

Programme and Abstracts Book

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Patient Monitoring

Clinical Decision Support



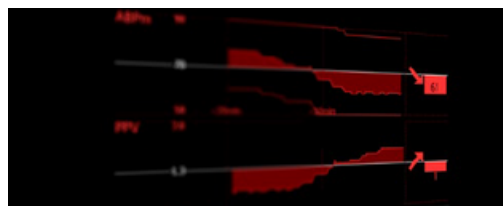
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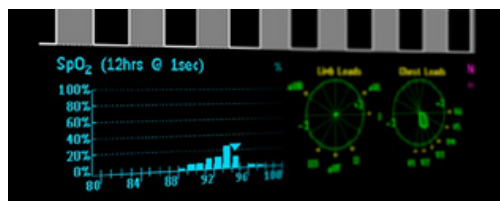
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Understand a patient's response to therapy over time



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SEMS ASM 2025 SUPPORTERS

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Welcome Message



Dr Praseetha Nair

*Chairperson,
SEMS ASM 2025*

Dear Colleagues, Friends, and Supporters,

On behalf of the organizing committee, it is a great pleasure to welcome you to the Society for Emergency Medicine (Singapore) Annual Scientific Meeting 2025 (SEMS ASM 2025).

Thanks to your incredible support, we are thrilled to meet in person once again to share knowledge, foster collaboration, and advance the field of emergency medicine.

This year's theme, EM Evolved: Breaking Barriers, Building Bridges, reflects the innovative spirit driving our profession forward. We've curated a dynamic program featuring leading experts, cutting-edge research, and hands-on workshops to inspire and challenge us all.

Thank you for your ongoing support. Your participation makes this event possible, and we encourage you to engage fully, network with peers, and make the most of this exciting opportunity.

Welcome to SEMS ASM 2025 – we're so pleased to meet all of you this year and look forward to making this a truly memorable and impactful event!

Warm regards,
Clin Assoc Prof Steven Lim Hoon Chin
President, Society for Emergency Medicine (Singapore)

Dr Praseetha Nair
Chairperson, SEMS ASM 2025



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SimMan Critical Care offers versatile and comprehensive training in critical care, respiratory care, and anesthesia practice. Built on SimMan's trusted legacy in medical simulation, SimMan Critical Care seamlessly integrates ASL 5000™ technology to replicate any patient condition, immersing current and future clinicians in lifelike scenarios that allow them to master the skills needed to manage a critically ill patient.

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PICK UP YOUR BADGE AT LEVEL 4 – REGISTRATION COUNTERS

Please note that your registration will only be considered complete if full payment for the registration fee is received. Online registration system is closed. For onsite registration, please proceed to the registration counter on level 4. We accept payment via online credit card payment or cash onsite.

Operating Hours:

Venue	Day	Date	Time
Marketplace, Level 2	Wednesday	26 February 2025	15:00 – 19:00 hours
Registration Counters at Auditorium Foyer, Level 4	Thursday	27 February 2025	07:00 – 15:30 hours
	Friday	28 February 2025	07:30 – 13:30 hours

NAME BADGE

Name badges are non-transferable and must be worn at all times. The organizer and its secretariat reserve the right to deny entry to any room without a valid name badge.

WIFI

Complimentary Wi-Fi access will be available within the Centre building at “Wireless@CHI”. The Wi-Fi will log you out every 4 hours.

SECRETARIAT OPERATING HOURS

The Secretariat Room is located at Room L2-003, Level 2, CHI.

Operating Hours:

Day	Date	Time
Wednesday	26 February 2025	15:00 – 19:00 hours
Thursday	27 February 2025	07:00 – 18:00 hours
Friday	28 February 2025	07:00 – 18:00 hours

OPENING CEREMONY

Venue : Auditorium, Level 4, CHI
 Day/ Date/ Time : Thursday, 27 February 2025, 09:00 – 10:00 hours
 (Participants are requested to be seated by 08:50 hours)
 Guest-of-Honour : Professor Kenneth Mak
Director-General of Health, Ministry of Health, Singapore
 Dress Code : Business professional

EXHIBITION & E-POSTERS

E-poster stands are located at the Marketplace, Level 2 for viewing.

The Exhibition will be located at Marketplace, Level 2, and Kampung Square, Level 4. Delegates may take the opportunity to network and exchange information.

Opening Hours of Exhibition:

Day	Date	Time
Thursday	27 February 2025	08:30 – 16:00 hours
Friday	28 February 2025	08:30 – 15:30 hours



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CATERING

Tea/coffee and lunch for delegates will be served in the Exhibition Area at the times specified in the programme.

INSURANCE

The Organisers are unable to accept any responsibility for damage or loss of personal property during the Conference and delegates are advised to ensure that such items are adequately insured.

CERTIFICATE OF ATTENDANCE

An e-Certificate will be sent via email to all delegates within two weeks after the end of the Conference. The e-Certificate will only be issued if registration is complete.

CME / CPE ACCREDITATION (SINGAPORE DELEGATES ONLY)

The SEMS ASM 2025 is recognised by the Singapore Medical Council as a Continuing Medical Education (CME) programme and the Singapore Nursing Board as a Continuing Professional Education (CPE) programme. Please ensure that your MCR/SNB/CPE number has been keyed into the Registration Portal.

All local delegates must sign up daily for their CME/CNE/CPE points at the Registration Counter on Level 4, CHI at the following times:

Day	Date	Time
Thursday	27 February 2025	13:00 - 17:30 hours
Friday	28 February 2025	10:00 – 18:00 hours

LANGUAGE

The official language of the Conference is English. English-speaking visitors will have no problems travelling throughout Singapore; all signs are in English.

ELECTRICITY SUPPLY

Singapore's electricity supply runs at 220/230V, 50Hz AC. Sockets take Type G electrical plugs. Most hotel rooms have sockets that will take 110V electric shavers, but for other appliances, visitors might need adaptors.

MEDICAL EMERGENCIES

Singapore has several excellent medical facilities, able to meet any medical emergency. As with any travel, you are advised to take out travel insurance to cover the cost of private hospital treatment.

DISCLAIMER

While every effort will be made to ensure that all aspects of the conference mentioned in this e-programme book will take place as scheduled, the Organising Committee reserves the rights to make last-minute changes should the need arise.

Please note that by attending the conference, the Organising Committee and its subsidiaries, employees, agents and personnel who are acting on behalf of Society for Emergency Medicine in Singapore reserve the rights to use any image, voice or video taken during the conference, as a whole or part, for any future events.

Our Invited Speakers

Meet Our Fantastic Speakers from Around The Globe.



Dr Hope ANG
 Tan Tock Seng Hospital,
 Singapore



Prof Franz BABL
 University of Melbourne,
 Australia



**Mr Edmund CHEONG
 Zhi Yang**
 Singapore Civil Defence Force,
 Singapore



Dr Shahridan FATHIL
 Gleneagles Hospital Johor,
 Malaysia



**Dr James Alford
 FLIPPIN**
 OSF Healthcare,
 United States



A/Prof Rick GOH
 Agency for Science, Technology
 and Research (A*STAR),
 Singapore



A/Prof Shaun GREENE
 Austin Health,
 Australia



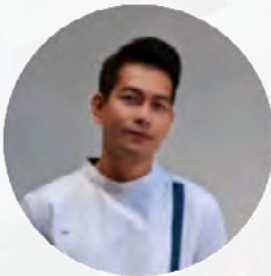
Dr Charmain HEAH
 Tan Tock Seng Hospital,
 Singapore



**Adj A/Prof HENG
 Wei Jian Kenneth**
 Tan Tock Seng Hospital,
 Singapore



Dr Alzamani IDROSE
 Hospital Kuala Lumpur,
 Malaysia



Mr Haizad IMRAN
 Institute of Mental Health,
 Singapore



Dr Stephanie KO
 National University Hospital,
 Singapore



**Dr Kelvin KUAN
 Kaibin**
 Changi General Hospital,
 Singapore



Dr Ranjeev KUMAR
 Khoo Teck Puat Hospital,
 Singapore



Dr Jean LEE
 Sengkang General Hospital,
 Singapore



Dr Patrick LEUNG
 Queen Elizabeth Hospital of
 Hong Kong, Hong Kong

SPEAKERS



Dr Andrew LI Yunkai
Woodlands Health Campus
Singapore



Dr LI Jiahui
KK Women's and Children's
Hospital, Singapore



Dr Ernest LIM
Woodlands Health Campus,
Singapore



Ms Jasmine LIM
Ng Teng Fong General Hospital,
Singapore



Dr Nicolas LIM
Woodlands Health Campus,
Singapore



Dr Nathasha LUKE
National University of Singapore,
Singapore



**Ms Haryani binte
MAHMOOD**
National University Hospital
System, Singapore



**Asst Prof Ian
MATHEWS**
National University Health
System, Singapore



Dr Raj MENON
National University Hospital,
Singapore



Prof NG Kee Chong
Changi General Hospital,
Singapore



**Clin Asst Prof
Louis NG**
DUKE-NUS Medical School,
Singapore



Dr NG Wei Xiang
Tan Tock Seng Hospital,
Singapore



Dr NG Yih Yng
Tan Tock Seng Hospital,
Singapore



**Dr NICKEL, Christian
Hans**
University Hospital Basel,
Switzerland



**Dr NORHISHAM bin
Main**
National University Health
System, Singapore



Dr Adi OSMAN
Raja Permaisuri Bainun
Hospital, Malaysia

SPEAKERS



Dr Joy QUAH Li Juan
Singapore General Hospital,
Singapore



Mr Darrell QUEK
MOH Holdings Pte Ltd,
Singapore



Ms RATNASARI Yawieriin
Khoo Teck Puat Hospital,
Singapore



Mr Brendan SHANNON
Monash University,
Australia



Dr Mohite SHARAD Arvindrao
National University Hospital,
Singapore



Prof Salvatore DI SOMMA
University "La Sapienza",
Italy



Dr Sorin TAUS FINDER
Radiometer Medical,
Spain



Dr Guadalupe Cara VIEGELMANN
KK Women's and Children's
Hospital, Singapore



Adj Asst Professor WONG Chen Seong
Tan Tock Seng Hospital,
Singapore



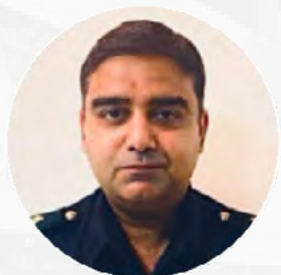
Prof YIP Chee Chew
Nanyang Technological
University, Singapore



Dr WONG Ern Yoong Christopher
Woodlands Health Campus,
Singapore



Adj Asst Professor Amanda ZAIN
NUS Yong Loo Lin School of
Medicine (NUS Medicine),
Singapore



Mr MUHAMMAD FAIZ Ajum Piperdy
Singapore Civil Defence Force,
Singapore



Mr Desmond GOH
National University Hospital,
Singapore



Dr Ling TIAH
Singapore

Sponsored Lunch Symposia Speakers



Dr KUAN Win Sen
National University Hospital,
Singapore



Dr SIM Hui Wen
National University Heart Centre,
Singapore



**Clin Asst Prof Shanaz
Matthew Sajeed**
Ng Teng Fong General Hospital
Singapore

SEMS Podcast

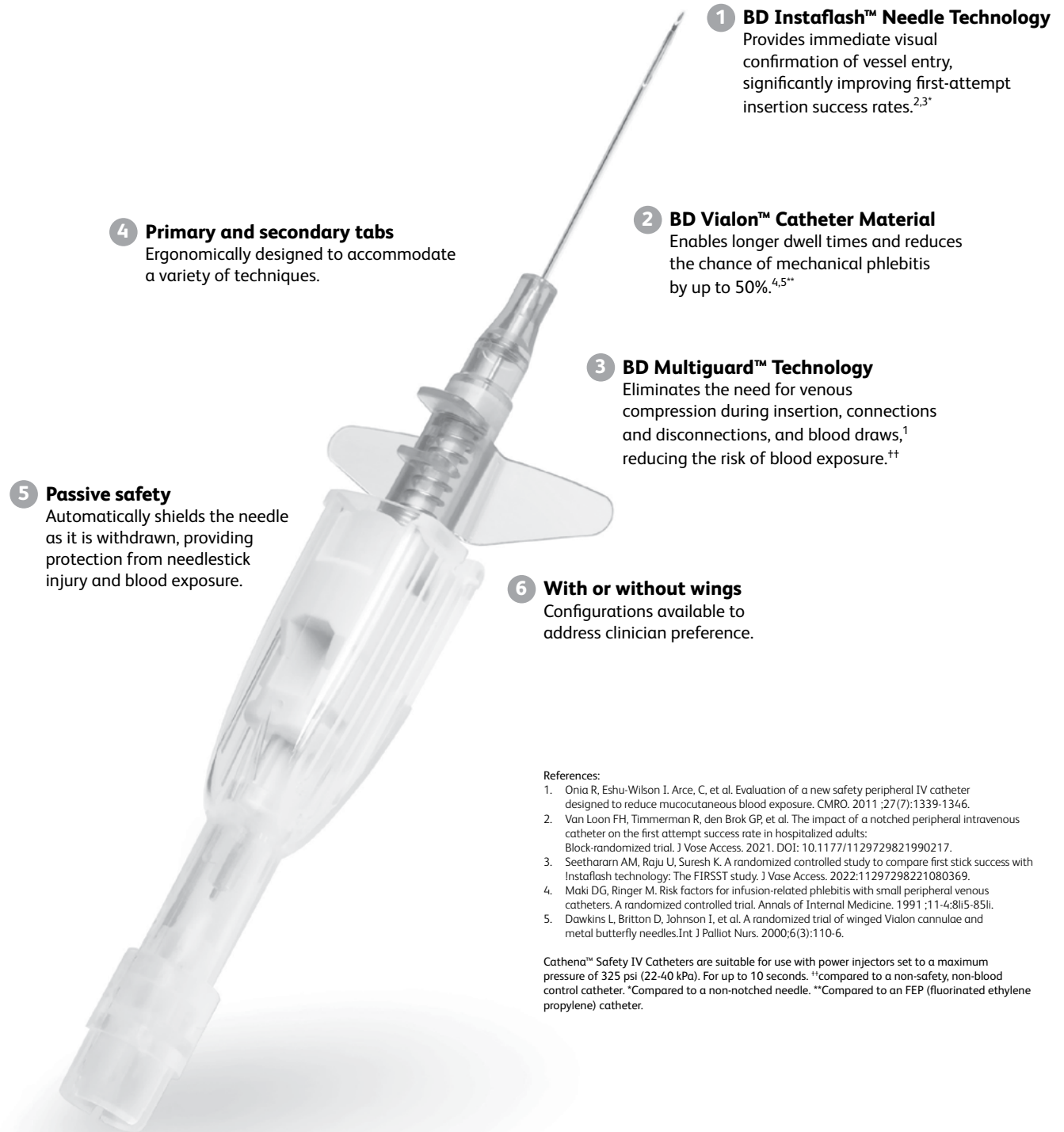
Tune in to the SEMS Podcast, our very own Singapore EM podcast, where we discuss Emergency Medicine Topics from critical care, to toxicology, to ultrasound, teaching, disaster medicine, and more! There's something for everyone!



Url: <https://semspodcast.buzzsprout.com>

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References:


1. Onia R, Eshu-Wilson I, Arce, C, et al. Evaluation of a new safety peripheral IV catheter designed to reduce mucocutaneous blood exposure. CMRO. 2011 ;27(7):1339-1346.
2. Van Loon FH, Timmerman R, den Brok GP, et al. The impact of a notched peripheral intravenous catheter on the first attempt success rate in hospitalized adults: Block-randomized trial. J Vase Access. 2021. DOI: 10.1177/1129729821990217.
3. Seetharam AM, Raju U, Suresh K. A randomized controlled study to compare first stick success with Instaflash technology: The FIRSST study. J Vase Access. 2022;11297298221080369.
4. Maki DG, Ringer M. Risk factors for infusion-related phlebitis with small peripheral venous catheters. A randomized controlled trial. Annals of Internal Medicine. 1991 ;114:845-851.
5. Dawkins L, Britton D, Johnson I, et al. A randomized trial of winged Vialon cannulae and metal butterfly needles. Int J Palliat Nurs. 2000;6(3):110-6.

Cathena™ Safety IV Catheters are suitable for use with power injectors set to a maximum pressure of 325 psi (22-40 kPa). For up to 10 seconds. ^{††}compared to a non-safety, non-blood control catheter. ^{*}Compared to a non-notched needle. ^{**}Compared to an FEP (fluorinated ethylene propylene) catheter.


DAY 1: 27 FEBRUARY 2025 (THURSDAY)

0700	Registration		
0800	Playback of Medical Students SIMWars		
0845	Intermission		
0900	Guest of Honour Arrival / Opening Ceremony		
0910	SEMS President Address		
0920	Guest of Honour Address		
0930	Prize Presentation Presentation for Joy@Work Award		
0945	Tea Break		
1015	Plenary Lecture 1: Biomarkers for Management of Acute Cardiac Diseases in Emergency Room Prof Salvatore Di SOMMA Sapienza University of Rome, Italy		
1100	Track 1 @ CHI Auditorium	Track 2 @ CHI Hall 2	Track 3 @ CHI Hall 1
	Critical Care Resuscitation	Infectious Disease	Paediatric Medicine
	Is There a Role for Bronchoscopy In ED? Dr Alzamani IDROSE Hospital Kuala Lumpur, Malaysia TEE in the Emergency Department, is it the Future or Hopeless? Dr Adi OSMAN Raja Permaisuri Bainun Hospital, Malaysia Ultrasound Assessment of Airway Dr Shahridan FATHIL Gleneagles Hospital Johor, Malaysia	Climate Change and its Impact on Infectious Diseases in Asia Adj Asst Prof Amanda ZAIN NUS Yong Loo Lin School of Medicine (NUS Medicine), Singapore CAPE: An AI Tool to Predict Pneumonia Severity Dr Joy QUAH Li Juan Singapore General Hospital, Singapore More Than Meets the Eye: Infectious Diseases in the Substance Abuse Patient Adj Asst Prof WONG Chen Seong Tan Tock Seng Hospital, Singapore	Imaging Rules in Pediatric Trauma - Evidence from the Pediatric Emergency Research Networks (PERN) Prof Franz BABL University of Melbourne, Australia POC Testing In Paediatric Emergency & Our Influenza POCT Experience Dr Mohite SHARAD Arvindrao National University Hospital, Singapore Use of Antibiotics in the Paediatric Emergency Setting Dr LI Jiahui KK Women's and Children's Hospital, Singapore Simplifying the Complex: Managing Children with Medical Complexity in the ED Dr Guadalupe Cara VIEGELMANN KK Women's and Children's Hospital, Singapore

DAY 1: 27 FEBRUARY 2025 (THURSDAY)

	Track 1 @ CHI Auditorium	Track 2 @ CHI Hall 2	Track 3 @ CHI Hall 1
1245		AstraZeneca  Sponsored Lunch Symposium	
	Lunch / e-Poster Display / Exhibition @ CHI Marketplace, Level 2 and Kampung Square, Level 4		
1345	Plenary Lecture 2: Taking the Road Less Travelled in Emergency Medicine Dr NG Yih Yng <i>Tan Tock Seng Hospital, Singapore</i>		
1430	Plenary Lecture 3: Geriatric Emergency Medicine: What I've Learnt in the Last 15 Years Prof NICKEL, Christian Hans <i>University Hospital Basel, Switzerland</i>		
1515	Tea Break		
	Track 1 @ CHI Auditorium	Track 2 @ CHI Hall 2	Track 3 @ CHI Hall 1
	Disaster Medicine / MCI	Geriatric Emergency Medicine	Emergency Toxicology
1545	The WHO Singapore Emergency Medical Team (SGEMT) - An 18 Month Journey Prof NG Kee Chong <i>Changi General Hospital, Singapore</i> Humanitarian Mission Experience Dr Joy QUAH Li Juan <i>Singapore General Hospital, Singapore</i> Dr TIAH Ling <i>Singapore</i> The American Experience in Managing Trauma Related MCI Dr James Alford FLIPPIN <i>OSF Healthcare, United States</i>	Delirium 3.0 Prof NICKEL, Christian Hans <i>University Hospital Basel, Switzerland</i> Geriatric Emergencies - Care Beyond ED Dr Ranjeev KUMAR <i>Khoo Teck Puat Hospital, Singapore</i> Development of GEM Service in HK Dr Patrick LEUNG <i>Queen Elizabeth Hospital of Hong Kong, Hong Kong</i>	The Poisoned Heart - Updates in the Management of Drug-Induced Cardiac Arrhythmias A/Prof Shaun GREENE <i>Austin Health, Australia</i> From Sweet Clovers to the "X-Games": Anticoagulant-Related Bleeding Emergency Updates Dr Alzamani IDROSE <i>Hospital Kuala Lumpur, Malaysia</i> Alcohol Withdrawal - Beyond Benzos Dr Kelvin KUAN Kaibin <i>Changi General Hospital, Singapore</i>
1730	End of Day 1		


DAY 2: 28 FEBRUARY 2025 (FRIDAY)

0730	Registration		
0800	SIMWars Finals – Pre-Hospital		
0900	Plenary Lecture 4: Emergency Medicine and the Law: Know Your Risks Dr Charmain HEAH Tan Tock Seng Hospital, Singapore		
0945	Tea Break		
1015	Track 1 @ CHI Auditorium	Track 2 @ CHI Hall 2	Track 3 @ CHI Hall 1
	Medicolegal / Ethics	Emergency Ultrasound / Cardiology	Emergency Nursing
	Mediation as a Means of Conflict Resolution Mr Darrell QUEK MOH Holdings Pte Ltd, Singapore Approach to Ethical Dilemmas for Busy Clinicians Dr NORHISHAM bin Main National University Health System, Singapore Prealanalytical Implications in Blood Gas Testing Dr Sorin Taus FINDER Radiometer Medical, Spain Supported by 	Biomarkers for Management of Acute Cardiac Diseases in Emergency Room Prof Salvatore Di SOMMA Sapienza University of Rome, Italy Right Heart Failure, Prognosis and MX in ED (Ultrasound) Dr Nicolas LIM Woodlands Health Campus, Singapore Regional Blocks and Pain Modalities in the ED Dr Hope ANG Tan Tock Seng Hospital, Singapore Q&A with Demonstration Dr Ernest LIM Woodlands Health Campus, Singapore	Breaking Barriers, Transcending Nursing Quality Beyond A&E Ms RATNASARI Yawieriin Khoo Teck Puat Hospital, Singapore Sepsis Journey in Ng Teng Fong General Hospital Emergency Department Ms Jasmine LIM Ng Teng Fong General Hospital, Singapore Role of a MCT (Mobile Crisis Team) Nurse Mr Haizad IMRAN Institute of Mental Health, Singapore Redefining Boundaries: The Role of Advanced Practice Nurse in Modern Emergency Medicine Mr Desmond GOH National University Hospital, Singapore
		Baxter	Oral Presentation Competition
	Sponsored Lunch Symposium Lunch / e-Poster Display / Exhibition @ CHI Marketplace, Level 2 and Kampung Square, Level 4		

DAY 2: 28 FEBRUARY 2025 (FRIDAY)

	Track 1 @ CHI Auditorium	Track 2 @ CHI Hall 2	Track 3 @ CHI Hall 1
	Emergency Trauma	Pre-Hospital	Taiwan-HK SGP Residents' Forum
1300	<p>Thump, Pump or Epi? Updates on Approach to Traumatic Cardiac Arrest Dr Raj MENON <i>National University Hospital, Singapore</i></p> <p>Trauma Training: Virtual Reality - Is This The New Reality for New Generation Clinicians? Dr NG Wei Xiang <i>Tan Tock Seng Hospital, Singapore</i></p> <p>Massive Transfusion Protocols in Trauma Resuscitation: Drowning in Blood or Saving Lives? Asst Prof Louis NG <i>DUKE-NUS Medical School, Singapore</i></p>	<p>23 Minutes: The Fight for a Life (Saving a Dear Friend) Dr WONG Ern Yoong Christopher <i>Woodlands Health Campus, Singapore</i> Adj A/Prof HENG Wei Jian Kenneth <i>Tan Tock Seng Hospital, Singapore</i></p> <p>Community Paramedicine as a Collaborative Emergency Response Model Mr Brendan SHANNON <i>Monash University, Australia</i></p> <p>Enabling and Empowering the Community Towards a Nation of Lifesavers Mr Edmund CHEONG Zhi Yang <i>Singapore Civil Defence Force, Singapore</i></p> <p>Uniting EMS Professionals, Advancing Prehospital Care: Introducing the Paramedic Society of Singapore Mr MUHAMMAD FAIZ Ajum Piperdy <i>Singapore Civil Defence Force, Singapore</i></p>	<p>End of Life Care in ED – Tales from 3 Countries Dr Tsz-Kiu CHAN <i>Queen Elizabeth Hospital, Hong Kong</i></p> <p>Dr Hsin-Yu HSIEH <i>Chi Mei Medical Center, Taiwan</i></p> <p>Dr Zhe Wei Leon TAN <i>MOH Holdings Pte Ltd, Singapore</i></p>
1445	Tea Break		

DAY 2: 28 FEBRUARY 2025 (FRIDAY)

	Track 1 @ CHI Auditorium	Track 2 @ CHI Hall 2	Track 3 @ CHI Hall 1
	Medical Informatics / Innovation	Community Engagement and Outreach	Medical Education
1515	Telemedicine for early discharge from ED Prof Salvatore Di SOMMA <i>Sapienza University of Rome, Italy</i> Smart Tech, Faster Care: The Role of AI in Advancing Healthcare Dr Rick GOH <i>Agency for Science, Technology and Research (A*STAR), Singapore</i> Equal Bytes of the Global Health Pie: Digital Innovation to Reduce Health Inequity Asst Prof Ian MATHEWS <i>National University Hospital, Singapore</i>	Could the Future of Inpatient Admissions From ED be to the Home? Dr Stephanie KO <i>National University Hospital, Singapore</i> EAGLECare Program Dr Jean LEE <i>Sengkang General Hospital, Singapore</i> ED Asthma – The Ins and Outs Dr Andrew LI <i>Woodlands Health Campus, Singapore</i> Supported by 	Breaking Barriers in Using AI for Education Dr Nathasha LUKE <i>National University of Singapore, Singapore</i> Breaking Barriers in Instructional Design Prof Chee Chew YIP <i>Nanyang Technological University, Singapore</i> Breaking Professional Barriers in Education Ms HARYANI Binte Mahmood <i>National University Hospital, Singapore</i>
1700	SIMWars Finals – Inter-Hospital		
1745	SCDF myResponder App Video		
1800	Prize Giving Ceremony		

ABOUT

ARIS Integrated Medical is a medical company that integrates training, services and products that are relevant to our valued clients who are challenged constantly by uncertainties such as disasters and emergencies.

These could range from trauma care, pandemics to cardiac arrests; hence it is vital that we are involved in overcoming such adversities with our clients.

Aris Integrated Medical has provided emergency medical devices and training to Government agencies, Major Hospitals and MNC's where emergency medical response is vital to the outcomes of patients or casualties. We pride ourselves in providing these seamless services to our clients.

Government agencies have also engaged ARIS Integrated Medical in the provision of Tactical and Operational Medical Support to further enhance operational capabilities.

ARIS
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ASTRAZENECA SPONSORED LUNCH SYMPOSIUM



Date: Day 1, 27 February 2025 (Thursday)
Time: 1245 – 1345 Hours
Venue: CHI, Hall 2, Level 2

1st Title of Talk:

Transforming Hyperkalemia Care: Practical Insights on Innovative Potassium Binders

Dr KUAN Win Sen

National University Hospital, Singapore

Time: 1245 – 1315 Hours

2nd Title of Talk:

Heart to the Rescue: Beating the Clock in Acute Coronary Syndrome Management

Dr SIM Hui Wen

National University Heart Centre, Singapore

Time: 1315 – 1345 Hours

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MART, maintenance and reliever therapy; SABA, short-acting β_2 -agonist.

REFERENCES

1. O'Byrne PM et al. N Engl J Med. 2018;378(20):1865–1876.
2. Singapore Symbicort® Turbuhaler 80/4.5 mcg, 160/4.5 mcg & 320/9 mcg. Prescribing Information. Please scan QR code for the latest version.
3. Singapore Symbicort® Rapihaler 80/2.25 mcg, 80/4.5 mcg, 160/4.5 mcg. Prescribing Information. Date of revision, August 2022 08/BB/SG/Doc ID-000202441 V15.0.
4. Crossingham I et al. Cochrane Database Syst Rev. 2021;5(5):CD013518.
5. Sobieraj DM et al. JAMA. 2018;319(14):1485–1496.

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 Full Prescribing
 Information



AstraZeneca


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BAXTER SPONSORED LUNCH SYMPOSIUM

Baxter

Date: Day 2, 28 February 2025 (Friday)
Time: 1200 – 1300Hours
Venue: CHI, Hall 2, Level 2

Title of Talk:

Dynamic Assessment of Fluid Responsiveness in Critical Care

Clin Asst Prof Shanaz Matthew Sajeed

Ng Teng Fong General Hospital, Singapore

Baxter

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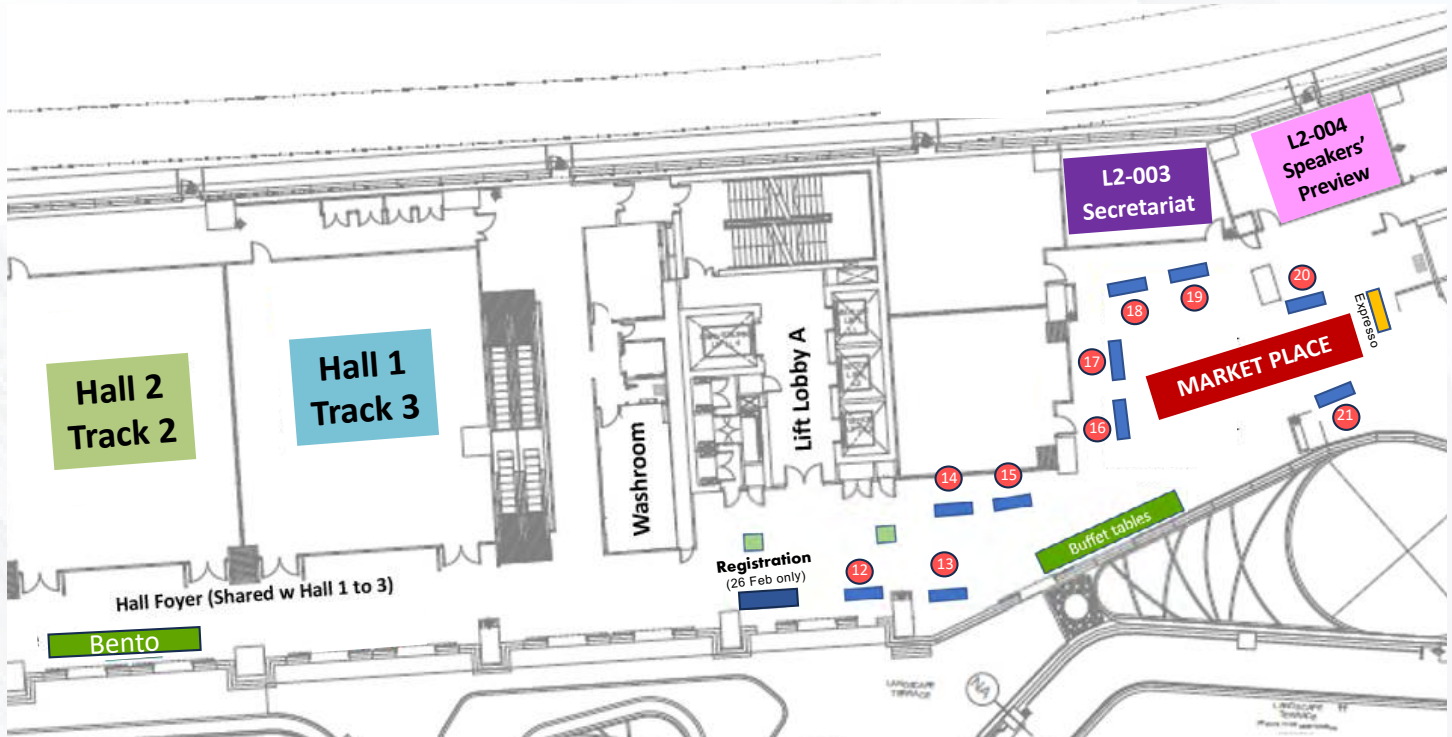
References: 1. Squara P, Denjean D, Estagnasie P, et al. Noninvasive cardiac output monitoring (NICOM): A clinical validation. *Intensive Care Med*. 2007;33(7):1191–1194. 2. Squara P, Rotcajg D, Denjean D, et al. Comparison of Monitoring performance of Bioreactance vs Pulse Contour during Lung Recruitment Maneuvers. *Crit. Care*. 2009;13:R125. 3. Marik PE, Levitov A, Young A, et al. The use of bioreactance and carotid Doppler to determine volume responsiveness and blood flow redistribution following passive leg raising in hemodynamically unstable patients. *Chest*. 2013;143(2):364–370. 4. Berlin DA, et al. Agreement of bioreactance cardiac output monitoring with thermodilution during hemorrhagic shock and resuscitation in adult swine. *Crit Care Med*. 2017;45(2):195–201. 5. Duus N, Shogilev D, Skibsted S, et al. The reliability and validity of passive leg raise and fluid bolus to assess fluid responsiveness in spontaneously breathing emergency department patients. *J Crit Care*. 2015;30(1):217.e1–217.e5. 6. Raval NY, Squara P, Clemen M, et al. Multicenter evaluation of noninvasive cardiac output measurement by bioreactance technique. *J Clin Monit Comput*. 2008;22(2):113–119. 7. Arora V, et al. Effect of Normal Saline versus PlasmaLyte on Coagulation and Metabolic Status in Patients Undergoing Neurosurgical Procedures. *Asian J Neurosurg*. 2023 Jun 7;18(2):301–305. 8. Plasma-Lyte® A PL-07-19-68-963 [Rev. September 2013] 9. Powell-Tuck J, Gosling P, Lobo DL, et al. British Consensus Guidelines on Intravenous Fluid Therapy for Adult Surgical Patients (GIFTASUP) March 2011 10. Kratz A, Ferraro M, Sluss PM, Lewandrowski KB. Laboratory Reference Values. *N Engl J Med*. 2004; 351:1548–63 11. Shin, W-J et al. "Lactate and liver function tests after living donor right hepatectomy: a comparison of solutions with and without lactate," *Acta Anaesthesiologica Scandinavica* vol. 55,5 (2011): 558–64


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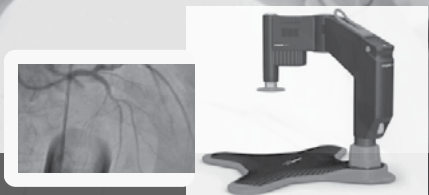


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Aris Integrated Medical	5	Level 4
AstraZeneca	16	Level 2
Baxter Healthcare	15	Level 2
Becton Dickinson Holdings (BD)	2	Level 4
B Braun	6	Level 4
EO Medical	4	Level 4
Equip Medical	19	Level 2
Fortuna Scientific	8	Level 4
Laerdal	3	Level 4
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Molnlycke Health Care	18	Level 2
Nihon Kohden Singapore	20	Level 2
Philips	1	Level 4
Radiometer	21	Level 2
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Siemens Healthineers	12	Level 2
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Exhibition Areas:

MarketPlace, CHI Level 2

- Exhibition Table-Top Space: From 12 to 21
- Espresso Booth – Near Table-Top 20

Kampung Square, CHI Level 4

- Exhibition Table-Top Space: From 1 to 9
- Ice Cream & Popcorn Stand
(Located between Table-top 2 and 3)


ORAL PRESENTATION COMPETITION

Day 2, Friday, 28 February 2025 (Time: 1200hrs)

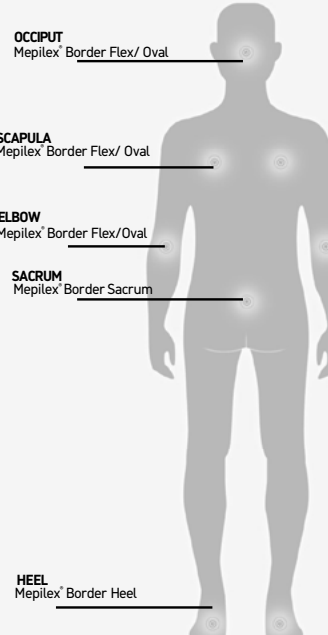
Location: Track 3, Oral Presentation Competition, CHI Hall 1, Level 2

Abstract No	Title	Detail
15687	Evaluation of a pilot nurse-led telephone triage service in Singapore (NurseFirst) using the RE-AIM Framework	Vikram Manian <i>Woodlands Health Campus Singapore</i>
15701	Efficacy of Targeted Temperature Management started in the Emergency Department using CarbonCool: a single-centre retrospective study	Xuan Hao Tan <i>Tan Tock Seng Hospital Singapore</i>
15703	Impact of the myResponder smartphone application on the provision of bystander cardiopulmonary resuscitation (CPR) for Out-of-Hospital Cardiac Arrest (OHCA) Cases in Singapore	Haruka Takahashi <i>Duke-NUS Medical School Singapore</i>
15717	World's First Paramedic Kiosk	Hasmizah binte Hamzah <i>National Healthcare Group ASAP, Singapore</i>

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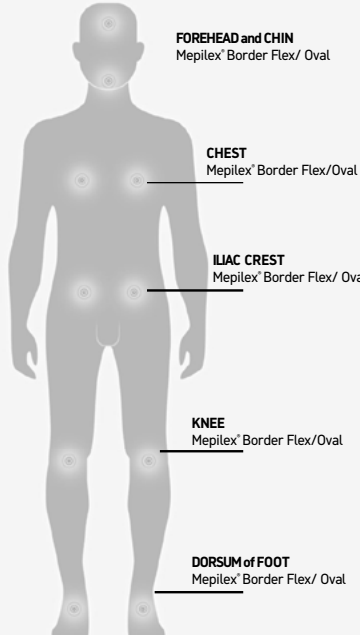
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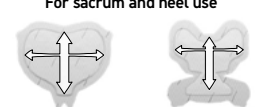
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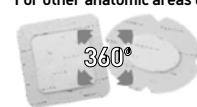


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References: 1. Levy A, Gefen A. Assessment of the biomechanical effects of prophylactic sacral dressings on tissue loads: A computational modelling analysis. *Ostomy Wound Management* 2017;63(10):48-55. 2. Levy A, Frank B M, Gefen A. The biomechanical efficacy of dressings in preventing heel ulcers. *Journal of Tissue Viability* 2015. Available from: doi: 10.1016/j.jtv.2015.01.001. Epub 2015 Jan 19. 3. Mölnlycke Health Care. Mepilex[®] Border Flex Product Manual - Conformability. 4. Mölnlycke Health Care. Mepilex[®] Border Flex - External data - FEM simulations. Report no. PD-529747. Data on file PD-528870. 5. Boesch RP, Myers C, Garrett T, Nie A, Thomas N, Chima A, McPhail GL, Edrick M, Rutter MJ, Dressman K. Prevention of tracheostomy-related pressure ulcers in children. *Pediatrics*. 2012 Mar;129(3):e792-7. 6. Peiko Cohen L, Ovadia-Blechman Z, Hoffer O, Gefen A. Dressings cut to shape alleviate facial tissue loads while using an oxygen mask. *Int Wound J*. 2019 Jun;16(3):813-826.

E-POSTER DISPLAY

Day 1, Thursday, 27 February 2025 (Time: 1245hrs)

Day 2, Friday, 28 February 2025 (Time: 1200hrs)

Location: CHI Marketplace, Level 2

Abstract No	Title	Detail
15688	The Price of Beauty - a Case of Iatrogenic Botulism	Shen Yong Nigel Andrew Leong Tan Tock Seng Hospital Singapore
15689	Penetration Safety margin of TASER 10 Conducted Electrical Weapon (CEW) Darts	Jeffrey Ho University of Minnesota Medical School, United States
15690	Retrospective Analysis of Chest Pain Patients from Emergency Department with less than 24 hours of inpatient admission	Pamela Isa Basilio-Razon Singapore General Hospital Singapore
15691	Interprofessional Education in Emergency Nursing: Enhancing Collaboration for Improved Patient Outcomes	Siti Nasriah Yusri Sengkang General Hospital Singapore

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Day 1, Thursday, 27 February 2025 (Time: 1245hrs)

Day 2, Friday, 28 February 2025 (Time: 1200hrs)

Location: CHI Marketplace, Level 2

Abstract No	Title	Detail
15692	Visceral Arterial Pseudoaneurysms - A Clinical Review	Ashita Sule National University of Singapore Singapore
15693	The association between mode of transport and out-of-hospital cardiac arrest outcomes in developing countries	Nicole Ang Lee Kong Chian School of Medicine Singapore
15694	A case report: Haemorrhagic cyst masquerading as an atraumatic morel lavelle lesion	Melanie Roy Tan Tock Seng Hospital Singapore
15695	An Educational Observational Study on How Patient Care Assistants Improve Triage in a Nurse-Led Emergency Department	Siti Nasriah Yusri Sengkang General Hospital Singapore

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E-POSTER DISPLAY

Day 1, Thursday, 27 February 2025 (Time: 1245hrs)

Day 2, Friday, 28 February 2025 (Time: 1200hrs)

Location: CHI Marketplace, Level 2

Abstract No	Title	Detail
15696	Communication Style Among Emergency Department Junior Doctors	Sze Joo Juan <i>Ng Teng Fong General Hospital Singapore</i>
15697	Simulation Training and Self-Regulated Learning for Emergency Nurses in Paediatric Emergencies	Siti Nasriah Yusri <i>Sengkang General Hospital Singapore</i>
15698	Trends of Dermatological Admissions at the Singapore General Hospital Emergency Department- A Comparative Study from 2018 to 2021 during the Covid Pandemic.	Ba Loc Nguyen <i>Duke-NUS Medical School Singapore</i>
15702	Use of high flow nasal oxygenation in rapid sequence intubation among emergency patients with cardiorespiratory compromise	Mui Teng Chua <i>National University Hospital Singapore</i>



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Day 1, Thursday, 27 February 2025 (Time: 1245hrs)

Day 2, Friday, 28 February 2025 (Time: 1200hrs)

Location: CHI Marketplace, Level 2

Abstract No	Title	Detail
15704	Association between a country's income level and neurological outcomes after an out-of-hospital cardiac arrest in the Asia-Pacific region.	Kexin Fang Duke-NUS Medical School Singapore
15705	The Role of Trauma Data Registry Coordinators in Trauma Activation In-Situ Simulation Drills: Experience from Ng Teng Fong General Hospital, Emergency Department	Tse Ling Tan Ng Teng Fong General Hospital Singapore
15706	Central Venous Administration of Epinephrine in Out-of-Hospital Cardiac Arrest: A Propensity-Matched Analysis	Kiwook Kim Uijeongbu St. Mary's Hospital Korea, Rep.
15707	Effect of bystander CPR with and without dispatcher assistance on survival outcomes in Paediatric Out-of-Hospital Cardiac Arrest (OHCA)	Shermaine Tse En Sim Lee Kong Chian School of Medicine Singapore
15708	Clinico-Socio Economic Profile of Pediatric Patients Admitted for Severe Dengue in Philippine Children's Medical Center from 2018 - 2023	Cynthia Gayon-Espino Philippine Children's Medical Center Philippines
15709	Immersive Combat Medical Training	Mohd Hanafi SAF Medical Training Institute Singapore Armed Forces Singapore
15711	Managing a Case of Mixed Drug Overdose with Vasoplegic Shock	Sherilyn Seah Sengkang General Hospital Singapore
15713	Applicability Of Emergency Department Overcrowding Measurement Tools: A Scoping Review	Jingxiang Pan Duke-NUS Medical School Singapore
15714	Education with Virtual Reality in Emergency Medicine and Prehospital Training	Shiu Yuen Man Tan Tock Seng Hospital Singapore
15715	The resilience of nurses who respond to natural disasters: Findings from an integrative literature review	Joelle Lien Li Yap Curtin University Australia
15716	Effectiveness of an Online Palliative Care Course for Nurses in Emergency Department	Sufang Liang National University Hospital Singapore
15718	Preventing Duplicate Medication Errors between Pre-Hospital & ED	Mui Choo Yvonne Tan National Healthcare Group ASAP Singapore

E-POSTER DISPLAY

Day 1, Thursday, 27 February 2025 (Time: 1245hrs)

Day 2, Friday, 28 February 2025 (Time: 1200hrs)

Location: CHI Marketplace, Level 2

Abstract No	Title	Detail
15719	A case report on acupuncture-induced hemopericardium with successful conservative treatment	Shih Min Amanda Ong <i>Tan Tock Seng Hospital Singapore</i>
15720	Compassionate Discharge from the Emergency Department: A Collaborative Project by National University Hospital Emergency Department and HCA Hospice	Isrin Farhana Anwardeen <i>National University Hospital Singapore</i>
15721	Traumatic Anterior Sternoclavicular Joint Injuries – Recognition and Management	Joseph Wong Say Wei <i>Tan Tock Seng Hospital Singapore</i>
15722	Cardiopulmonary resuscitation-induced consciousness: A Rare Pre-Hospital Case in Singapore	Joseph Lee <i>Singapore Civil Defence Force (SCDF) Singapore</i>
15723	The Silent Bleed: Prehospital Management of a Trauma Patient with Hidden Intra-Abdominal Haemorrhage and Tachycardia	Shahid Ahmad Bin Mohamed <i>Singapore Civil Defence Force (SCDF) Singapore</i>
15724	Have Body-Worn Cameras Reduced the Incidence of Paramedic Abuse?	Kenneth Foong <i>Singapore Civil Defence Force (SCDF) Singapore</i>
15725	Optimising Prehospital Care for Postpartum Haemorrhage	Gina Lim <i>Singapore Civil Defence Force (SCDF) Singapore</i>
15726	Systematic Review on the Use of End-Tidal Carbon Dioxide Monitoring in Prehospital Settings	Muhammad Hariz Bin Abu Hassan <i>Singapore Civil Defence Force (SCDF) Singapore</i>
15727	Wash Timings for Effective Chemical Decontamination	David Teng <i>Tan Tock Seng Hospital Singapore</i>
15728	Case report: Delayed presentation of a massive lung empyema post blunt chest wall trauma	Xuan Hao Tan <i>Khoo Teck Puat Hospital Singapore</i>
15729	A Systematic Review on the Use of Intramuscular Adrenaline in Out-of-Hospital Cardiac Arrest (OHCA) Patients.	Elise Leo <i>Singapore Civil Defence Force (SCDF) Singapore</i>



E-POSTER DISPLAY

Day 1, Thursday, 27 February 2025 (Time: 1245hrs)

Day 2, Friday, 28 February 2025 (Time: 1200hrs)


Location: CHI Marketplace, Level 2

Abstract No	Title	Detail
15730	Effect of tranexamic acid on wound healing in patients with burns and associated systemic inflammatory response syndrome: A scoping review	James Xavier Dooley <i>Monash University Australia</i>
15731	"Giddiness" - A Great Deceiver	Kenneth Foong <i>Singapore Civil Defence Force (SCDF) Singapore</i>
15732	When the Infection Descends - From Supraglottitis to Mediastinitis	Anissa Lye <i>Tan Tock Seng Hospital Singapore</i>

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SEMS ASM 2025

Topic: Original Research in Emergency Medicine
Abstract No: 15687

Evaluation of a pilot nurse-led telephone triage service in Singapore (NurseFirst) using the RE-AIM Framework

Vikram Manian^{*1 2}

¹Department of Emergency Medicine/ Woodlands Health/ Singapore, ²Saw Swee Hock School of Public Health/ National University of Singapore/ Singapore

Content

Crowding in Emergency Departments (EDs) due to inappropriate attendances compromises quality of care. NurseFirst, a pilot telephone triage service in Singapore, aims to address this by directing patients to the most appropriate care setting. This study evaluates NurseFirst using the RE-AIM framework, assessing its Reach, Effectiveness, Adoption, Implementation, and Maintenance. Data from NurseFirst's internal database (n=6104), government databases, and a telephone survey (n=50) were analysed. Results reveal a growing user base, particularly among older adults and those unsure of the appropriate care setting. The service effectively redirected users with lower acuity conditions who were unsure of the appropriate site to non-emergency services, although data limitations precluded any conclusive effect on nationally monitored rates of inappropriate ED attendances. Adoption of the service had also spread beyond the zones of the administering healthcare cluster. While users generally adhered to recommendations from NurseFirst triage, top reasons for non-adherence were concerns about wait times and cost at the recommended site. The service enjoys high user satisfaction, trust, willingness to use the service again and willingness to recommend to others. Limitations of this study include the lack of official data on inappropriate ED attendances and the telephone survey's small sample size and potential biases. In conclusion, NurseFirst has demonstrated that it effectively directs undecided users to appropriate care settings, hence playing an important public health role in right-siting care. Further research is needed to demonstrate a concrete impact on ED utilisation and cost-effectiveness. Addressing user concerns about wait times and costs at recommended sites and potential under-triage can further improve the service.

Keywords: triage; right-siting; inappropriate attendance

Topic: Original Research in Emergency Medicine
Abstract No: 15701

Efficacy of Targeted Temperature Management started in the Emergency Department using CarbonCool: a single-centre retrospective study

XUAN HAO TAN¹ ; LWIN MAUNG OO¹ ; WEI XIANG NG¹ ; JOO HOR TAN² ; YEW WOON CHIA² ; YONG JIN, DANIEL QUEK¹

¹*Emergency Department/ Tan Tock Seng Hospital/ Singapore* ²*Cardiology Department/Intensive Care Unit/ Tan Tock Seng Hospital/ Singapore*

Content

Introduction

Targeted Temperature Management (TTM) is recommended in post-cardiac arrest care to improve neurological outcomes. Various cooling methods exist, including surface and intravascular cooling. This study assesses the efficacy and safety of a portable surface cooling vest (CarbonCool), for TTM in the Emergency Department (ED) at Tan Tock Seng Hospital (TTSH).

Methods

A single-center retrospective study was conducted on out-of-hospital cardiac arrest (OHCA) patients presenting to TTSH ED from January 2019 to August 2024, where CarbonCool was applied to initiate TTM.

Results

Among 97 patients, the mean cooling rate was $-0.9^{\circ}\text{C}/\text{hour}$ (SD 1.2). At TTM initiation, 46.4% had an initial temperature $\leq 36.0^{\circ}\text{C}$, and 87.6% achieved at least normothermia ($\leq 36.0^{\circ}\text{C}$) upon ICU arrival. Hypothermia ($\leq 34.0^{\circ}\text{C}$) was attained in 29.9%, and overshoot hypothermia ($\leq 32.0^{\circ}\text{C}$) occurred in 8.2%. There was one case of mild skin erythema. Survival rates were 36.1% at 30 days and 27.8% at 180 days. Among survivors, 71.4% had a Cerebral Performance Category (CPC) score of 1 at discharge.

Discussion

The mean cooling rate was lower than the manufacturer's claim of $-3.3^{\circ}\text{C}/\text{hour}$, potentially due to real-world challenges: difficulties in pad placement, patient movement/transportation affecting pad contact, and lack of auto-feedback temperature monitoring, which contributed to overshoot hypothermia.

Conclusion

CarbonCool effectively facilitates TTM in the ICU and is feasible, quick, and safe for initiating cooling in OHCA patients in the ED. Awareness of factors that limit its efficacy and strategies to mitigate overcooling and skin complications are essential.

Keywords: Targeted Temperature Management (TTM), Out-of-hospital cardiac arrest (OHCA), Cooling

Topic: Original Research in Emergency Medicine
Abstract No: 15703

Impact of the myResponder smartphone application on the provision of bystander cardiopulmonary resuscitation (CPR) for Out-of-Hospital Cardiac Arrest (OHCA) Cases in Singapore

Haruka Takahashi¹ ; Nurul Ain² ; Stephanie Fook-Chong¹ ; Nur Shahidah¹ ; Yohei Okada¹ ; Marcus EH Ong¹
¹Health Services & Systems Research/ Duke-NUS Medical School/ Singapore, ²Accident and Emergency/ Changi General Hospital/ Singapore

Content

Background: Bystander cardiopulmonary resuscitation (CPR) and automated external defibrillator (AED) use are crucial to improve survival outcomes OHCA patients. The myResponder smartphone application (myResponder app) was launched in 2015 to help boost bystander CPR and use of AED application in Singapore. However, the impact of the myResponder app implementation on bystander CPR and AED use has not been clearly established. This study aimed to investigate the impact of the myResponder app on the provision of bystander CPR and use of AED.

Methods: This was a retrospective analysis using the Singapore Pan-Asian Resuscitation Outcomes Study (SG-PAROS) between 2016 and 2019 that included adult non-traumatic OHCA patients. Patients were categorized into myResponder app activated and non-activated groups. The primary outcomes were bystander CPR performance and use of AED by bystanders. The secondary outcomes were 30-day survival and favorable neurological outcomes. A multivariable logistic regression analysis of each outcome on myResponder activation was performed, adjusting for patient characteristics (age, gender, race, location of arrest, witness status, and time of emergency call received). Adjusted odds ratio and 95% confidence interval (aOR [95%CI]) was reported for the effect of myResponder activation.

Results: From the SG-PAROS dataset, 9,167 patients were included in this analysis. Their median (IQR) age was 71 (59-82) years and male proportion was 63%. The myResponder app activated group comprised 5,499 (60%) of the cases. The activated group compared to the non-activated group was associated with higher likelihood of bystander CPR performance (aOR [95%CI]: 20.6 [18.2-23.2]) and AED use by bystanders (aOR [95% CI]: 2.1 [1.7-2.6]). There was no association with 30-day survival or favorable neurological outcomes (aOR [95%CI]: 30-day survival, 1.1 [0.8-1.3] and favorable neurological outcomes, 1.2 [0.9-1.6]).

Conclusion: This study found that the myResponder app implementation was associated with higher bystander CPR performance and AED use by bystanders.

Keywords: Bystander CPR, AED, myResponder

Topic: Original Research in Emergency Medicine
Abstract No: 15717

World's First Paramedic Kiosk

Hasmizah Binte Hamzah^{*1} ; Chik Loon Foo¹ ; Mui Choo Yvonne Tan
¹ASAP/ NHG/ Singapore

Content

Introduction

ED Registration Kiosks are meant to be used by patients or next-of-kin. Here we describe probably the world's first kiosk designed for Paramedics.

Objectives

1. To justify the need for a Paramedic kiosk
2. To present the results of a Paramedic kiosk compared to Patient kiosks

Methods

This is an operational single-site study. Epic's native Welcome software was installed in three kiosks: one for Paramedics, and two for Patients. SCDF was engaged in the design of the Paramedic kiosk. A comparison of both kiosk types was done for adoption rates, triage PAC, first care area in the first two weeks of deployment.

Results

The overall kiosk adoption rate was 44.6% of the total ED attendance: 18.4% via Paramedic kiosk, 26.3% via Patient kiosk. Kiosks were used by 67.7% of all Ambulances, but only 35.9% of Walk-ins. Almost all Paramedic kiosk arrivals were Triage as PAC2 (93.6%), while Patient kiosks were equally distributed between Triage PAC 2 & 3 (50.4% vs 49.1%). Half of Paramedic kiosk patients were sent to the Trolley area, and 20.4% went directly to Resuscitation. On the other hand, half of Patient kiosks were triaged to the Walker area. Paramedic kiosks were used by SCDF (86.2%) and Private (13.3%) ambulances.

Conclusions

ED kiosks are usually targeted at low-acuity walk-in patients, which would exclude 20-30% of our ED arrivals by ambulance. To our knowledge, this is the world's first Paramedic kiosk, handling high acuity patients, and with a high adoption rate.

Keywords: Pre-hospital, ED kiosk

Topic: Case Report
Abstract No: 15688

The Price of Beauty - a Case of Iatrogenic Botulism

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Content

Introduction: Botulism is a rare condition resulting from inhibition of acetylcholine release from the presynaptic membranes of neuromuscular junctions by Clostridium botulinum endotoxin. The lack of rapidly available diagnostic testing presents a diagnostic challenge.

Case Report: A 33-year old transgender lady presented with a four-day history of dysphagia, hoarseness of voice, dysarthria and dysphonia followed by progressive limb weakness and shortness of breath. Physical examination revealed bulbar palsy and bilateral symmetrical flaccid quadriparesis with sensory sparing. Nasoendoscopy showed reduced vocal cord movements on inspiration. Preliminary investigations including extended electrolytes, creatine kinase, thyroid function test, arterial blood gas and chest and lateral neck X-rays were unremarkable. Further history revealed that the patient had undergone counterfeit cosmetic OnabotulinumtoxinA injections to bilateral biceps and calves by an unlicensed clinic in Shanghai two days prior to the onset of symptoms. There were no other risk factors for botulinum toxin exposure.

A preliminary diagnosis of botulism secondary to recent OnabotulinumtoxinA injections was made. She was transferred to the High Dependency Ward and administered Heptavalent Botulism Antitoxin under close monitoring for anaphylaxis. She displayed gradual improvement in all symptoms. Repetitive nerve stimulation at 3Hz showed decremental response at baseline, suggestive of underlying neuromuscular junction transmission dysfunction. Anti-acetylcholine receptor and anti-muscle specific kinase tests were negative, rendering myasthenia gravis less likely. She made a full recovery and was discharged several days later.

Discussion: With the rising prevalence of counterfeit cosmetic OnabotulinumtoxinA products, iatrogenic botulism is becoming increasingly common and presents a diagnostic challenge, especially given the absence of rapidly-available diagnostic testing. Clinicians must maintain a high index of suspicion in patients presenting with bulbar symptoms and descending flaccid quadriparesis, and a comprehensive risk factor and exposure history must be taken. Given the rapidly-progressive nature of the disease, treatment with Botulism Antitoxin should not await formal laboratory diagnosis.

Keywords: botulism;iatrogenic;OnabotulinumtoxinA

Topic: Original Research in Emergency Medicine
Abstract No: 15689

Penetration Safety margin of TASER 10 Conducted Electrical Weapon (CEW) Darts

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Content

Background: TASER Conducted Electrical Weapons (CEWs) are used by police/military forces to control violent persons. Prior CEW technology darts deployed at 53.3 m/sec (175 ft/sec). TASER 10 is a new technology CEW featuring darts launched via primer-ignited black-powder at 205 ft/sec (62.5 m/sec) +/- 30 ft/sec (9.1 m/sec). It is important for emergency physicians to understand the safety margin that these New CEW Darts (NCDs) operate within. This work describes that safety margin.

Methods: We fired 40 NCDs into live human tissue at multiple measured velocities, all exceeding the prior technology CEW muzzle velocity of 53.3 m/sec (175 ft/sec) \pm 9.1 m/sec (30 ft/sec). Target sites included the lower abdomen, mid-thigh and buttocks. The NCDs were fired via adjustable velocity, compressed air cannon through a ballistic chronograph to record accurate projectile velocities. The maximum velocity (Vmax) was determined based on the speed at which the darts began to show impact fatigue.

Results and Discussion: Tested NCD muzzle velocities were between 55.8-83.2 m/sec (183-273 ft/sec). At Vmax (273 ft/sec, 83.2 m/sec), no overpenetration of human tissue was noted. The manufacturer's production velocity is 75% below Vmax.

TASER 10 has been introduced to and is being used in Asia and Oceania. The NCDs it deploys are faster, of thinner diameter than prior CEW darts and utilize black powder propellant similar to a firearm. It is important for the emergency physician to be familiar with the performance of these NCDs in order to understand the risks associated with them. This work did not demonstrate detectable overpenetration, even at velocities 75% faster than what the manufacturer produces.

Conclusion and Recommendation: We conclude that the NCDs operate with a significant margin of safety in terms of muzzle velocity and risk of over-penetration when fired as intended into recommended target areas.

Keywords: TASER 10; Conducted Electrical Weapon; Dart; Ballistics; Penetration

Topic: Original Research in Emergency Medicine
Abstract No: 15690

Retrospective Analysis of Chest Pain Patients from Emergency Department with less than 24 hours of inpatient admission

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Content

Background: Chest pain units reduce hospital admissions and healthcare costs by identifying low-risk patients through clinical scoring, observation, and serial high-sensitivity troponins. During the COVID-19 pandemic, chest pain observation units were suspended, impacting chest pain patient stratification and disposition. A revised protocol incorporating serial high-sensitivity troponins and the HEART score was introduced to guide the disposition of chest pain patients in the Emergency Department (ED) and prevent adverse cardiovascular outcomes.

Objectives: This study aims to evaluate the characteristics and admission patterns of ED patients suspected of acute coronary syndrome (ACS) with a length of stay (LOS) of less than 24 hours in the absence of ED observation units.

Methods: A retrospective chart review was conducted for patients admitted to the ED with chest pain, angina, dyspnea, NSTEMI, AMI, or exertional shortness of breath from May 2021 to May 2022. Electronic medical records were reviewed to identify those patients with a LOS of less than 24 hours. Cases were manually filtered for inclusion in this study.

Results: Among the 1,792 cases identified, 17.7% had a LOS of less than 24 hours. The mean age was 61 years, younger than the overall mean admission age (67 years). Most were male (63.5%) and of Chinese ethnicity (62.6%). The median HEART score was 4, with 4% undergoing a procedure. Additionally, 64% were discharged with a diagnosis of nonspecific chest pain/dyspnea, while around 20% had non-cardiac causes.

Conclusions: More than half of admissions with a LOS of less than 24 hours presented with nonspecific symptoms in moderate-risk patients, and 16% raised concerns for cardiac causes. Reinstating chest pain observation units or refining protocols, combined with early cardiology consultation, may reduce unnecessary admissions and improve patient management.

Keywords: Chest pain; Observation Unit; Cardiology; Short Stay Ward; Admissions

Topic: Case Report
Abstract No: 15691

Interprofessional Education in Emergency Nursing: Enhancing Collaboration for Improved Patient Outcomes

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Content

Background: The emergency department (ED) operates on a high-pressure environment where effective teamwork and coordination are vital to patient care. Interprofessional education (IPE) fosters collaboration among healthcare providers including emergency nurses, physicians and paramedics. Sengkang General Hospital (SKH) ED implements IPE not only through structured programs but also as an ongoing process integrated into clinical practice. This approach promotes continuous learning and teamwork in real-time patient care settings, enhancing overall outcomes.

Objective: To highlight the role of interprofessional education in fostering collaboration among emergency healthcare providers and its impact on patient outcomes, with a focus on SKH ED's approach to both formal and clinical IPE.

Methods: A review of IPE initiatives in emergency medicine was conducted, including formalized programs and on-the-ground learning at SKH ED. Joint activities, such as simulations, case discussions, and clinical debriefings, were evaluated for their impact on teamwork and communication skills.

Conclusion: Interprofessional education, especially when extended beyond formal programs into clinical practice, plays a crucial role in emergency medicine. SKH ED's model of continuous IPE ensures that teamwork and learning remain central to patient care, resulting in better patient outcomes. Embedding IPE in both structured and real-time clinical environments is essential for preparing healthcare teams to meet the dynamic demands of the ED.

Keywords: *Interprofessional education, emergency medicine, collaboration, patient outcomes, teamwork, emergency department, clinical practice.*

Topic: Original Research in Emergency Medicine
Abstract No: 15692

Visceral Arterial Pseudoaneurysms - A Clinical Review

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Content

Background

Visceral arterial pseudoaneurysms (VAPAs) are rare vascular lesions characterized by the disruption of partial disruption of the arterial wall, most commonly involving the intima and media. They have an estimated incidence of 0.1-0.2%, with the splenic artery most commonly affected, followed by the hepatic and superior mesenteric arteries. Their management poses unique challenges due to the high risk of rupture and associated complications. Timely recognition is crucial, as unmanaged pseudoaneurysms have a mortality rate of 90%

Objective

This narrative review aims to synthesize current knowledge regarding the epidemiology, etiology, clinical presentation, diagnostic methods, and management strategies for VAPAs.

Methods

A literature search was performed across Pubmed and Google Scholar for articles reporting on VAPAs including case reports, review articles, and cohort studies until August 2024.

Findings

Chronic pancreatitis is a main cause of VAPAs, with splenic artery being involved in 60-65% of cases. Other causes include acute pancreatitis and iatrogenic trauma from surgeries, trauma, infections, drug use, and vascular diseases. VAPAs often present as abdominal pain upon rupture, with symptoms like nausea and vomiting. Unruptured pseudoaneurysms may manifest as pulsatile masses or bruits but are frequently asymptomatic and discovered incidentally. Diagnosis relies on non-invasive imaging techniques, such as CT angiography and Doppler ultrasound, and invasive methods like digital subtraction angiography, which remains the gold standard for detailed evaluation and treatment. A range of management options exists, tailored to individual cases based on disease and patient-specific factors. This encompasses both surgical and endovascular approaches, with a growing preference for minimally invasive techniques due to their lower morbidity rates.

Conclusions

VAPAs represent a critical clinical condition requiring prompt early recognition and intervention. This review highlights the need for ongoing research to improve diagnostic accuracy and refine treatment protocols, ensuring better patient outcomes in this challenging domain of vascular surgery.

Keywords: Visceral arterial pseudoaneurysms; clinical features; investigations; management

Topic: Original Research in Emergency Medicine
Abstract No: 15693

The association between mode of transport and out-of-hospital cardiac arrest outcomes in developing countries

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Content

Background

Out-of-hospital cardiac arrest (OHCA) is a critical medical emergency that poses significant global public health concerns. The survival rates for OHCA remain alarmingly low, contributing to as high as 10% of the total mortality in developing countries. This study aimed to analyse survival outcomes of OHCA patients in various developing countries, related to the mode of transport used to the Emergency Department (ED).

Methods

This study was a retrospective analysis of Pan-Asian Resuscitation Outcomes Study registry (PAROS) study data from 2015-2018. PAROS study is a multi-centre cohort study providing baseline information on OHCA epidemiology, management and outcomes. Data was analysed from Thailand, China, Philippines, and Vietnam. The primary outcome was return of spontaneous circulation (ROSC), and secondary outcome was survival to discharge or 30 days post-arrest. Subgroup analysis was performed within each country.

Results

We included 3905 patients in the study. 1945 (49.8%) patients were conveyed by Emergency Medical Services (EMS), 448 (11.5%) by private ambulance, 1148 (29.4%) by private transport, and 364 (9.32%) by public transport. The public transport group had the lowest ROSC rate at 17.0%, compared to EMS (22.7%), private ambulance (29.0%), and private transport (25.8%). Survival rate was also the lowest for the public transport group at 4.12%, compared to EMS (5.3%), private ambulance (12.5%), and private transport (5.05%). Both ROSC rate and survival outcomes were statistically significant. Subgroup analysis showed significant relationship between mode of transport and outcomes for Vietnam and China.

Conclusion

In patients with OHCA in various developing countries, mode of transport is associated with ROSC rate and survivability outcomes. More education of EMS services and other prehospital interventions can be done in these countries to improve outcomes for OHCA patients. Further research can be done to analyse how other prehospital interventions can affect outcomes for OHCA patients in developing countries.

Keywords: Out-of-hospital cardiac arrest (OHCA), emergency

Topic: Case Report
Abstract No: 15694

A case report: Haemorrhagic cyst masquerading as an atraumatic morel lavelle lesion

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Content

Background

Morel lavelle lesions (MLL) are often reported in the setting of high velocity trauma leading to the separation of fascial layers, and accumulation of fluid between these layers. These lesions are diagnosed based on a combination of clinical features, imaging and histopathological findings. Atraumatic or atypical presentations, though uncommon, often lead to their missed or delayed diagnoses, which can lead to complications such as infection and skin necrosis, thus contributing to patient morbidity.

Case Report

We present a case study on a 77-year-old gentleman with an atraumatic left thigh lesion with superimposed infection. Physical examination revealed a large mass, approximately 45cm x15cm, with varying areas of fluctuance and firmness. Magnetic resonance imaging revealed a heterogenous lesion separating the deep and superficial fascial layers, resembling an MLL. The patient underwent open excision and drainage uneventfully and was discharged soon after.

Post operative histopathological analysis subsequently labelled the lesion as a haemorrhagic cyst and he was subsequently seen at the outpatient clinic for wound dressing and post operative reviews.

Conclusion

The above case led to the discussion surrounding atraumatic presentations of MLL. Albeit uncommon, the literature does report a handful of such cases, management of which do not differ from those of traumatic MLL. Our case report, though ultimately concludes as an unusual presentation of a benign haemorrhagic cyst, highlights the importance to consider MLL as a differential in our approach to the undifferentiated soft tissue mass. As highlighted in our case report, chronic haemorrhagic cysts can often go undiagnosed and ultimately present with the same complications. Fortunately, management options appear to be similar to those of MLL and equally beneficial for patient outcomes.

Keywords: *morel; lavelle; cyst; atraumatic*

Topic: Case Report
Abstract No: 15695

An Educational Observational Study on How Patient Care Assistants Improve Triage in a Nurse-Led Emergency Department

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Content

Background

Triage is a critical component of emergency department (ED) operations, allowing for prioritization of patient care based on acuity, timely interventions, and efficient resource management. At Sengkang General Hospital (SKH), while triage-trained nurses hold primary responsibility in assessing and categorizing patients, patient care assistants (PCAs) serve as the first point of contact, indirectly impacting patient outcomes. Operating under a nurse-led triage model, PCAs at SKH ED are trained to identify critically ill patients and alert triage nurses to those needing immediate attention, including cases suspected of myocardial infarction or stroke.

Objective

This observational study aims to assess the impact of a targeted triage training program on PCAs' ability to identify high-acuity patients and improve communication with triage nurses, ultimately enhancing patient flow and satisfaction within the SKH ED.

Methods

In this observational study, PCAs participating in a rapid triage course—integrating Kolb's Experiential Learning Theory—were observed over a three-month period in their daily triage support roles. The hands-on learning approach was used to improve PCA recognition of high-risk patients and effectiveness in communicating with triage nurses. Observations focused on PCA response times, identification accuracy, and frequency of timely triage nurse alerts. Data were also collected on patient flow metrics, including wait times and overall satisfaction scores, to evaluate program impact.

Outcome

Observational data indicated that post-training, PCAs demonstrated a heightened ability to recognize and prioritize high-acuity patients, leading to more timely alerts to triage nurses. This proactive identification contributed to a noticeable improvement in patient flow, with reduced waiting times and increased patient satisfaction scores within the ED. Findings suggest that implementing an experiential learning-based training program can significantly empower PCAs, supporting their role in the triage process and reinforcing the effectiveness of nurse-led triage models in the ED.

Keywords: *Emergency Department (ED), Triage, Patient Care Assistants (PCAs), Nurse-Led Triage, Experiential Learning, Kolb's Learning Theory, Patient Flow, Patient Outcomes, Training Program, Observational Study*

Topic: Original Research in Emergency Medicine
Abstract No: 15696

Communication Style Among Emergency Department Junior Doctors

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Content

In a healthcare, effective communication between healthcare professionals (HCP) is essential for patient safety and quality healthcare delivery.

Clinical information has to be shared in a clear, effective and timely manner in order to devise an appropriate plan and prevent adverse events.

According to JCI, more than 60% of all hospital adverse events has been linked to poor communication. Timely and clear communication is paramount in high risk units such as the emergency department (ED).

There are different communication methods we use in our day-to-day lives, and this is similar to healthcare settings. There is remarkable rise in the use of digital communication platforms by HCP. HCP should know the choice of different communication methods. An inappropriate choice can have serious consequences on patient safety, especially in emergencies.

Our younger workforce comprising mainly of the millennials and Gen Z rather text than talk over the phone. "Phone anxiety" is not uncommon among these digital natives who have grown up amid internet and social media.

A survey was done in our ED to have an insight of our junior doctors communication style for work related issues.

Methods

An anonymous survey comprising of 10 questions via form.sg between 11 July 10 17 July 2024. There were 33 respondents (91%)

Results

For urgent referral to the inpatient, majority (97%) will communicate via a phone call. For non urgent referral, 27% will communicate via messaging platforms. For urgent consult with the Ed senior, 100% will communicate in person. 52% of them feel anxious when they have to make or receive a phone call in comparison to text messaging.

Conclusions

While it is published that millennials and Gen Z prefer digital communication over phone calls, this survey shows that our junior Drs do make appropriate choice of communication at workplace settings.

Keywords: Communication, patient safety, millennials, Gen Z, phone calls anxiety

Topic: Case Report
Abstract No: 15697

Simulation Training and Self-Regulated Learning for Emergency Nurses in Paediatric Emergencies

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Content

Background

Simulation-based training is essential in emergency medicine, particularly for pediatric emergencies, where prompt assessment and intervention are critical. Pediatric patients pose unique challenges due to their anatomical and physiological differences from adults, necessitating that emergency medicine nurses possess the necessary skills and confidence to manage these situations effectively. Self-regulated learning (SRL) strategies can enhance nurses' abilities to reflect on their practice, set goals, and improve performance in high-stakes environments.

Objective

This observational study assesses the impact of simulation training on emergency medicine nurses' preparedness, confidence, and competency in managing pediatric emergencies, while also examining the integration of self-regulated learning strategies in their training.

Methods

The study involved a series of simulation training sessions focused on pediatric emergency scenarios, including respiratory distress, anaphylaxis, and traumatic injuries. High-fidelity simulations provided realistic clinical situations for nurses to engage with. Observations were made before and after the simulations to evaluate changes in knowledge, self-reported confidence levels, and clinical skills. Participants were encouraged to use self-regulated learning strategies, such as goal setting and reflective practice, to enhance their training experience. Qualitative feedback was gathered through focus group discussions to understand participants' experiences and perceived barriers to effective pediatric emergency care.

Outcome

The findings indicated a significant increase in nurses' confidence and competency in managing pediatric emergencies after simulation training. Participants reported improved knowledge retention and enhanced critical thinking skills. The integration of self-regulated learning strategies facilitated deeper reflection and goal setting, fostering greater engagement. Feedback emphasized the value of simulations in providing a safe environment for skill development. This study highlights the effectiveness of simulation training in preparing emergency medicine nurses for pediatric care while underscoring the importance of self-regulated learning in enhancing their professional development and improving patient outcomes.

Keywords: *Simulation Training, Pediatric Emergencies, Emergency Medicine Nurses, Self-Regulated Learning, Competency, Confidence, Observational Study, Clinical Skills, Professional Development, Emergency Care*

Topic: Original Research in Emergency Medicine
Abstract No: 15698

Trends of Dermatological Admissions at the Singapore General Hospital Emergency Department- A Comparative Study from 2018 to 2021 during the Covid Pandemic.

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Content

Introduction:

Dermatological emergencies in the Emergency Department (ED) require prompt diagnosis and management to mitigate morbidity and mortality. Our study evaluates the trends in dermatological conditions that presented at the Singapore General Hospital (SGH) ED pre-COVID (2018-2019) vs. during COVID-19 (2020-2021) and disposition of the cases (admit, treat and discharged or referred) to inform resource allocation and improve training for ED doctors, particularly during pandemic times.

Methods:

A retrospective review of dermatological admissions to SGH ED was conducted using data from 2018-2021. Cases were categorized by diagnosis (infective, inflammatory, allergic, trauma-related, autoimmune,...) and disposition (admission, referral, discharge). Comparisons were made between the pre-COVID (2018-2019) and COVID-19 periods (2020-2021), with statistical significance evaluated using Chi-squared tests.

Results:

Total dermatological cases in the ED decreased by 16% during COVID-19 ($p=0.0538$), yet admission rates increased significantly in 2020 ($p=2.6 \times 10^{-5}$) despite fewer attendances. Infective conditions, including cellulitis and herpes zoster, remained the most common diagnoses across the 4 years, with inflammatory, trauma, and allergy cases also prevalent. Notably, allergy cases surged in 2021, likely due to the national COVID-19 vaccination program ($p=6.85 \times 10^{-14}$). Conditions with significant year-to-year changes include inflammatory, trauma, allergy, autoimmune, cysts, and cancers ($p<0.005$ for all), while infective conditions and ulcers showed no significant variation. SGH's disposition pattern favoured admissions over referrals throughout all 4 years.

Conclusion:

The COVID-19 pandemic impacted both the volume and disposition of dermatological cases in SGH ED, with a notable increase in admissions despite a decrease in total cases. The surge in allergy cases linked to the vaccination program underscores the need for targeted ED training in managing such reactions. Our findings suggest that resource allocation should prioritize reducing unnecessary admissions for non-critical dermatological cases, especially during pandemics. Training for ED physicians should emphasize dermatological emergencies and integrate teledermatology or quick reference tools for improved diagnostic accuracy.

Keywords: dermatology, emergency medicine, COVID-19, pandemic

Topic: Original Research in Emergency Medicine
Abstract No: 15702

Use of high flow nasal oxygenation in rapid sequence intubation among emergency patients with cardiorespiratory compromise

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Content

Background

Evidence for use of high flow nasal cannula (HFNC) in preoxygenation and apnoeic oxygenation among critically ill patients is lacking. We aim to evaluate whether HFNC oxygenation for preoxygenation and apnoeic oxygenation compared to usual care, maintains higher oxygen saturation (SpO₂) during rapid sequence intubation (RSI) in emergency department (ED) patients who are acutely ill with cardiorespiratory compromise.

Methods

This is a subgroup analysis from a larger multicentre randomised controlled trial in adult ED patients requiring RSI. Patients were randomly assigned 1:1 to either intervention (HFNC at 60L/min for both pre- and apnoeic oxygenation) or usual care (non-rebreather mask for pre-oxygenation and nasal prongs at 15L/min for apnoeic oxygenation). Patients with conditions resulting in cardiorespiratory compromise were included for analysis. Primary outcome was lowest SpO₂ during the first intubation attempt and secondary outcome included proportion of patients with desaturation to less than 90% in each group.

Results

Among 70 patients in this secondary analysis, 29 patients were allocated to HFNC and 41 patients to usual care. Overall median age was 61.5 years [interquartile range (IQR) 56 to 75 years], with male predominance of 67.1% (47/70). Indications for intubation included obstructive lung disease (4.3%, 3/70), fluid overload (12.9%, 9/70), gastrointestinal bleed (17.1%, 12/70), pneumonia (25.7%, 18/70) and shock states (40%, 28/70). Use of HFNC showed a trend towards higher lowest SpO₂ achieved during first intubation attempt [median SpO₂ 96% (IQR 89% to 96%) versus median SpO₂ 93.5% (IQR 78.5 to 93.5%) for usual care, $p = 0.23$]. Proportion of patients who desaturated to SpO₂ of less than 90% in the first attempt was 27.6% (8/29) for HFNC and 42.5% (17/40) for usual care ($p = 0.20$).

Conclusion

Future studies powered to evaluate the effectiveness of HFNC in patients with cardiorespiratory compromise are required.

Keywords: *rapid sequence intubation; high flow oxygenation; apnoeic oxygenation; pre-oxygenation; clinical trials*

Topic: Original Research in Emergency Medicine
Abstract No: 15704

Association between a country's income level and neurological outcomes after an out-of-hospital cardiac arrest in the Asia-Pacific region.

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Content

Background: Out-of-hospital cardiac arrest (OHCA) is a time sensitive, life-threatening emergency. Survival rates with good neurological outcomes are extremely low, especially in the Asia-Pacific region. Currently, factors identified in literature associated with good neurological outcomes are predominantly based on research conducted in high-resource countries. This results in a knowledge gap on how OHCA impacts lower-resourced areas, and how these countries fare compared to their higher-resourced counterparts. Therefore, this study aims to explore the relationship between a country's income and neurological outcomes after OHCA in the Asia-Pacific region.

Methods: A multivariable logistic regression model was applied to the Pan-Asian Resuscitation Outcomes Study (PAROS) dataset. The main exposure was country income status (defined by the World Bank), and the main outcome was neurological outcomes (measured by cerebral performance category score). Multiple sensitivity analyses were run to confirm the findings.

Results: A total of 168,967 OHCA cases were included in the study, of which 165,404 cases were from high-income countries and 3563 cases were from middle-income countries. A larger proportion of OHCA patients in high-income countries survived (6.42%) and had good neurological outcomes (3.65%) compared to middle-income countries (0.95% and 0.75% respectively). High-income countries were associated with better neurological outcomes (AOR 9.05; 95% CI 6.27 to 13.72) compared to middle-income countries. Results remained consistent throughout all sensitivity analyses.

Conclusion: In the PAROS cohort, high-income countries outperform middle income countries in post-OHCA neurological outcomes. Further research is needed to obtain better quality data in middle-income countries and expand reach into low-income countries.

Keywords: out-of-hospital cardiac arrest; neurological outcome; low and middle income country, economic factors

Topic: Case Report
Abstract No: 15705

The Role of Trauma Data Registry Coordinators in Trauma Activation In-Situ Simulation Drills: Experience from Ng Teng Fong General Hospital, Emergency Department

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Content

Background

Trauma activation in-situ simulation drills are crucial for maintaining emergency department (ED) readiness. At Ng Teng Fong General Hospital (NTFGH), these drills were halted for four years due to the pandemic, resuming in November 2022. While clinical staff involvement in such drills is well-documented, the role of non-clinical personnel, particularly Trauma Data Registry Coordinators (TCs), is less explored.

Process

This report describes the TC's multifaceted role in trauma simulation drills at NTFGH ED. TCs were integral to pre-simulation planning, developing scenarios from the hospital's trauma database. They coordinated drill preparation and stand-down procedures, observed proceedings, assisted with video recording, and collated participant feedback.

Observations

Nine in-situ trauma activation drills have been conducted since resumption. These exercises identified operational gaps, including the need for a thoracotomy set and a trauma resuscitation record board. TCs played a crucial role in addressing these gaps, assisting with procurement and designing the nursing scribe board. Their involvement facilitated rapid implementation of improvements based on drill findings. TCs leveraged their data management expertise to streamline collection and analysis of drill performance metrics, enabling precise identification of improvement areas and quantitative progress tracking. This data-driven approach enhanced the overall quality of trauma care delivery.

Conclusions

Including TCs in trauma activation in-situ simulation drills provides unique opportunities for system improvement and professional growth. TCs contribute valuable perspectives, bridging the gap between clinical practice and data management. This experience suggests that involving TCs in simulation drills can enhance the quality and relevance of trauma care protocols, ultimately improving patient outcomes.

Keywords: *Trauma activation in-situ simulation; trauma data registry coordinators; emergency department; quality improvement*

Topic: Original Research in Emergency Medicine
Abstract No: 15706

Central Venous Administration of Epinephrine in Out-of-Hospital Cardiac Arrest: A Propensity-Matched Analysis

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Content

Introduction

Out-of-hospital cardiac arrest is a global health problem which requires intensive care including cardiopulmonary resuscitation (CPR). Administering intravenous vasopressors is critical for the return of spontaneous circulation (ROSC) and improving survival. Central venous administration of epinephrine may offer advantages due to shorter drug delivery times and higher concentrations.

Method

This retrospective study included nontraumatic out-of-hospital cardiac arrest patients who visited a regional emergency center in South Korea from July 2022 to October 2024. Adults who received CPR in the emergency department were included in the study. Patients were divided into two groups based on whether they received epinephrine via a peripheral or central venous route. To minimize baseline differences, propensity score matching was performed. The rate of ROSC, survival at hospital discharge, and favorable neurological outcome, defined as a Cerebral Performance Category of 1 or 2, were compared between the groups.

Results

A total of 583 patients were included in the study, with 3:1 propensity score matching ensuring adequate balance between groups. Administration via the central venous route was associated with a significantly higher rate of ROSC (odds ratio 1.91, 95% confidence interval 1.03-3.54, $p=0.039$). However, there were no significant differences in survival at discharge (odds ratio 0.85, 95% confidence interval 0.25–2.90, $p=0.798$) or favorable neurological outcome at discharge (odds ratio 3.04, 95% confidence interval 0.18–51.49, $p=0.442$) between the groups.

Conclusion

The central venous administration of epinephrine during CPR was associated with a higher ROSC rate compared to the peripheral venous route.

Keywords: cardiac arrest; resuscitation; epinephrine; central vein;

Topic: Original Research in Emergency Medicine
Abstract No: 15707

Effect of bystander CPR with and without dispatcher assistance on survival outcomes in Paediatric Out-of-Hospital Cardiac Arrest (OHCA)

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Content

Background and Aim: Paediatric Out-of-Hospital Cardiac Arrest (OHCA) has devastating effects of high mortality and severe neurological impairment. Although bystander Cardio-Pulmonary Resuscitation (BCPR) is shown to improve survival, rates remain low (35.6% in Singapore between 2010-2012). In 2012, Singapore implemented Dispatcher Assisted CPR (DACPR). This study aims to evaluate the effect of BCPR, with and without dispatcher assistance on survival outcomes in OHCA in Singapore.

Methods: Singapore data was extracted from the Pan-Asian Resuscitation Outcomes Study (PAROS) registry for children less than 18 years of age from 2010-2021. Patients pronounced dead without resuscitation attempts and patients with arrest witnessed by emergency medical service or private ambulance crew were excluded. The primary outcomes studied were Return of Spontaneous Circulation (ROSC) and BCPR rate after implementation of DACPR. The secondary outcomes studied were survival to hospital admission, 30-day survival and survival with favourable neurological outcome (CPC 1 or 2). Univariate and multivariate logistic regression were performed to assess the effect of the 3 implementation groups (no BCPR, BCPR alone, DACPR). The multivariate regression analysis additionally adjusted for known confounders.

Results: 410 eligible cases were analysed (Median age 4, 53.4% male). The overall 30-day survival was 11.5% (47/410). Likelihood of BCPR provision after versus before implementation of DACPR was significantly higher (aOR 5.50; 95%CI 3.21–9.43; p<0.001). DACPR significantly increased the likelihood of ROSC (aOR 2.13; 95%CI 1.14 – 3.98; p = 0.017) and survival to 30 days (aOR 3.84; 95%CI 1.15 - 12.81; p = 0.029) compared to no bystander CPR. BCPR alone showed a positive association on survival with favourable neurological outcome (aOR 4.749; 95%CI 1.19-18.93; p=0.027) compared to no BCPR.

Conclusion: In our study, there was a significant increase in BCPR rate following the implementation of DACPR. We observed that bystander CPR and Dispatcher-assisted CPR were associated with improved survival outcomes.

Keywords: Out-of-Hospital Cardiac Arrest; Paediatric; Bystander cardiopulmonary resuscitation; Dispatcher-assisted cardiopulmonary resuscitation; Survival

Topic: Original Research in Emergency Medicine
 Abstract No: 15708

CLINICO-SOCIO ECONOMIC PROFILE OF PEDIATRIC PATIENTS ADMITTED FOR SEVERE DENGUE IN PHILIPPINE CHILDREN'S MEDICAL CENTER FROM 2018-2023

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Content

Aim

The study determined the socio-economic and clinical profile of children with severe dengue admitted at the Philippine Children's Medical Center from 2018-2023.

Methodology

A retrospective cross-sectional study was performed using eligible charts from infants and children aged >28 days to <19 years with a final diagnosis of Severe Dengue, Dengue Shock Syndrome or Dengue Hemorrhagic Shock from January 1, 2018, to December 31, 2023. Chart review was done and data collated.

Results

The study included 889 eligible patients. The most prevalent age group was 7 to 12 years old (55.5%), with a near-equal distribution of female (51.2%) and male patients. 75.9% come from households with a monthly income of only ₱2,748.43, and 67.3% were reliant on PhilHealth insurance. The predominant chief complaint was fever (85.9%). The most common accompanying symptom other than fever was vomiting (63.4%) and abdominal pain (58.0%). Notably, the majority of patients (81.9%) presented with more than two symptoms. The average ER stay was 1 day, followed by an average ICU stay of 2.8 days and a subsequent ward stay of 2 days. The most frequently administered interventions were N-acetylcysteine (NAC) therapy (53.5%), antibiotics (49.7%), and vasopressors (39.1%). The overall mortality rate was 8%.

Conclusion

The findings in the study highlights the clinical profile of patients with Severe Dengue. Early detection and prompt medical intervention are crucial in preventing complications in severe dengue. The study also highlighted the need for improved efficiency in patient transfers between the ER and ICU, and ICU to general wards to enhance patient outcomes by decreasing delays in appropriate care transitions.

Keywords: Dengue Fever; Pediatric; Severe Dengue

Topic: Case Report
Abstract No: 15709

Immersive Combat Medical Training

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Content

Annually, six to seven Tactical Combat Casualty Care (TCCC) Course runs are conducted by the Singapore Armed Forces (SAF) Medical Training Institute (SMTI), each catering to a group of eight to ten participants comprising Medical Military Experts (MMEs) and Army Deployment Forces (ADF) personnel. These courses have typically been held in camp training ground, consisting of two components: tactical component and medical component. During the tactical component, trainers used dummy rifles to simulate the firefights, after which, there would be a simulated casualty with injuries such as gunshot wounds and amputation. The problem identified were: lack of combat realism (ie no feedback on the firefight), and novice-level simulated opposing force due to lack of manpower. It was difficult for trainees to appreciate the considerations and pressure of attempting to render aid to casualties, while having to suppress the opposing forces advancement. Similarly for the medical care that follows, trainees would not feel the stressors to perform care under fire and making life-saving medical decisions in an intense combat scenario. The team combined two existing training systems: virtual reality for tactical combat component and conventional hands-on training for medical component, to enhance training realism. This is done by adopting the existing Infantry Gunnery and Tactical Simulator (IGTS) and incorporating with TCCC training. Trainees now have an opposing force to engage and receive real-time feedback, thus increasing the immersive factor and allowing them to practise weapon discipline, command and control during the fire fight. As the trainees have to evacuate the casualty planted in front of the screen, they will appreciate the tactical movement during care under fire, in a safe environment. In addition, this innovation then strikes a perfect balance, offering high realism coupled with low risk.

Keywords: *Tactical Combat Casualty Care; Realism*

Topic: Case Report
Abstract No: 15711

Managing a Case of Mixed Drug Overdose with Vasoplegic Shock

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Content

Beta-blocker and calcium-channel blocker overdoses present significant clinical challenges due to their potential for severe morbidity and mortality. In cases of mixed drug overdose, shock may be due to different underlying pathologies including cardiogenic and vasodilatory causes. While there are some antidotes available, cardiopulmonary resuscitation alongside supportive therapies remain the mainstay of treatment.

We describe the case of a mixed drug overdose with predominantly vasoplegic shock. An 81-year-old Chinese male presented following an unintentional overdose on amlodipine 20mg, atenolol 200mg, losartan 200mg, allopurinol 400mg, simvastatin 40mg, and an unknown amount from his master medication supply. In the Emergency Department, he was hypotensive and bradycardic. Point-of-care ultrasound showed preserved cardiac contractility with collapsible IVC. Subsequent fluid resuscitation was restricted by pulmonary congestion. Initial investigations showed hyperkalemia; hyperlactatemia with metabolic acidosis; KDIGO 3 oliguric acute kidney injury; hypocalcemia. He was treated with intravenous fluids, calcium gluconate and atropine.

He was admitted to ICU on Day 2 for persistent unstable bradycardia and refractory hyperkalemia. Hyperinsulinemic euglycaemic therapy (HIET) and glucagon infusion were started with adrenaline, noradrenaline and vasopressin infusions for recalcitrant hypotension. Hemodialysis was initiated for toxin removal. Flotrac monitoring revealed good CI/SVV, but low SVRI – demonstrating predominantly vasodilatory shock. Methylene blue was administered in single boluses and then infused with an improvement in SVRI. HIET and glucagon infusions were discontinued on Day 6 with weaning of adrenaline, noradrenaline and vasopressin by Day 9. He was eventually discharged to a nursing home facility.

This case report underscores the complexity of managing mixed drug overdoses. Advanced hemodynamic monitoring may provide insight into underlying shock physiology. Early administration of therapies such as methylene blue, with low risk side effect profile, may be useful in vasodilatory shock in mixed drug overdoses.

Topic: Original Research in Emergency Medicine
Abstract No: 15713

Applicability Of Emergency Department Overcrowding Measurement Tools: A Scoping Review

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Content

Background and Aim

Emergency Department (ED) overcrowding is a global concern with serious impacts for patients and healthcare systems. Accurate measurement is crucial for assessing its severity and evaluating interventions. This review aims to summarize existing ED overcrowding measurement tools and assess their applicability across various healthcare settings.

Methods

This scoping review followed the PRISMA-ScR checklist and adhered to the Arksey and O'Malley framework, with enhancements by the Joanna Briggs Institute. A comprehensive search was performed across PubMed, Embase, Web of Science, Scopus, and CINAHL, targeting terms related to "ED," "overcrowding," and specific measurement tools. Duplicates were removed by Covidence, and two reviewers independently screened abstracts then full-text. Full-text articles meeting predefined eligibility criteria were assessed, focusing on peer-reviewed evaluations of ED overcrowding tools. Data extraction, conducted with Endnote21 and Excel, captured each tool's strengths, limitations, and contextual relevance.

Results

1763 papers were identified by databases after the removal of duplicates, and 78 papers met the inclusion criteria. 12 ED overcrowding measurement tool were identified, which are NEDOCS, PEDOCS, CEDOCS, EDWIN, occupancy rate, SONET, ICMED, READI, Mseal, ED workload rate, ED work score, and EDCS. The most frequently used tools are respectively, NEDOCS, EDWIN, and occupancy rate, suggested by the proportional Euler diagram. Those 78 papers ranging from 2003 to 2024, showed an increasing yearly trend for the number of published papers on this topic, and the majority of studies were conducted in United States.

Conclusions

The absence of a universal ED overcrowding definition has led to varied tools adapted to specific settings. Complex tools offer detailed assessments and predictions, while simpler measures like occupancy rate prioritize usability and generalizability. Future studies need to focus on refining tools, enhance global applicability, and establish universal guidelines for consistent and reliable overcrowding assessment.

**FJ Siddiqui and MEH Ong are considered co-last authors.*

Keywords: Emergency department, Overcrowding, ED overcrowding, Measurement tools, Multidimensional measurement tool, Measurement tool applicability, Measurement methods review, ED congestion assessment, Patient flow management, Health services research, ED capacity management, Scoping review

Topic: Original Research in Emergency Medicine
Abstract No: 15714

Education with Virtual Reality in Emergency Medicine and Prehospital Training

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Content

Background and Aim:

High-acuity, low-occurrence (HALO) emergencies are complex and rare, yet demand a high level of preparedness from Emergency Department (ED) clinicians. Traditional training methods can limit exposure to these scenarios, challenging trainees' readiness to manage critical incidents effectively. The Education with Virtual Reality in Emergency Medicine and Prehospital Training (EVEMPT) project was developed to bridge this gap, using Virtual Reality (VR) technology on the Meta Quest platform. EVEMPT provides a safe, immersive environment for Emergency Physicians, nurses, and residents to gain proficiency in managing HALO cases. The application includes realistic scenarios from on-field motor vehicle accidents to resuscitation room interventions, enabling critical decision-making and procedural practice in a controlled setting.

Methods:

EVEMPT scenarios simulate the continuum of care, beginning with field stabilization and extending through ambulance transport to ED resuscitation. Trainees assess patients, administer medications, and perform advanced procedures such as endotracheal intubation, tube thoracostomy, and emergency thoracotomy. Beta-testing is currently underway, with participants providing feedback through an online survey and a focus group interview conducted post-training. Data from these sources will be analyzed using thematic analysis to identify key themes regarding the effectiveness, usability, and realism of the VR simulation.

Results:

Preliminary findings indicate that trainees perceive VR simulation as a highly engaging and realistic method for learning, with particular value in developing teamwork and critical thinking in high-stakes scenarios. Specific feedback has highlighted the benefits of VR for practicing rare procedures, building situational awareness, and increasing confidence in resuscitation skills.

Conclusions:

The EVEMPT project demonstrates that VR can provide a viable, impactful tool for training ED staff in HALO scenarios, offering hands-on experience in a safe, repeatable environment. Further research will focus on gathering qualitative feedback to further refine the VR platform and assess its impact on clinical performance and patient outcomes in emergency care settings.

Keywords: virtual reality (VR); simulation training; resuscitation; pre-hospital; trauma

Topic: Original Research in Emergency Medicine
Abstract No: 15715

The resilience of nurses who respond to natural disasters: Findings from an integrative literature review

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Content

Nurses who respond to natural disasters often face challenges in harsh and unpredictable conditions and may be susceptible to emotional and psychological stress. Studies have looked at the effects of resilience in combating stress and helping nurses overcome adversity. However there is a lack of understanding about how resilience is experienced by nurses in adverse circumstances during their response to natural disasters.

The aim of this integrative literature review was to identify, review and synthesise the literature on resilience and disaster nursing, in particular natural disasters. This literature review forms the first part of the presenting author's PhD study, a Narrative Inquiry exploring the experience of resilience in nurses who respond to natural disasters.

An integrative literature review was conducted using the systematic approach advocated by Whittemore and Knafl (2005). This design is suitable for this review as resilience in disaster nursing is complex in nature and has not been examined in depth. Additionally, diverse sources of information were needed to understand the concept in this context, including agencies which coordinate disaster responses.

The titles and abstracts of n=724 studies from academic databases as well as grey and hand-searched literature were screened in Covidence, against the inclusion criteria. The full texts of 100 studies were then screened, with n=27 studies appraised for quality. This presentation will describe the findings of the literature review of 18 studies, in the form of the themes and sub-themes synthesised from the final included studies and other sources.

The findings from the integrative literature review provide a greater understanding of the concept of resilience in disaster nursing, and the strategies and supports available to overcome the effects from disaster relief work. It provides a perspective of what is known about resilience and disaster nursing for the stories of resilience.

Keywords: *Disaster Nursing; Resilience; Integrative literature review*

Topic: Original Research in Emergency Medicine
Abstract No: 15716

Effectiveness of an Online Palliative Care Course for Nurses in Emergency Department

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Content

Background:

Patients at the end-of-life (EOL) phase frequently visit the emergency department (ED). However, ED nurses receive limited formal training in palliative care. Providing palliative care education to enhance ED nurses' knowledge and skills is crucial. This study evaluates the impact of an online palliative care course, the EMPOWER course, on ED nurses' knowledge, communication skills, learning experiences and the perceived helpfulness.

Method:

This multi-center study utilized a pretest and posttest design alongside a self-reported survey. The EMPOWER program was designed to equip ED nurses with essential EOL knowledge and communication skills. The modules include the Scope of Palliative Care in the ED, Pain and Symptom Management, Care of the Dying and Serious Illness Communications. As a fully online program, it allowed ED nurses to engage in asynchronous learning at their own pace. Nurses' knowledge and communication skills were assessed through the pretest and posttest. Their learning experiences and perceived helpfulness of the program were measured using a 5-point Likert scale. Open-ended questions were included to identify the program's strengths, limitations, and future topics.

Results:

A total of 147 participants completed the EMPOWER course between 2023 and 2024. The results showed significant improvement. The average pass rate increased from 40% (pretest) to 94% (posttest). The modules showing the greatest improvement were "Care of the Dying" and "Pain and Symptom Management", where the pass rate increased 69% and 59% respectively.

For learning experience, 93% of participants agreed or strongly agreed that they gained new knowledge and skills, they were able to apply them directly to their work, and they would recommend this course to peers. Additionally, 90% of the nurses reported the course as very or extremely helpful to their practice.

Conclusions:

The EMPOWER course is effective in enhancing ED nurses' knowledge and communication skills in EOL and palliative care.

Keywords: End-of-Life, EMPOWER, Palliative care

Topic: Original Research in Emergency Medicine
Abstract No: 15718

Preventing Duplicate Medication Errors between Pre-Hospital & ED

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¹ASAP/ NHG/ Singapore

Content

Introduction

Pre-hospital medications are not interfaced with ED's electronic medical records (EMR), hence duplicate medication errors are difficult to prevent and likely underreported. A new EMR build was introduced in April 2024 to address this gap.

Objectives

1. To document pre-hospital medications in the EMR
2. To prevent duplicate medication errors between pre-hospital and ED
3. To measure the number of duplicate medication errors prevented

Methods

This is a multi-site EMR enhancement study. New flowsheets in the Epic's ASAP Triage navigator were added to document medications given/taken at pre-hospital. Only selected medications that contributed to the highest errors were listed: Aspirin, Paracetamol, Tramadol, NSAIDS, and Tranexamic acid. A Best Practice Advisory (BPA) was built to alert the ordering provider when the same medication class was ordered within 4 hours of the above flowsheet documentation. Epic's SlicerDicer module was used to audit the BPA performance six months post-deployment NGEMR-wide.

Results

The BPA fired 2381 times per month to warn users of potential duplicate medication. The user removes the medication in 23.9% (570 per month) to avoid a duplicate medication error. In the remaining 76.1% of BPA activation, the user proceeds with the medication order for the following reasons: (1) Will adjust dose/timing (46.2%), Safely outside dose limit/interval (40.2%) and Physician consulted (13.6%).

Conclusions

This simple documentation tool, combined with a BPA alert, has comprehensively negated the risk of duplication medication errors during handover between pre-hospital and ED. It is also the first time we are able to measure the number errors (4153 in six months) before an error is made, rather than after an error has occurred. Its efficacy is magnified by its adoption NGEMR-wide in 9 ED/UCCs.

Keywords: Pre-Hospital, Medication Errors, Quality

Topic: Case Report
Abstract No: 15719

A case report on acupuncture-induced hemopericardium with successful conservative treatment

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Content

Background

A 36-year-old male presented to the Emergency Department (ED) with acute chest pain and diaphoresis after receiving acupuncture to his back and anterior chest. On arrival, his initial electrocardiogram (ECG) showed ST segment elevation in lead V2 with widespread T wave inversions, but these resolved within 20 minutes. A chest X-ray (CXR) showed a widened mediastinum, and a point-of-care ultrasound (POCUS) revealed a pericardial effusion without aortic root dilation, necessitating a CT aortogram. There was no aortic dissection but suggestion of hemopericardium, likely due to penetrating injury from acupuncture needle.

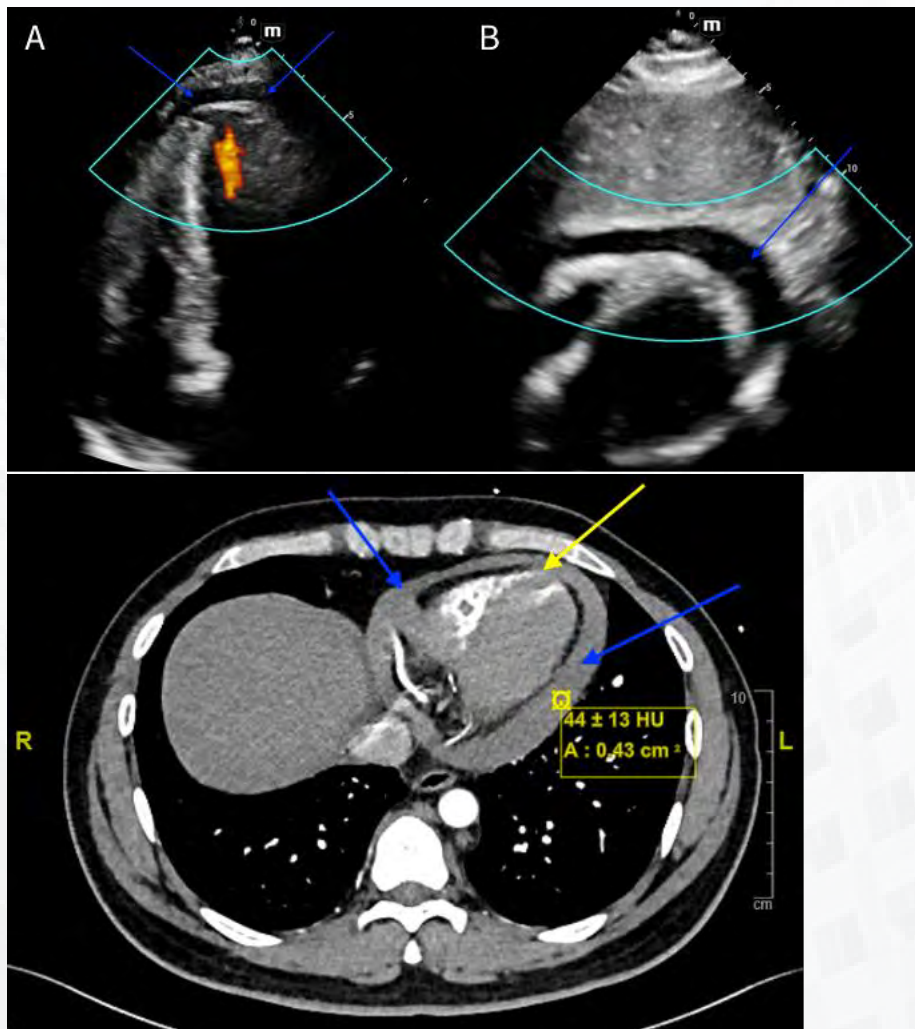
Due to his initial ischemic-looking ECG, he underwent urgent coronary angiogram which was normal. Ventriculography showed no contrast extravasation to suggest active bleeding. A formal echocardiogram confirmed a moderate asymmetrical pericardial effusion, primarily around the right ventricle. Cardiothoracic surgeons determined no surgical intervention was required as his hemodynamics stabilized, and the leak appeared to have sealed spontaneously. He was monitored with daily echocardiograms and eventually discharged.

Discussion

Our patient's initial ECG showed ischemic changes, raising concerns about potential coronary artery disease, which was ruled out by coronary angiogram. This suggests that myocardial injury caused by penetrating trauma from acupuncture could produce ECG changes mimicking that of ischemia. Our patient also had pericardial effusion seen on POCUS. Acupuncture can be associated with various penetrating injuries to the cardiovascular system, and hemopericardium is one of them. Case reports of previous acupuncture related hemopericardium were treated surgically with a pericardial drain or window. Our case highlights the potential for a conservative approach in managing acupuncture-induced hemopericardium. Close monitoring with serial echocardiograms showing no active bleeding and gradual reduction in hemopericardium allowed the patient to avoid surgical intervention.

Conclusion

Hemopericardium is a rare but serious complication of acupuncture. When active bleeding and cardiac tamponade is excluded, conservative management can be a viable option.



Keywords: Hemopericardium; Acupuncture; Conservative

Topic: Original Research in Emergency Medicine
Abstract No: 15720

COMPASSIONATE DISCHARGE FROM THE EMERGENCY DEPARTMENT: A COLLABORATIVE PROJECT BY NATIONAL UNIVERSITY HOSPITAL EMERGENCY DEPARTMENT AND HCA HOSPICE

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Content

Background and aim:Compassionate Discharge (ComD) is part of the National Strategy for Palliative Care, designed to help patients spend their final days at home. NUH Emergency Department (ED) has initiated workflows to facilitate this process around-the-clock, in partnership with HCA Hospice. This paper aimed to analyse the factors enabling ComD while examining barriers that have limited its implementation in NUH ED.

Methods:Patients on the NUH ED End-of-life (EOL) pathway from December 2023 to February 2024 were reviewed. Physician and nursing documentation in EPIC was analysed to identify factors influencing the outcome of ComD as an option for EOL care disposition and their incidence.

Results:Only one successful discharge was documented, driven by prior family discussions, established expectations, gradual disease progression, and preparedness. Barriers to ComD in the ED were delineated according to 4 identified themes: 1) Patient-related factors - acute illnesses ongoing trial of treatment, severe symptoms requiring immediate care, or preferences for in-hospital end-of-life care, 2) Nursing home residents or imminently dying patients - due to their need for continuous medical and nursing support, 3) Family-related factors - the lack of capable caregivers, inconducive home environments, financial constraints, and emotional factors such as denial or inability to cope during sudden deteriorations, and 4) Physician-related challenges include limited time for sensitive discussions, discomfort with initiating end-of-life conversations, perceived family reluctance, limited awareness of options and prognostic uncertainty.

Conclusion:As the population ages, EDs increasingly encounter EOL patients, making robust EOL protocols both relevant and essential. There is also a need for a shift toward community-based services with home hospice support. The enablers and barriers to successful ComD need to be addressed in order to validate and facilitate dignified dying in the comfort of one's home. Further research and policy development are crucial for improving end-of-life care and resource allocation in the ED.

Keywords: *compassionate discharge ; palliative care ; barriers ; end of life care*

Topic: Case Report
Abstract No: 15721

Traumatic Anterior Sternoclavicular Joint Injuries – Recognition and Management

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Content

Anterior sternoclavicular (SC) joint dislocations are uncommon injuries, typically associated with high-impact trauma. We report a case of anterior SC dislocation in a 31-year-old female motorcycle pillion rider involved in a road traffic accident. The patient presented to the Emergency Department with pain over the left clavicle and restricted shoulder movement. Initial clavicular X-rays revealed no fractures, but subsequent SC joint X-rays and Serendipity views demonstrated left clavicular elevation. A computed tomography (CT) scan confirmed an anterior SC joint subluxation with an associated mediastinal hematoma. Orthopaedic consultation determined conservative management was appropriate due to the absence of functional or cosmetic deficits.

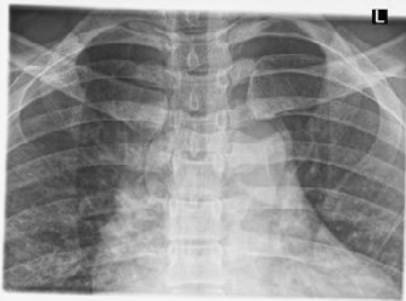


Fig. 1: Sternoclavicular joint X-Ray showing relative elevation of the left clavicle



Fig. 2: Serendipity view X-Ray showing left clavicular elevation consistent with an anterior dislocation

SC joint dislocations account for less than 3% of all joint injuries and are classified into anterior and posterior types, with anterior dislocations being more prevalent. Diagnosis is challenging with standard imaging, often requiring Serendipity views or CT scans for confirmation and to assess potential vascular involvement. Acute anterior dislocations may be managed with closed reduction, involving supine positioning, arm traction, and direct pressure over the medial clavicle. Manipulation tools like towel clips can aid reduction, and patients are immobilized in a Velpau bandage for six weeks. Open reduction is indicated when closed reduction is unsuccessful.

This case highlights the importance of recognizing SC joint dislocations in patients presenting with medial clavicular tenderness and deformity, particularly when initial imaging does not reveal fractures. Prompt diagnosis and appropriate management can prevent complications and optimize outcomes.

Keywords: dislocation, serendipity, trauma, radiography

Topic: Case Report
Abstract No: 15722

Cardiopulmonary resuscitation-induced consciousness: A Rare Pre-Hospital Case in Singapore

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Content

Cardiopulmonary resuscitation-induced consciousness (CPR-IC) is a rare but increasingly recognized phenomenon. West et al. reported a prevalence of CPR-IC between 0.23 - 0.9% and estimated that 48-59% of rescuers observed CPR-IC during the course of their work. A recent international Delphi study defined CPR-IC as a "demonstration of consciousness whilst undergoing CPR with no measurable spontaneous cardiac output displayed". The Delphi study consisted of experts mainly from North America, Oceania and Europe, with no representation from Asia. There is no definitive guideline for its management in Singapore.

Emergency medical service (EMS) was activated to evaluate a 62-year-old male Chinese, who complained of central chest pain while at work in a carpentry factory. Upon arrival, the patient was alert but in pain. EMS noted pallor, diaphoresis, his skin was cold and clammy. Initial assessment reveals a blood pressure of 75/34mmHg, heart rate of 45 beats/min, respiratory rate of 13 breaths/min and a oxygen saturation of 95%. 12 lead electrocardiogram showed a De Winter pattern. The patient was treated with Aspirin 300mg but glyceryl trinitrate (GTN) was omitted due to hypotension. The patient loss consciousness and turned pulseless upon transfer to the ambulance and a repeat ECG showed ventricular fibrillation (VF). CPR was started as according to Advanced Cardiac Life Support principles. During transport, the patient exhibited shouts and moan during CPR, despite the presence of VF on the rhythm strip. complicating resuscitation efforts. Ultimately, four shocks were administered during prehospital resuscitation. The patient ultimately subsequently demised at the tertiary hospital.

This case highlights the need for increased awareness and research into CPR-IC and pre-hospital management such as sedation protocols. West et al. reviewed 4 sedation protocol including the use of ketamine, fentanyl, or midazolam with varying dosages. Further research on sedation protocols or and management of CPR-IC in Singapore is required.

Keywords: Cardiac Arrest, CPRIC, CPR-Induced Consciousness, EMS, pre-hospital, out-of-hospital-cardiac-arrest

Topic: Case Report
Abstract No: 15723

The Silent Bleed: Prehospital Management of a Trauma Patient with Hidden Intra-Abdominal Haemorrhage and Tachycardia

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Content

Background and Aim:

Silent killers lurk beneath the surface. This study examines a case of hidden intra-abdominal haemorrhage, challenging EMS teams to look beyond the obvious. Our aim? To sharpen first responders' instincts in detecting internal bleeding when usual red flags are absent, improving patient outcomes in critical situations.

Methods:

A 56-year-old Asian male was briefly pinned between two lorries in a low-speed collision. EMS found an alert patient complaining of nausea, chest and abdominal discomfort. Assessment revealed tachycardia (118 BPM) and normal blood pressure (115/85 mmHg). Based on these findings, intra-abdominal bleeding was strongly suspected. Differential diagnoses included early septic shock from perforated viscus, early haemorrhagic shock (Class II) from intra-abdominal haemorrhage, and musculoskeletal pain with tachycardic stress response. The team administered high-flow oxygen, carefully measured intravenous fluids, and Tranexamic Acid. They performed a thorough blood sweep, monitored vital signs, and promptly conveyed the patient to the nearest trauma centre.

Results:

Hospital imaging confirmed significant intra-abdominal haemorrhage, requiring immediate surgery. The EMS team's recognition of subtle signs facilitated urgent treatment, potentially improving the patient's prognosis. This case underscores prehospital care's critical role in managing concealed injuries and the importance of maintaining a high index of suspicion.

Conclusions:

We derive five key insights for prehospital care:

1. Trust your instincts - internal bleeding can hide in plain sight.
2. Utilise the shock index to identify hidden haemorrhage.
3. Administer Tranexamic Acid early in suspected severe bleeding.
4. Prioritise rapid transfer to trauma centres capable of definitive care.
5. Practise permissive hypotension and cautious fluid resuscitation.

These lessons underscore a fundamental truth: our most powerful diagnostic tool is our trained intuition. By honing our ability to recognise and respond to subtle clinical cues, we can significantly enhance our capacity to identify and manage life-threatening conditions that may not immediately manifest.

Keywords: *abdominal bleed trauma prehospital shock*

Topic: Original Research in Emergency Medicine
Abstract No: 15724

Have Body-Worn Cameras Reduced the Incidence of Paramedic Abuse?

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Content

This study investigates the impact of body-worn cameras (BWCs) on violence against emergency medical services (EMS) personnel in Singapore. Globally, EMS providers face high rates of verbal and physical abuse, with Singapore reporting 64% and 16% respectively. The Singapore Civil Defence Force (SCDF) implemented BWCs for frontline responders, including EMS personnel, on 15th April 2022 to enhance accountability and safety. The research employs a pre-post observational design, comparing incident reports of abuse before and after BWC implementation. Data was collected from 15th April 2021 to 31st March 2023, divided into two phases: pre-BWC and post-BWC. Statistical analysis using Chi-Square tests was conducted to assess changes in abuse cases. Additionally, qualitative data was gathered through online surveys to explore EMS personnel's perceptions of BWC effectiveness.

Results show a 34.6% increase in EMS call volume from 2021 to 2022, while maintaining a workforce of 472 paramedics. The number of reported abuse incidents decreased from 32 to 30, with incident rates per 10,000 EMS calls reducing from 1.68 to 1.17. However, this reduction was not statistically significant ($p=0.15$). Incidents per paramedic slightly decreased from 0.068 to 0.064. While BWC implementation resulted in a non-statistically significant reduction in reported abuse incidents, the study suggests that BWCs show promise in improving paramedic safety. However, the authors emphasise the need for further research into the complex factors contributing to EMS personnel abuse, including psychological, economic, social, and healthcare aspects. They conclude that BWCs should be considered part of a broader strategy to prevent paramedic abuse rather than a standalone solution.

Keywords: ABUSE, BODY WORN CAMERA

Topic: Original Research in Emergency Medicine
Abstract No: 15725

Optimising Prehospital Care for Postpartum Haemorrhage

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Content

Background and Aim

Tranexamic acid (TXA) is a life-saving intervention for postpartum hemorrhage (PPH), a leading cause of maternal mortality globally, particularly in low-resource settings. Annually, PPH affects 14 million women, with around 70,000 deaths from excessive bleeding. TXA, an antifibrinolytic agent, reduces bleeding by preventing clot breakdown. The aim of this abstract is to highlight the critical role of TXA in reducing PPH particularly in prehospital and resource-limited settings.

Methods

The WOMAN trial highlighted that TXA reduces PPH-related mortality by nearly one-third when administered within three hours of delivery, without significantly increasing thromboembolic risks.

Results

Intravenous (IV) TXA is highly effective in emergencies, achieving peak plasma levels within 5–10 minutes, while intramuscular (IM) TXA offers a viable alternative in cases where IV access is delayed or unavailable, reaching therapeutic levels within 15 minutes. Studies like the CRASH-4 and I'M WOMAN trials confirm TXA's efficacy across these routes, with no significant differences in blood loss reduction or survival outcomes.

Discussion

Challenges remain in prehospital care for PPH, especially in regions with extended transport times and resource limitations. Recommendations emphasise timely TXA administration, adapting diagnostic and treatment strategies, and ensuring emergency medical service (EMS) agencies are well-trained and resourced. Developing region-specific protocols, fostering interdisciplinary collaboration, and enhancing communication between EMS and hospitals are critical to improving maternal outcomes.

Conclusion

This review underscores the importance of TXA in reducing PPH mortality, particularly in prehospital and resource-constrained settings. While IV administration remains the gold standard, IM TXA expands access to treatment, offering flexibility in emergencies. Future studies should focus on refining TXA protocols to optimise outcomes and evaluate long-term impacts across diverse healthcare contexts.

Keywords: PPH, IV, IM, TXA

Topic: Original Research in Emergency Medicine
Abstract No: 15726

Systematic Review on the Use of End-Tidal Carbon Dioxide Monitoring in Prehospital Settings

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Content

Systematic Review on the Use of End-Tidal Carbon Dioxide Monitoring in Prehospital Settings

Background and Aims

End-Tidal Carbon Dioxide (ETCO₂) monitoring, a non-invasive method of assessing ventilation, has become indispensable in critical care and emergency medicine. ETCO₂ monitoring is crucial during cardiopulmonary resuscitation (CPR), with research indicating a positive correlation between higher initial ETCO₂ levels and improved survival rates in cardiac arrest (Callaway et al., 2015). An abrupt increase in ETCO₂ values often signals the return of spontaneous circulation (ROSC), providing immediate feedback on compression efficacy (Nagler et al., 2014). In trauma scenarios, ETCO₂ trends serve as crucial indicators of perfusion and shock severity, with consistently low values (<10 mmHg) associated with poor prognoses (Rixen et al., 2013; Gerecht et al., 2016).

This systematic review examines its applications in prehospital settings, with a focus on accuracy, utility and clinical outcomes.

Methods

A comprehensive analysis of 25 studies spanning from 2000 to 2024 underscores the significant role ETCO₂ has in enhancing patient management during prehospital interventions.

Results

The review highlights that ETCO₂ monitoring via nasal prongs demonstrates a strong correlation with arterial CO₂ levels, establishing it as a reliable measure of ventilation (Fukuda et al., 1997). However, the prehospital environment presents unique challenges, including diminished accuracy in mouth-breathing patients, motion artefacts and environmental interferences. Despite these constraints, ETCO₂ monitoring significantly improves airway management decisions and reduces the incidence of unnecessary intubations (Driver et al., 2018).

Conclusion

In conclusion, ETCO₂ monitoring emerges as an invaluable tool for Emergency Medical Services (EMS), enhancing decision-making processes in cardiac arrest, trauma and respiratory distress scenarios. The standardisation of ETCO₂ use in prehospital protocols could potentially lead to further improvements in patient outcomes. Future research endeavours should focus on addressing current limitations and exploring expanded applications across diverse prehospital settings.

Keywords: ETCO₂; Prehospital; Cardiac; arrest; trauma

Topic: Original Research in Emergency Medicine
Abstract No: 15727

Wash Timings for Effective Chemical Decontamination

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Content

Background

Chemical, Biological, Radiological, Nuclear and Explosive (CBRNE) threats are major concerns in today's security climate and global instability. It is therefore crucial to be prepared with robust protocols and procedures for effective chemical decontamination. Currently, most hospitals in Singapore use wash timings of up to 15 minutes. However, there has been little evidence to show optimal wash timings for chemical decontamination. Too short, and there might not be sufficient decontamination; too long, and there might be a waste of resources.

Objectives

This study aims to investigate optimal wash timings during chemical decontamination to ensure efficient yet effective chemical decontamination.

Methods

A total of 20 full-sized mannequins on trolleys simulating derobed patients on trolleys were used. Firstly, a colourless, non-scented, non-toxic gel simulating chemical contamination (Glo Germ®) was applied to the mannequins in a standardised manner - across the head, face, bilateral axillae, front and back torso, groin, and bilateral lower limbs. 10 mannequins were washed by staff for 8 minutes each, and 10 mannequins were washed by staff for 5 minutes each. After washing, mannequins were examined using ultraviolet light, with any residual Glo Germ® visible under ultraviolet light. Mannequins without residual trace of Glo Germ® were successfully decontaminated. The total number of mannequins successfully decontaminated were recorded for each wash timing.

Outcomes

Both wash timings (8 minutes and 5 minutes) resulted in successful decontamination, with no trace of Glo Germ® seen on any of the 10 mannequins used for each wash timing.

Conclusion

Both wash timings yielded successful decontamination of all 10 mannequins. Using a wash timing of 5 minutes would maintain effective decontamination yet save time and water resources during chemical decontamination. This study successfully validated the use of a shorter wash timing, as well as the hospital's chemical decontamination protocols.

Keywords: *Chemical decontamination ; decontamination protocols*

Topic: Case Report
Abstract No: 15728

Case report: Delayed presentation of a massive lung empyema post blunt chest wall trauma

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Content

Case Presentation

This is a case of a 23-year-old healthy male with a Body Mass Index (BMI) of 28.6 who presented to the Emergency Department (ED) with chest pain after sustaining blunt trauma to his left chest during a futsal game a month prior. Initially, he received treatment in another ED for musculoskeletal chest pain after a normal chest X-ray. However, upon re-presenting one month later, he exhibited concerning symptoms of tachycardia, tachypnea, and diminished air entry on the left lung.

Imaging revealed a massive loculated left pleural effusion causing mediastinal mass effect. A chest drain inserted drained a large amount of pus and blood. Subsequently, he underwent Uniport Video-Assisted Thoracoscopic Surgery for drainage and decortication and was treated with a course of antibiotics. During his admission, he was also diagnosed with Type 2 Diabetes Mellitus.

Discussion

Delayed hemothorax post-blunt chest trauma is rare. Current literature reported cases presenting up to 44 days post trauma. Our patient presented 38 days post-trauma. His signs and symptoms concerning for early hemodynamic compromise correlated to the radiograph findings of mass effect of the mediastinum. Notably, the absence of fever despite large empyema was atypical. Risk factors such as his weight and newly diagnosed diabetes could have contributed to the empyema's development.

Take home messages

The key takeaway emphasizes the rarity of delayed hemothorax leading to severe lung empyema, which can cause significant hemodynamic compromise. It underscores the importance for ED physicians to recognize and promptly address such rare complications, reinforcing the need for thorough discharge advice to patients regarding when to seek further medical attention despite initial normal investigations.

Topic: Original Research in Emergency Medicine
Abstract No: 15729

A Systematic Review on the Use of Intramuscular Adrenaline in Out-of-Hospital Cardiac Arrest (OHCA) Patients.

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Content

Objective:

This systematic review aims to evaluate the efficacy and safety of IM adrenaline administration in OHCA patients in prehospital settings, comparing it with other routes of administration in terms of return of spontaneous circulation (ROSC), survival rates and neurological outcomes.

Methods:

Preliminary literature search conducted on PubMed used the following syntax: “((out-of-hospital" OR "out of hospital") AND ("cardiac arrest*" OR "heart arrest") OR OHCA) AND ((adrenaline) OR (epinephrine)) AND (Intramuscular OR Intravenous OR intraosseous OR IM OR IV OR IO).” Studies included were published from January 1985 to November 2024.

Studies were excluded if they involved paediatric populations, traumatic OHCA, and endotracheal adrenaline administration. These were based on the safety profile of adrenaline in paediatrics, Singapore's local clinical practice guidelines for traumatic OHCA, and lack of reliable pharmacokinetic data respectively.

Primary outcomes assessed included time from arrival to administration, rate of ROSC, and survival to hospital admission. Secondary outcomes include favourable neurological outcomes at hospital discharge, survival to hospital discharge, and the adverse effects and safety profiles of IM adrenaline.

Results:

Of the 151 studies identified, 77 met the inclusion criteria. Preliminary findings suggest significantly faster arrival-to-administration time and improved ROSC rates. However, no significant differences were found in neurological outcomes, and survival to hospital discharge.

Conclusion:

Preliminary findings show the potential of IM adrenaline administration in effectively achieving better short-term outcomes by enabling faster drug delivery. However, more trials are necessary to better assess its efficacy in prehospital OHCA. This review is not complete with studies to be included later from two other databases.

Keywords: *Out-of-Hospital Cardiac Arrest, Adrenaline, Epinephrine, Intramuscular*

Topic: Original Research in Emergency Medicine
Abstract No: 15730

Effect of Tranexamic Acid on Wound Healing in Patients with Burns and Associated Systemic Inflammatory Response Syndrome: A Scoping Review

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Content

Background & Aim

Systemic Inflammatory Response Syndrome (SIRS) is a critical and potentially fatal condition arising from severe injury that is commonly observed after burns injury. It is characterised by an innate inflammatory response to tissue damage and blood loss. The aim of this narrative review was to investigate the clinical potential of antifibrinolytic agents in modulating SIRS and preventing burn wound conversion.

Methods

A comprehensive literature search was conducted. The studies were independently screened to assess their suitability for the scoping review. Seven studies were included; four animal studies, two human studies and one study involving both humans and animals. The data were independently extracted and analysed.

Results

The key findings were that tranexamic acid (TXA) significantly reduces systemic inflammation, mitigates damage-associated molecular patterns (DAMP) release and promotes dermal healing in murine models of burns, with some evidence suggesting potential benefits in humans. However, results from human studies remain inconclusive due to few studies and limited data; however, TXA was associated with benefits in time to re-epithelialisation and bleeding when compared to controls.

Conclusions

TXA and ϵ -aminocaproic acid (EACA) may have anti-inflammatory effects and benefits, potentially improving burn injury and SIRS-related outcomes. This underscores the need for further clinical trials to explore their therapeutic efficacy.

Keywords: Tranexamic Acid (TXA); Burn Wound Conversion; Systemic Inflammatory Response Syndrome (SIRS); Wound Healing.

Topic: Case Report
Abstract No: 15731

“GIDDINESS” – A GREAT DECEIVER

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Content

This case describes a 64-year-old Indian male presenting with intermittent giddiness on exertion and lower limb swelling for a month. On EMS arrival, the patient was tachypnoeic, diaphoretic, and hypoxic (SpO₂ 89%). Despite no complaints of breathlessness or chest pain, clinical findings included a high respiratory rate (25 BPM), bilateral rhonchi, and atrial fibrillation on ECG. The patient had a history of diabetes, ischemic heart disease, and chronic smoking, and was on Digoxin, Amlodipine, and Simvastatin.

Differential diagnoses included pulmonary oedema secondary to congestive heart failure, asthma or COPD, and an allergic reaction to aureomycin prescribed for a month-long rash. The patient's dizziness, likely a symptom of hypoxia, was managed with 100% oxygen, GTN sprays, and nebulized Ventolin, leading to improved oxygen saturation (96%) and reduced dizziness, though tachypnoea persisted.

This case highlights the importance of thorough history-taking, physical examination, and symptom analysis, as the patient's giddiness masked underlying cardiac failure and pulmonary oedema. It underscores the need for EMS teams to remain vigilant for atypical presentations, particularly in patients with significant risk factors such as ischemic heart disease and chronic smoking. Early recognition and targeted prehospital interventions can significantly improve patient outcomes in such complex cases.

respiratory rate (25 BPM), bilateral rhonchi, and atrial fibrillation on

Keywords: Prehospital Differential Dignosis, Caridac Asthma, CCF/ CHF

Topic: Case Report
Abstract No: 15732

When the Infection Descends - From Supraglottitis to Mediastinitis

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Content

Introduction

Deep neck infections from odontogenic, peritonsillar, or pharyngeal origins, and rarely esophageal rupture, can result in significant morbidity. Approximately 3% progress to descending mediastinitis via fascial planes. We present a rare case of presumed supraglottitis, later diagnosed as descending mediastinitis.

Case

A 68-year-old diabetic woman with gastritis presented with 2 days of fever, cough, vomiting, diarrhea, and new-onset chest pain. Examination revealed hoarseness, stridor, neck swelling, and crepitus. Naso-endoscopy showed epiglottic and arytenoid swelling, limited vocal cord views, and a parapharyngeal bulge. Lateral neck X-ray revealed prevertebral soft tissue thickening and gas (Fig.1). She was intubated for presumed supraglottitis.

CT imaging showed deep neck space and mediastinal gas, suggesting esophageal perforation (Fig.2). However, pan-endoscopy and esophagogastroduodenoscopy did not confirm perforation. She initially improved with broad-spectrum antibiotics but deteriorated five days later. Repeat CT revealed retropharyngeal collections, mediastinal abscesses, and pleural effusions.

Emergent drainage of the retropharyngeal, visceral, and supraclavicular abscesses, along with right thoracoscopic drainage and pulmonary decortication, was performed. Multiple neck and mediastinal debridements were subsequently needed. Cultures grew *Candida parapsilosis*, *Trichosporon*, and multidrug-resistant *Pseudomonas aeruginosa*. Her hospital course was complicated by recurrent pneumonia and failed extubation, necessitating tracheostomy.

Conclusion

Descending mediastinitis is a rare but life-threatening complication of deep neck infections, with mortality up to 41%. Early diagnosis, timely imaging, surgical intervention, and targeted antimicrobial therapy are essential, particularly in immunocompromised patients.

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