

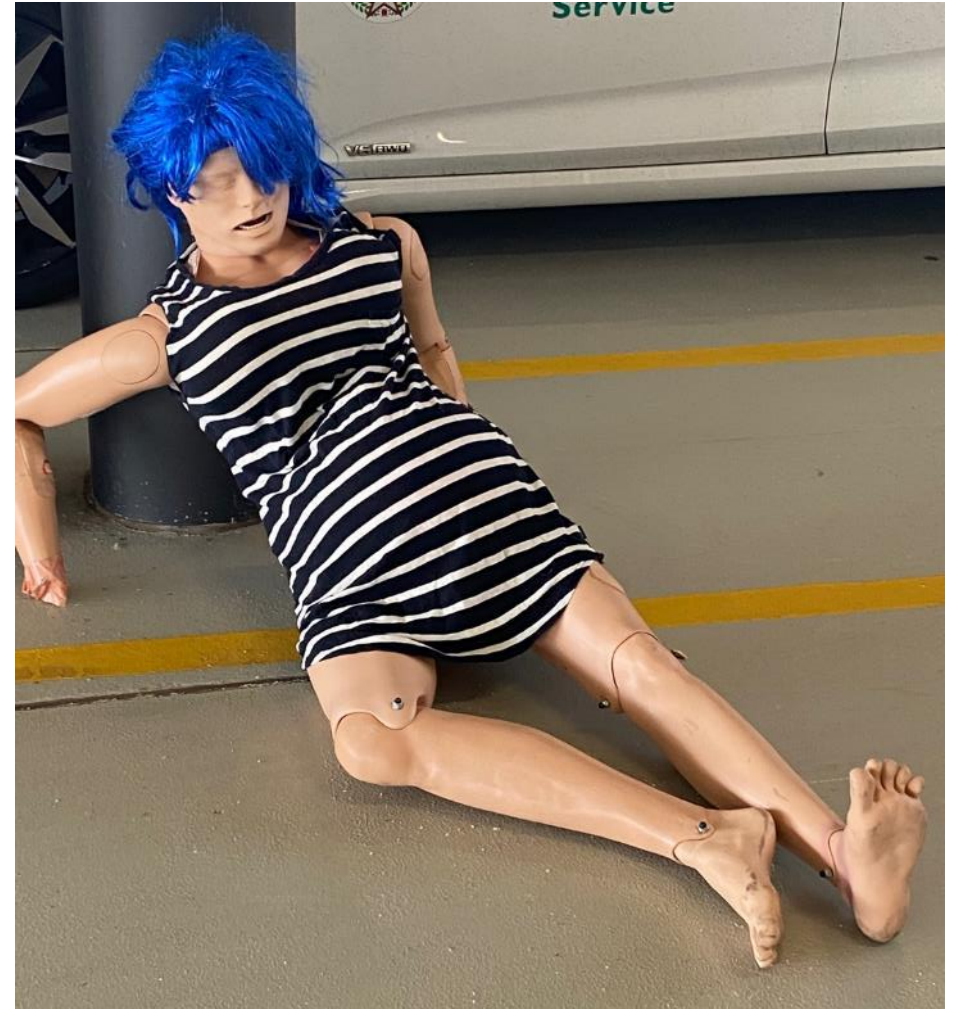


'A RESUSCITATIVE HYSTEROTOMY ON THE LOUNGE ROOM FLOOR'

Ben Stanton – Retrieval Nurse
Practitioner, SAAS MedSTAR

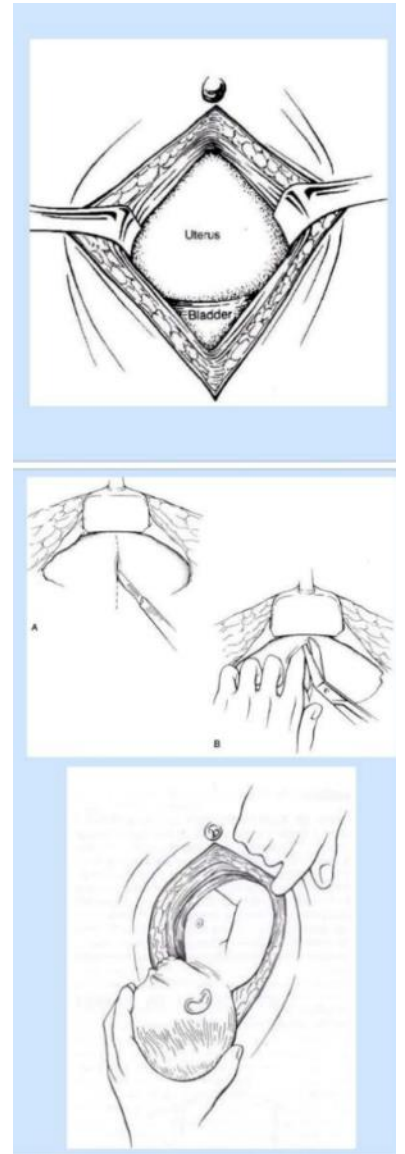


Cardiac Arrest in Pregnancy



Resuscitative Hysterotomy (RH)

- **HALO** procedure
- It can be performed with a just a scalpel
- Anatomical criteria or known gestation
- Timeline
- ≥ 24 weeks = **2 resuscitation teams**



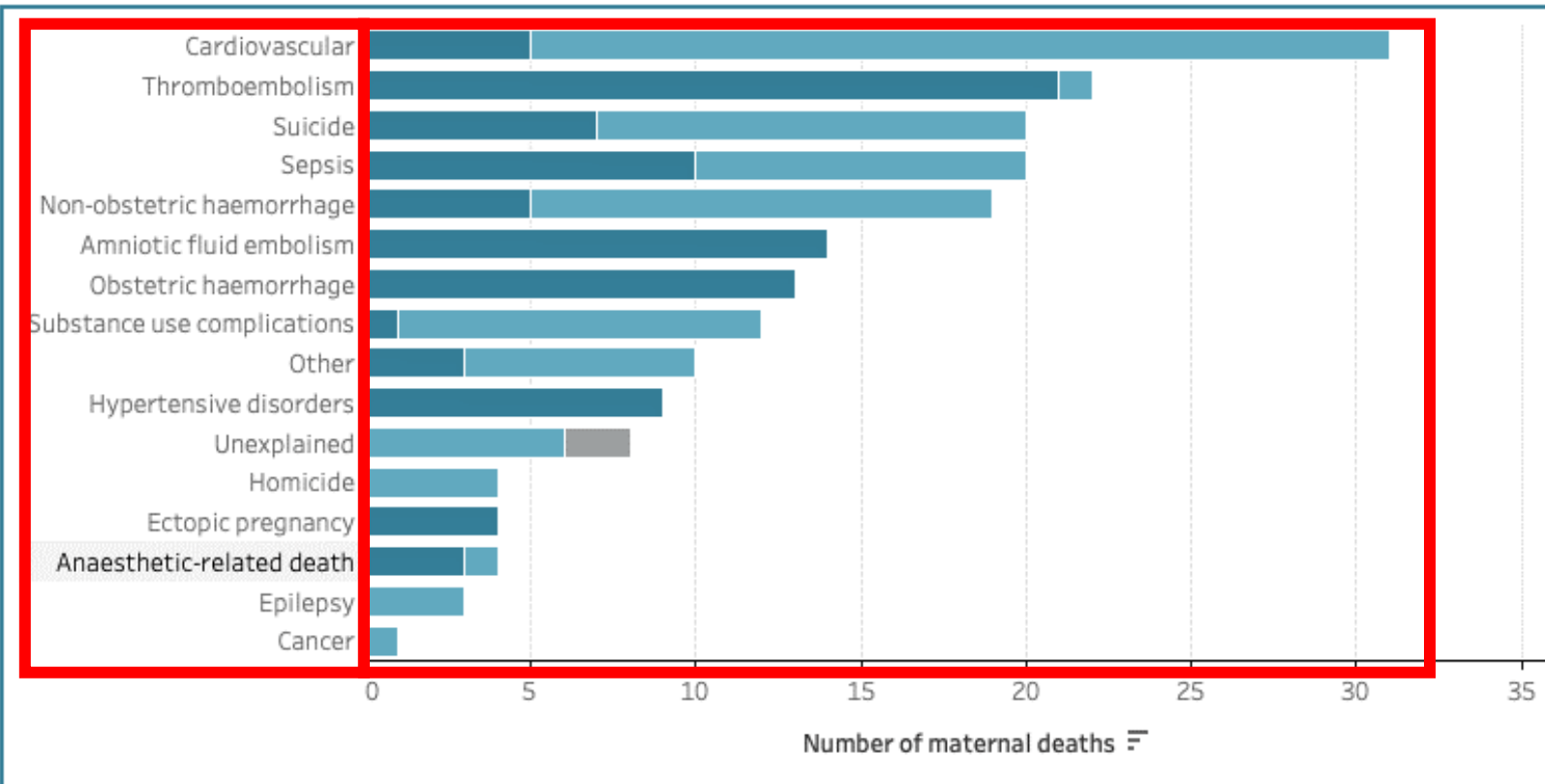
<https://sjrhem.ca/guideline/maternal-cardiac-arrest-resuscitative-hysterotomy-guideline/>

Maternal Cardiac Arrest

Number of maternal deaths, by cause of death, 2011-2020

Select type of maternal death

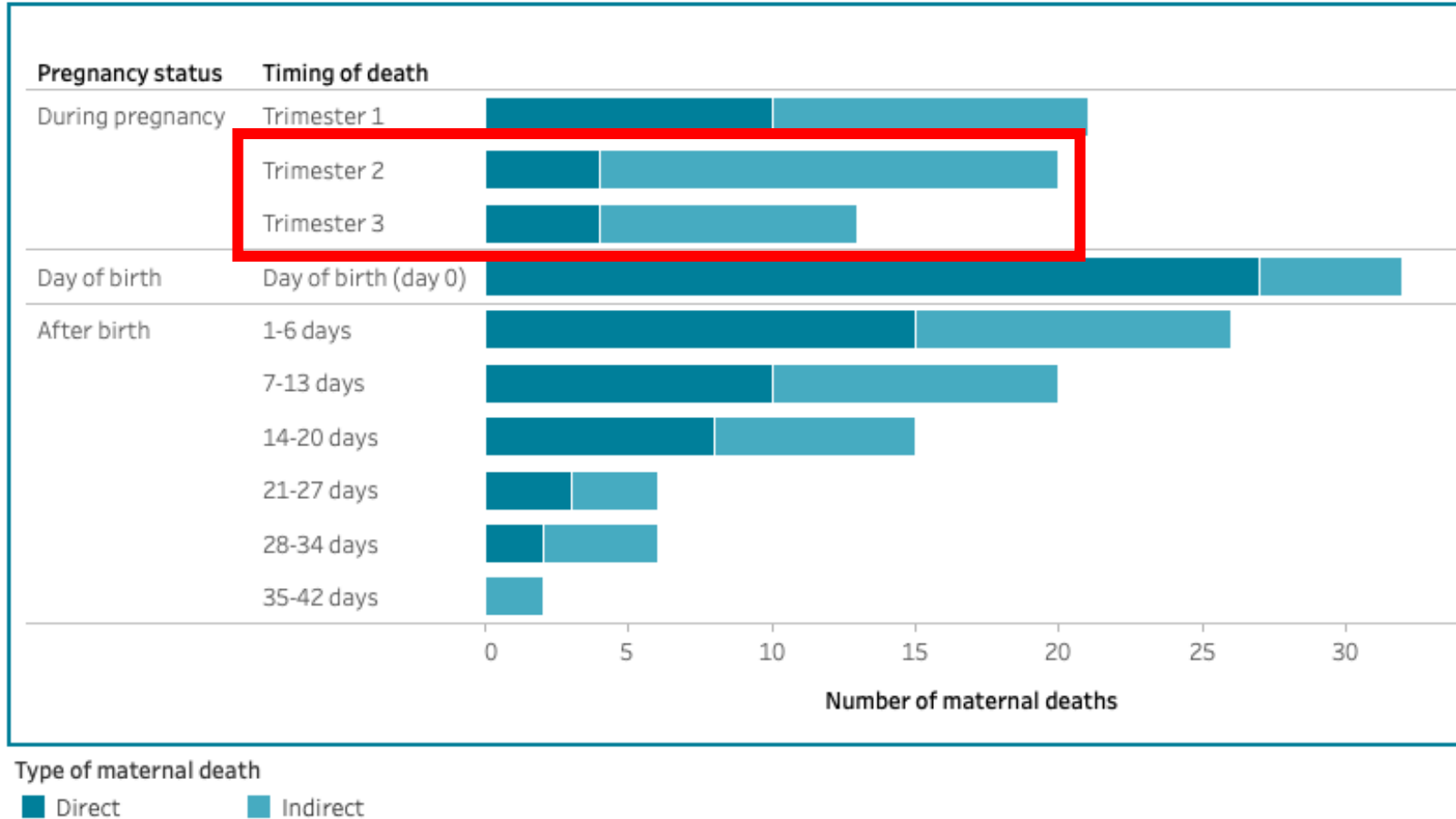
All



<https://www.aihw.gov.au/reports/mothers-babies/maternal-deaths-in-australia/contents/maternal-deaths-in-australia>

Maternal Cardiac Arrest

Number of maternal deaths, by timing of death, 2011-2020



<https://www.aihw.gov.au/reports/mothers-babies/maternal-deaths-in-australia/contents/maternal-deaths-in-australia>

Pre-hospital Case Study

- 31-year-old female G2/P1 (3rd trimester) CA at home – visibly pregnant!
- CPR commenced by SAAS after their arrival
- Activation of other SAAS resources
- *RH commenced at 15 minutes of confirmed CA and newborn resuscitation commenced at 19 minutes*



Pre-hospital Case Study

- Resuscitation continued as per ALS / NLS guidelines
- Maternal ROSC rapidly post delivery / Neonatal ROSC achieved soon after
- Internal manual aortic compression for uncontrolled hemorrhage during transport
- Both patients arrived at hospital 1 hour and 20 minutes after the initial 000 call



Outcome

- Hot debrief immediately post event
- Both patients suffered irreversible hypoxic brain injuries
- Palliated two weeks later
- Validation of the training and education process



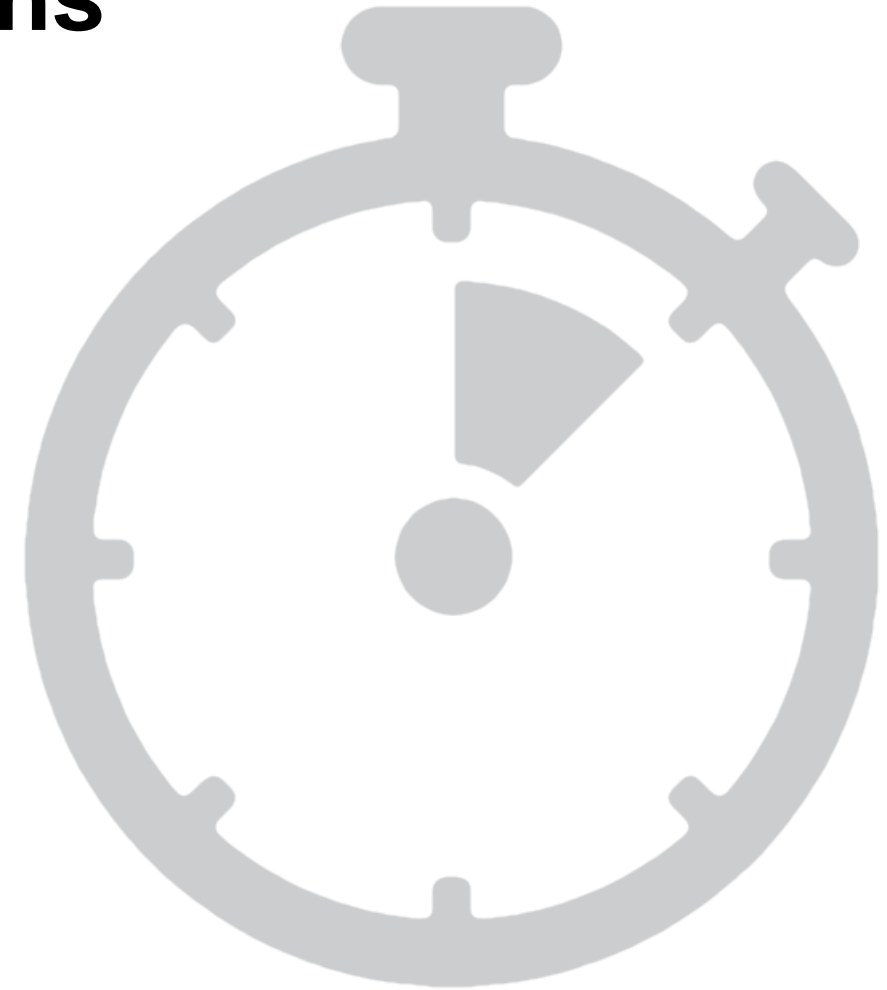
Pre-Hospital RH

- One case report from Australia
 - no survivors
- One case report from the USA
 - no survivors
- One case report from Norway of two cases –
 - no maternal survivors, two foetal survivors
- One report from Italy
 - maternal death, foetal survival (impaired neurology)
- One report from UK
 - maternal death, foetal survival (impaired neurology)
- One case series of 7 cases from Holland
 - 7 maternal deaths, 3 foetal survivors (one impaired neurology)



Current Timeline Recommendations

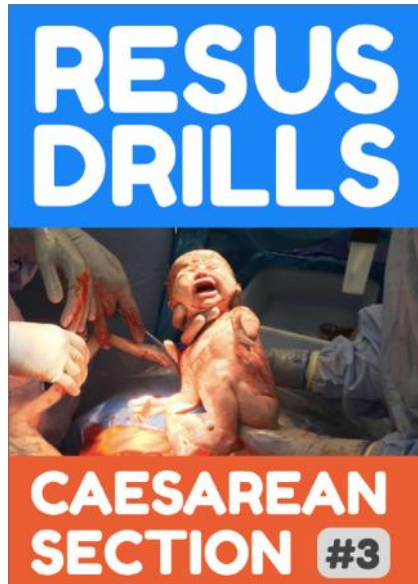
- The “4-5-minute rule”
- What about a “10 or even a 15 minute” rule



A Suggested RH Algorithm

Maternal Cardiac Arrest

- ✓ Uterine fundus at or above umbilicus / Known gestational age ≥ 24 weeks
- ✓ No signs of life **≤ 15 minutes**



Standard ALS management with left lateral tilt continues

Perform Resuscitative Hysterotomy ASAP

ROSC within 5 minutes

Active management

DECEASED

<https://em3.org.uk/foamed/17/3/2023/resus-drills-caesarean-section>

“How do we train for clinical procedures we may never undertake in our career but can be life saving or changing?”

HALO - High Acuity Low Occurrence Procedures



What is a HALO procedure?

- Front of neck access (FONA) / surgical airway
- Resuscitative thoracotomy
- Orbital decompression / lateral canthotomy
- **Resuscitative Hysterotomy**
- Escharotomy



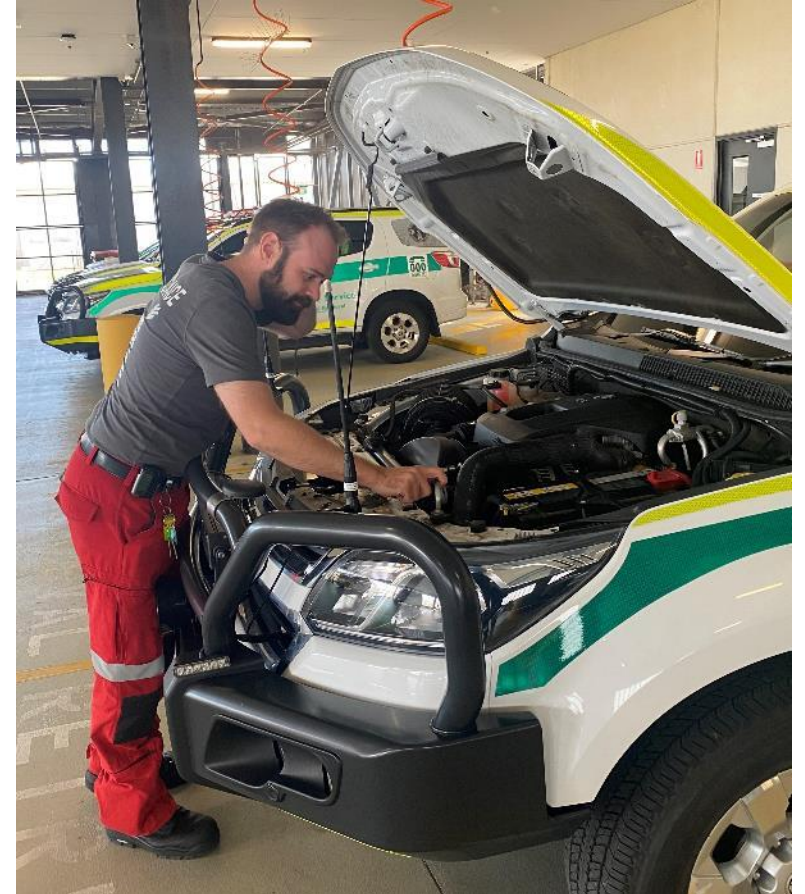
HALO Training Tools

- Part task trainers
- Animal models / wet labs
- Cadaver models
- \$\$\$\$\$\$



HALO

- The '***otomy***' is just the beginning
- The life saving procedures start once you get inside
- Reproduceable and not time consuming
- What about the bystanders?



Emergency Reflex Action Drills (ERAD's)

- Specific action drills
- “Slow is smooth, smooth is fast”
- Minimise cognitive load
- Reflexed, programmed response



Emergency Reflex Action Drills (ERAD's)

www.em3.org.uk



Caesarean Section
Drill #3

Pre-brief
Instructor to read out this section

"Welcome to this Resus Drill. Drills are for situations which are not common, and need a time-critical response. This is not a Simulation. Drills are a rehearsal for practising teamwork and speed.
We will run a scenario for 5 minutes, chat and reflect on it, then run the same scenario again for another 5 minutes."

Assurances

Learning, NOT assessment: drills are for practice and for learning. We're concentrating on how fast you can think, and how well you work as a team.
Safe zone: lessons are shared here, not judged, not told as tales.
5-min reflection rules: please use the debrief to be positive about what you can all do better on the re-run. These are deliberately tough scenarios. That's the point of a drill.
Pretend it's real: Although it's not real, we need you to help us by acting as you'd do in real life, in your normal role, and we'll try to run it in real-time.
Take-away pack: there is some information that you can take away for further learning. We recommend "spaced repetition" for the best learning!

- make some reflective notes while it's fresh in your mind
- make yourself read them again in a couple of weeks

How does it work?

Each Resus Drill pack follows a standard format.
The drill packs are laminated and available for teaching purposes, and can be downloaded from www.em3.org.uk
Our downloaded drills can be edited to suit local hospitals.

EM3: East Midlands Emergency Medicine Educational Media (2023) - Version 3.0

1

Is This Then That (ITTT)

IF

CA <15 minutes
&

Fundus at umbilicus



TT

Resuscitative
Hysterotomy

<https://www.stemlynsblog.org/training-for-halo-procedures-part-2-personal-preparation-st-emlyns/>

BTSF – Beat The Stress Fool

- Breathe (Tactical)
- Talk (Self)
- See (Mental Rehearsal)
- Focus with Trigger Word

Psychological Skills to Improve Emergency Care
Providers' Performance Under Stress

Michael J. Lauria, BA, NRP, FP-C*; Isabelle A. Gallo; Lt Col Stephen Rush, MD;
Jason Brooks, PhD, MSc; Rory Spiegel, MD; Scott D. Weingart, MD



Lessons Learnt

- “Don’t waste suffering” – leverage all positive learning opportunities even from cases such as this
- The training you conduct can directly reflect reality – harness it!
- HALO procedural training to build not only service capability but improve decision making and resilience of pre-hospital clinicians

QUESTIONS?