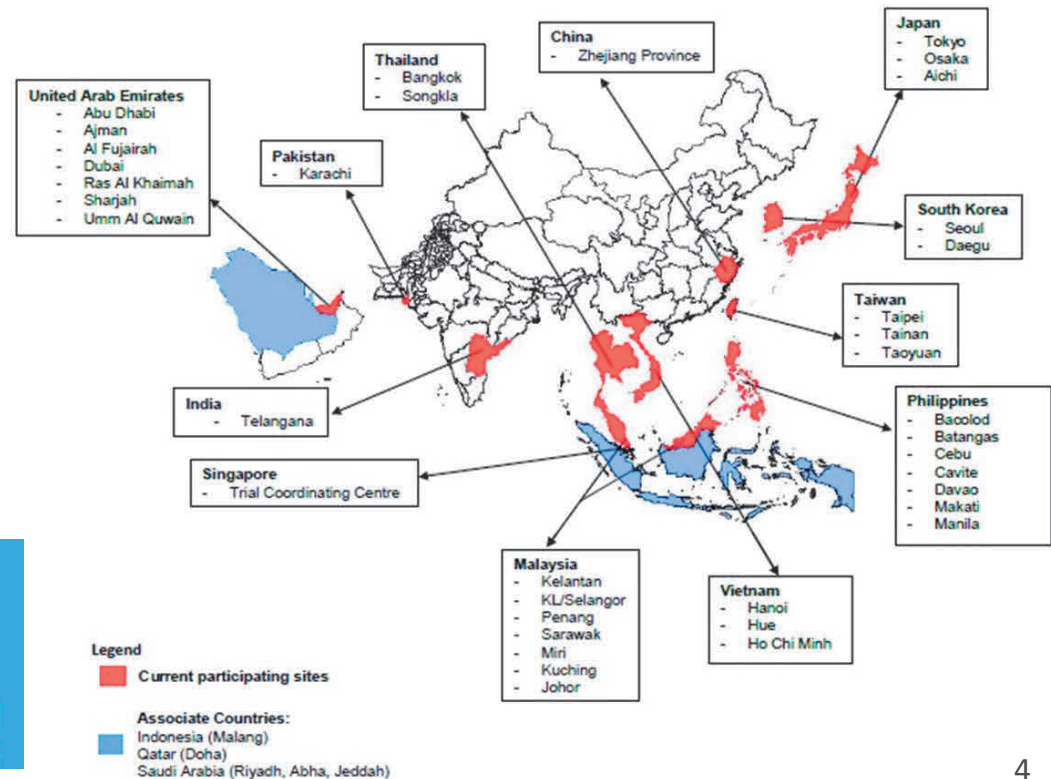


# PAROS/GRA : Development of an Assessment tool for Developing Pre-Hospital Emergency Care systems in collaboration with the GRA

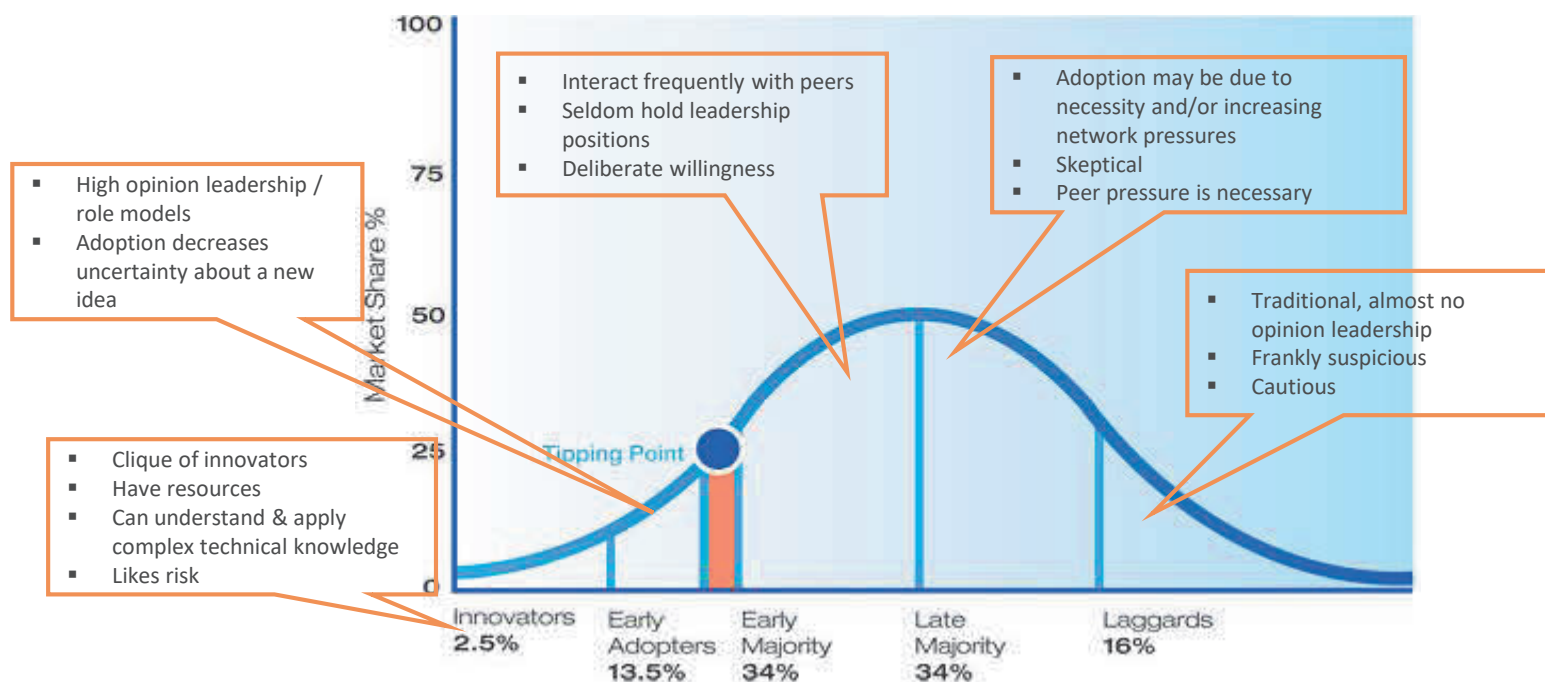
## Pan Asian Resuscitation Outcomes Study



Global Resuscitation Alliance



## Innovation adoption curve

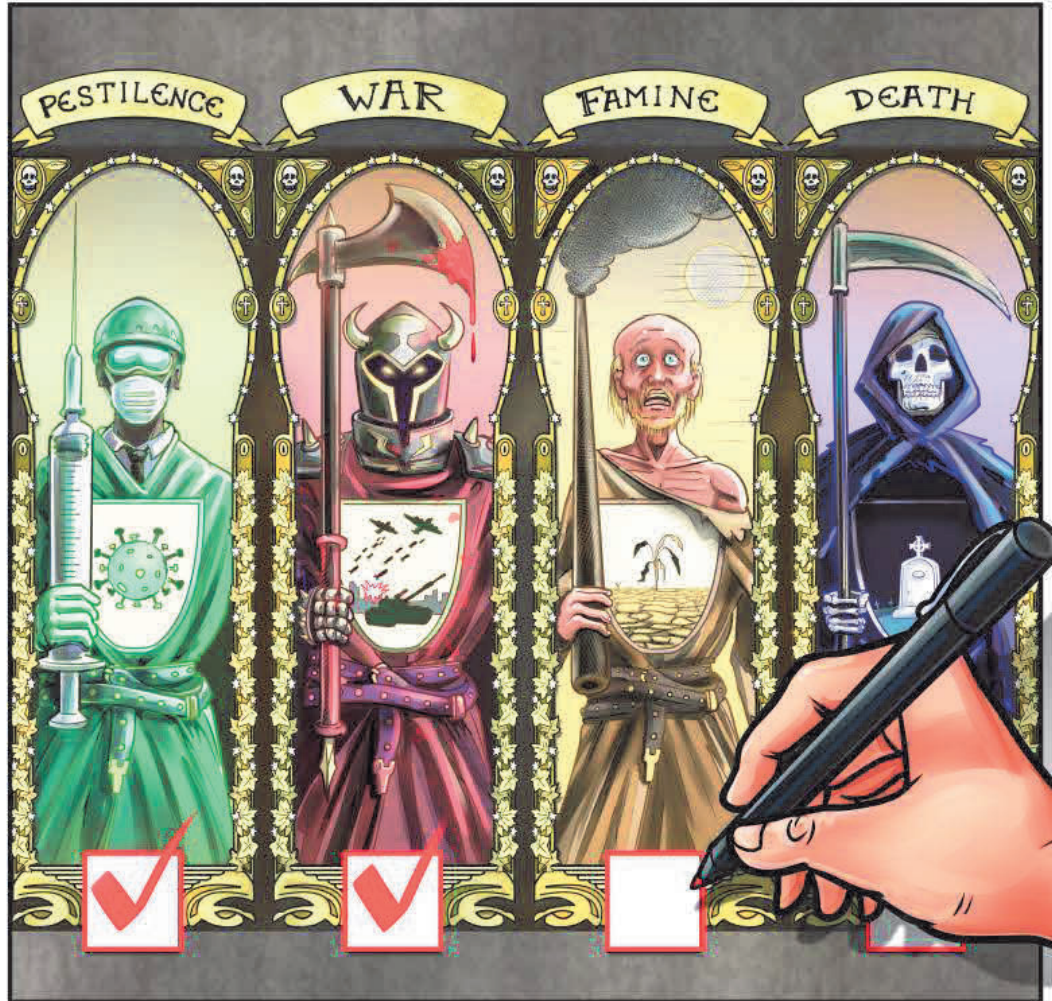


"The Law of Diffusion of Innovation" by Gavin Llewellyn is licensed with CC BY 2.0. To view a copy of this license, visit <https://creativecommons.org/licenses/by/2.0/>  
Slide adapted from Dr Asheley Skinner



# Singapore Healthcare Landscape

THE FOUR HORSEMEN OF THE APOCALYPSE

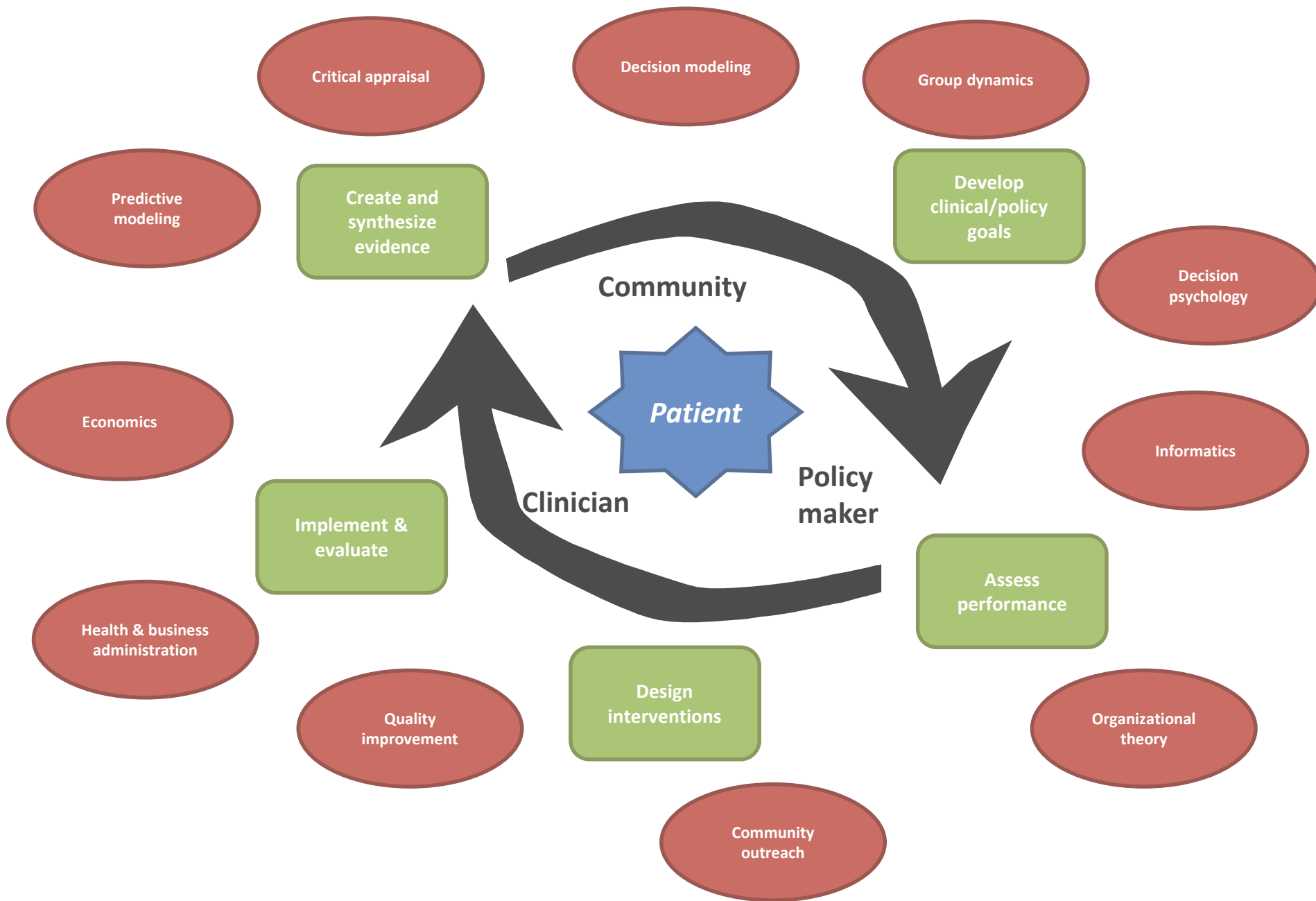


Pandemics  
Drugs

Trauma  
Mental  
health

Inequities  
Climate change

Aging  
Tsunami  
Non-communicable disease  
Infant mortality



Let's save lives together!



**Research/Data should  
drive/impact policy!**

**Pre-hospital Emergency Care**

5 Year Plan (2009 – 2014)

5 Year Plan (2018 – 2022)

**Next 5-Year Plan for Pre-hospital Emergency  
Care 2023 - 2027**

