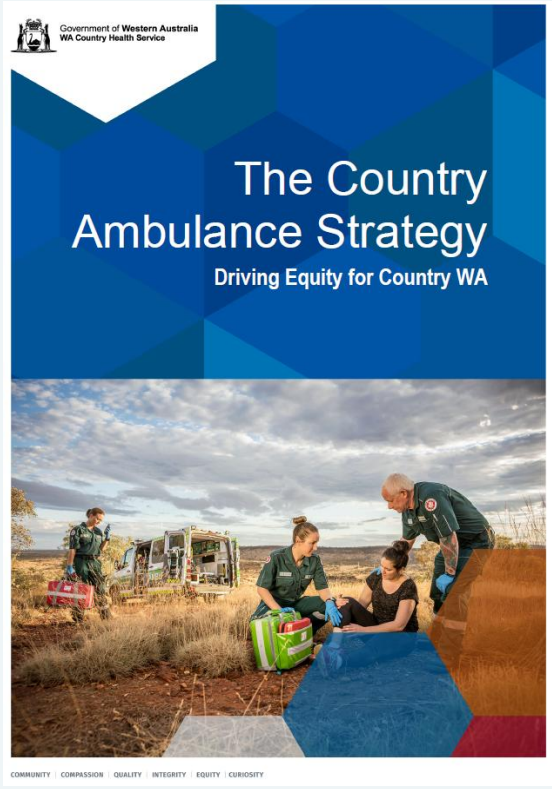
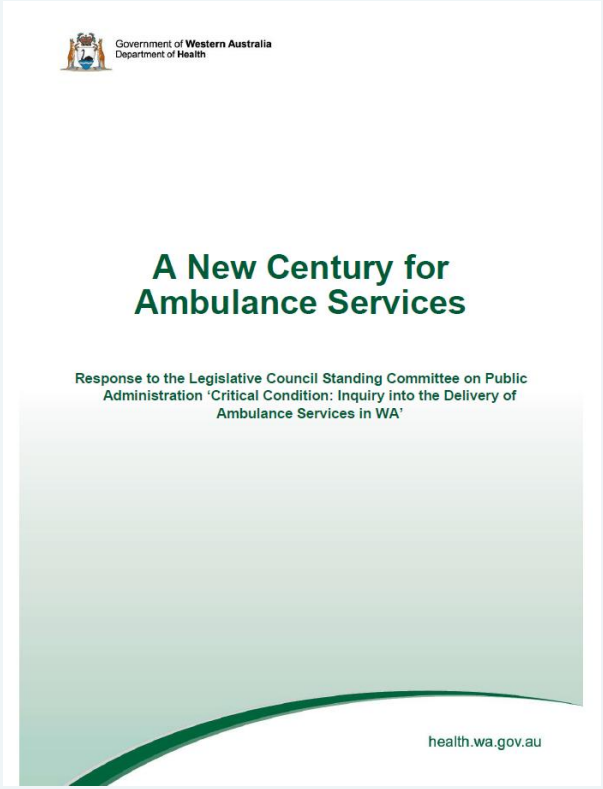






[Study Protocol] Patient outcomes comparing Emergency Rescue Helicopter Service interprofessional with uniprofessional crewing model

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WA Context

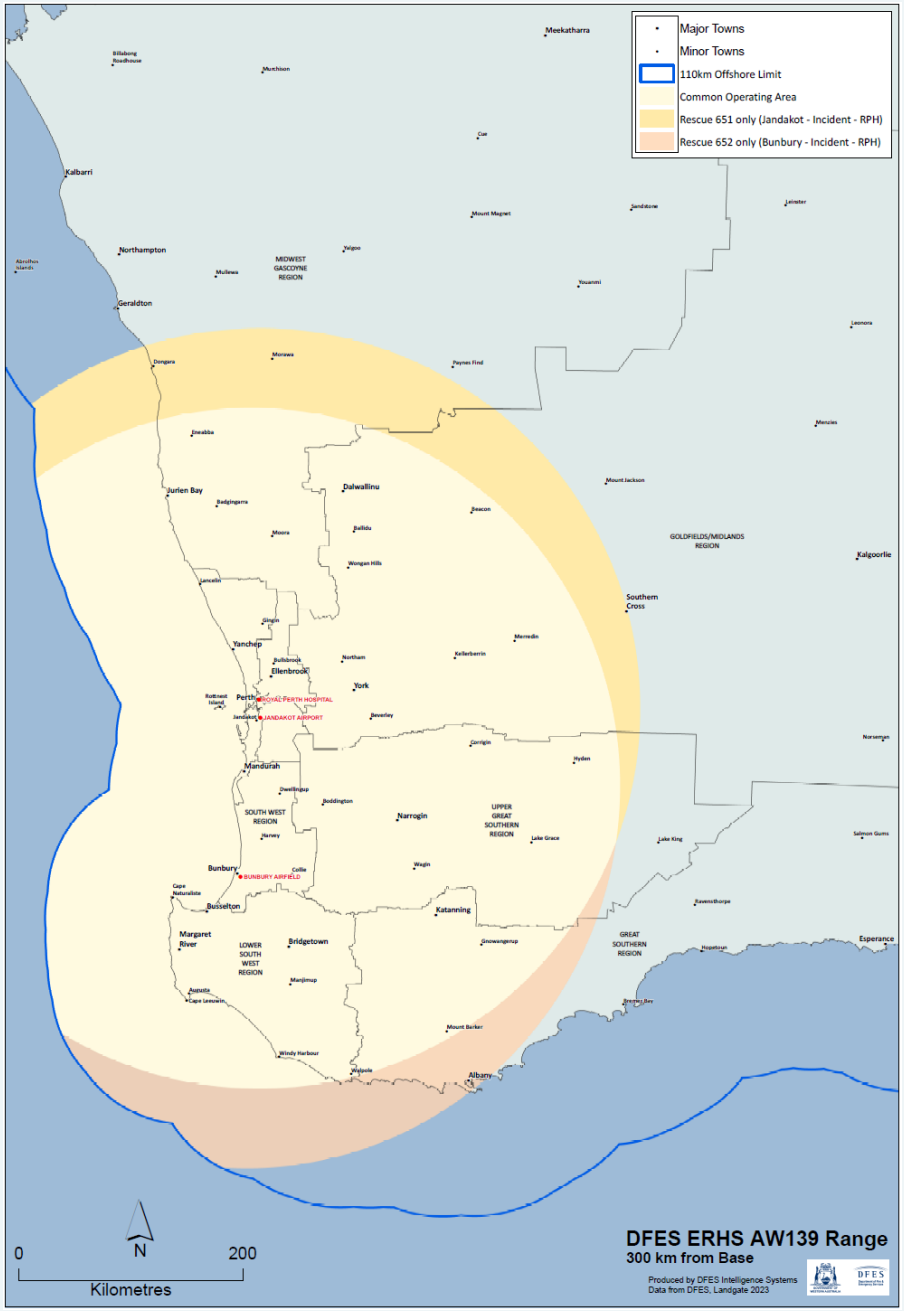
Pre 14 Sep 2026 Uniprofessional
1x CHC Pilot
1x CHC Aircrew Officer
1x SJWA Critical Care Paramedic
1x SJWA Second Clinician (Paramedic)

Post 14 September 2026 for Jandakot – Interprofessional Team
1x CHC Pilot
1x CHC Aircrew Officer
1x SJWA Critical Care Paramedic
1x WACHS Physician
(Bunbury by end of FY27)

Interprofessional team will **expand the scope of service to include pregnant patients, children under 5 years of aged, patients with acute medical emergencies, and patients experiencing mental health crises.**

Range of ERHS AW139

300 km from Jandakot and Bunbury



Study Challenges



- **Ethical:** Lack of clinical equipoise to ethically conduct a randomised controlled trial
- **Limitation of current literature:** Mostly on trauma and out-of-hospital cardiac arrest
- **Confounders:** Other changes implemented in parallel e.g., tasking, coordination, and rostering
- **Case matching:** Expanded scope of the service changes the case mix
- **Crew mix debate:** Not helpful in adding to the debate when focus could be on the robustness of the service to serve the community (Australian Commission Safety and Quality in Health Care)

Study Challenges

With paraphrasing: *"The world is starting to become more unpredictable, and solutions will need to be built to live in an era of standard deviation where fluctuations are welcomed."*

- French biologist and biophysicist, Dr Olivier Hamant

Dr Olivier distinguishes performance (efficacy plus efficiency) from **robustness (the capacity to remain stable and viable despite fluctuation)** and noted that nature rarely selects for the most efficient organism; it selects for the most adaptable one.

Same goes for human-created systems and solutions.

Better Study Approach

[Study Protocol] Patient outcomes comparing Emergency Rescue Helicopter Service interprofessional with uniprofessional crewing model

[Study Protocol] Evaluation of the Emergency Rescue Helicopter Service Model in WA Post-Implementation of Aeromedical Inquiry Recommendations

What would this look like, Collaborative Clinical Services Working Group that has members from WACHS, SJWA, DFES, State Trauma Centre, and **Community Representative** produced:

- **Right Care –** Patient outcome 24 hours, 30 days, and discharge (also mentioned of Quality-Adjusted Life Years, QALYs)
- **Right Place –** Smooth retrieval to appropriate definitive care and through the Health systems
- **Right Time –** Timeliness of reaching the patient e.g., mission time from call received, on scene, to handover
- **Robustness –** Expanded scope and diversity of patients, also missed tasking e.g., asset, flight crew, equipment, weather etc

Evaluation will be different for search and rescue, pre-hospital, and inter-hospital missions.

Other considerations:
- Quality of recruitment with ongoing feedback on clinician's attributes via feedback (anonymous option available)
- Robustness of training via continuous feedback (anonymous option available)

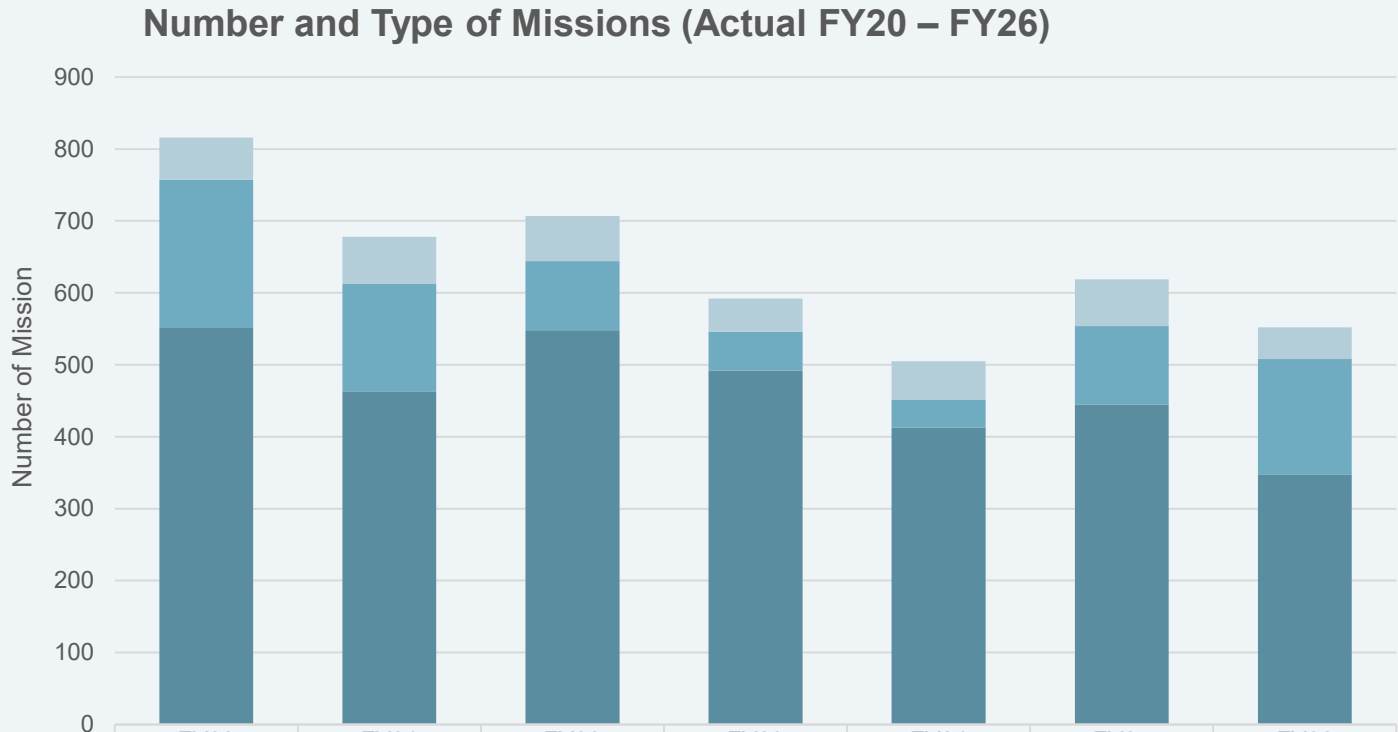
Study Questions and Data Collection

Study Questions	Data Source
Patient outcome 24 hours, 30 days, and discharge^	Digital medical record
Transfer to appropriate definitive care^	Dispatch system
Timeliness of reaching the patient^	Dispatch system
Expanded service scope and diversity of patient^	Digital medical record
Missed tasking	Dispatch system
Quality of recruitment	Qualitative feedback
Robustness of training	Qualitative feedback

^All ERHS patient transported will be included in the study



Number of Missions Per Year



	FY20	FY21	FY22	FY23	FY24	FY25	FY26
SAR	59	65	63	46	54	65	44
IHPT	206	150	96	54	38	109	161
Pre-hospital (MEDEVAC)	551	463	548	492	413	445	347

MEDEVAC – Medical Evacuation; IHPT – Interhospital Transport; SAR – Search and Rescue

Data Collection – Missed Tasking

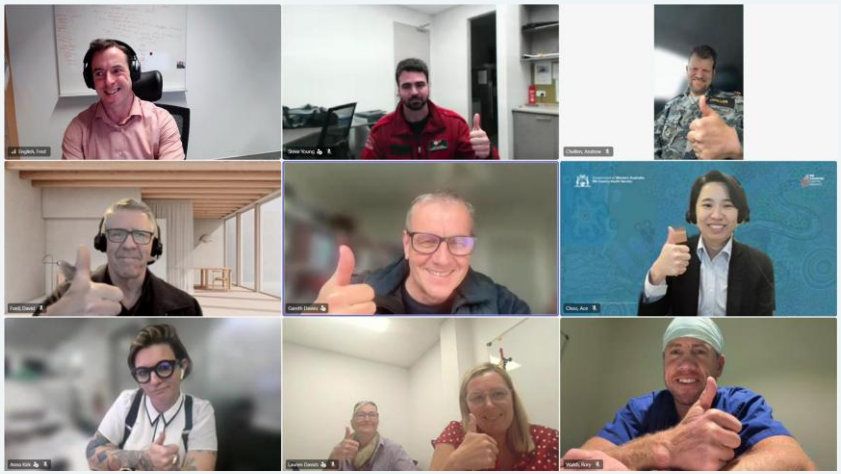
1. Unavailable ERHS flight crew
    - No Pilot
    - No Aircrew Officer
    - No Rescue Crew Officer
    - No Second Paramedic
    - No Doctor
2. Unavailable asset, equipment, and/or consumables
    - Asset – committed to another mission
    - Asset – maintenance
    - Asset – mechanical issue
    - Equipment – maintenance
    - Equipment – mechanical issue
    - Consumables – not available
3. Outside of range
4. Weather
5. Other (please specify)

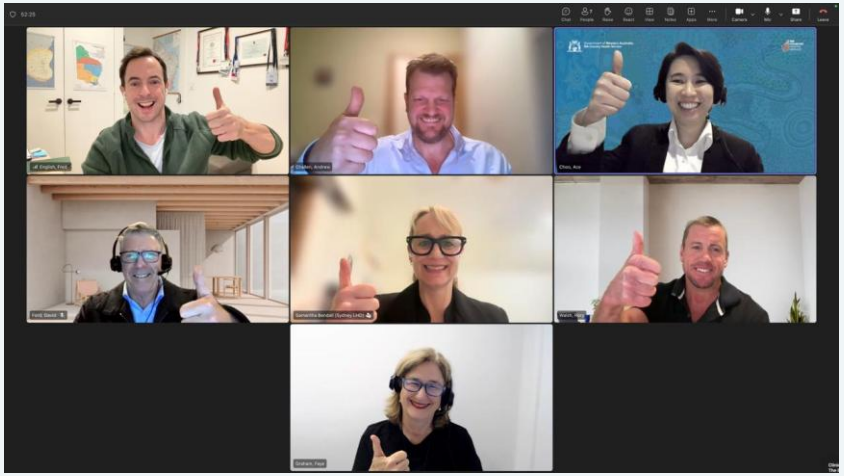


[#]Ford, D., *et al*. noted:
"Direct HEMS retrieval from the incident scene to a tertiary hospital substantially improves the chances of survival for severely injured trauma patients in rural locations in the zone 50 to 250 km of Perth."

[#]Ford, D., et al. (2020). "Does Direct Helicopter Retrieval Improve Survival of Severely Injured Trauma Patients From Rural Western Australia?" Air Medical Journal **39**(3): 183–188.

Data Collection – Quality of Recruitment and Robustness of Training



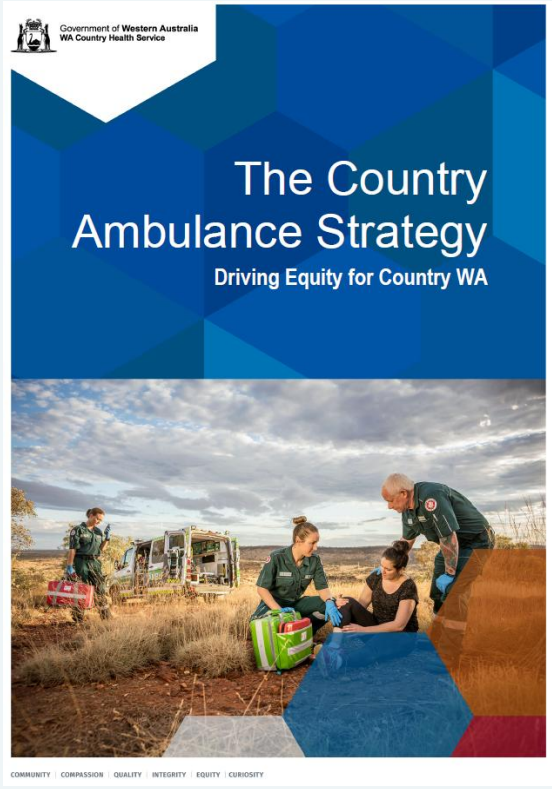


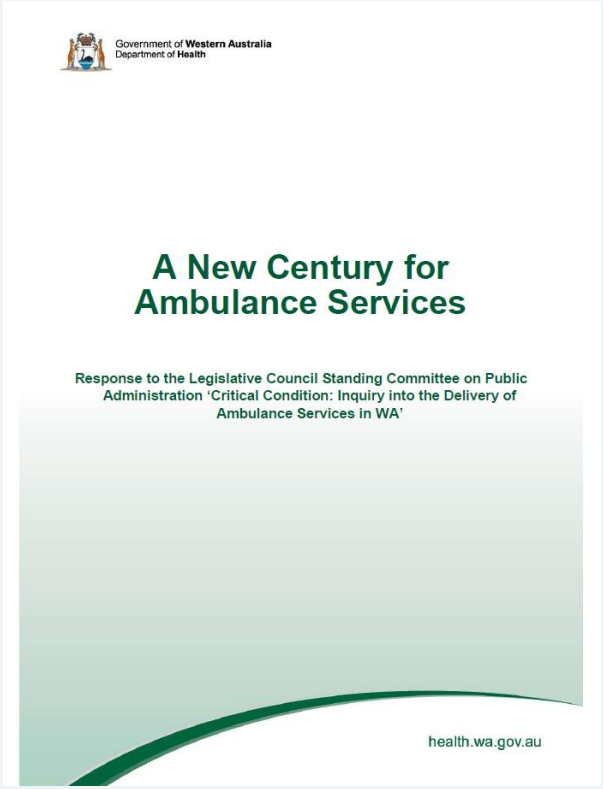
Paraphrased from Dr Gareth Davies (London Air Ambulance) regarding choosing the right people for the service and having good training:

“The person should have humility, inner confidence, and virtuosity. These required attributes have not change over time”

“Virtuosity (1) performing the common, uncommonly well, (2) focus on the basics with absolute attention of detail, (3) mark of mastery”

Data collection via QR code with anonymous option available







Brings us back to the WHAT and WHY

What are we trying to achieve and why

Thank you and stay tuned!



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Supplementary Info

The artwork in this publication is the work of Leeann Kelly-Pedersen

Tasking Principles

Search & Rescue (SAR)

Highest Priority

Deconfliction Not Required

- Location is in WA
  Range From Base Is Not A Factor
- Search and Rescue over sea and land
- OR - Hoist / vertical retrieval from difficult terrain
- OR - Locations inaccessible by other transport / assets

Pre-hospital (MEDEVAC)

Deconfliction Maybe Required With IHPT / DFES Tasks

- Location is 300-350 km radius of the respective Base
- Immediate risk to life or quality of life
- OR - Clinical presentation indicates patient will require retrieval to Perth
- OR - Resources required to manage injury / illness exceeds local capacity
- AND - When in doubt, Task and review

Interhospital Patient Transfer (IHPT)

Deconfliction Maybe Required With Pre-hospital / DFES Tasks

- Location is 300-350 km radius of the respective Base
- Clinical complexity exceeds local health service resources
- OR - Escalation of care is required because of clinical instability
- OR - Urgency excludes road / fixed wing response
- AND - When in doubt, Task and review

DFES Tasking

Tasking originates from Department of Fire & Emergency Services (DFES)

ERHS is required to support emergency operations in WA e.g. bushfire, flood

Deliberation is not required. Deconfliction may be required with pre-hosptial and IHPT tasks

WACHS ERHS Physician Team

Key Characteristics of 2026 Physician Intake[1]	
Female	5 (36%)
Male	9 (64%)
Average Age	43 years old
Average Medical Practice Experience in Australia	13 years
Average Specialist Practice Experience	6 years
Consultant Emergency Physician (FACEM)	8 (57%)
Consultant Anaesthetist (FANZCA)	4 (29%)
Consultant Intensive Care Physician (FCICM)	2 (14%)
Operating ERHS Medical Retrieval Consultant	7 (50%)
Operating ERHS Medical Retrieval Fellow	7 (50%)

Additional Skills Within This Group

- Clinical governance
- General practice and public health
- Humanitarian and military medicine
- Hyperbaric medicine
- Leadership and management
- Obstetrics
- Occupational health
- Paediatric critical care
- Palliative care
- Regional anaesthesia
- Research and education
- Retrieval coordination
- Rural surgery
- Simulation
- Sports medicine
- Trauma and resuscitation
- Ultrasound and echocardiography

[1]*Includes the Director Acute Retrieval and Ambulance, and Medical Lead*

Robustness of Training

ERHS TEAM TRAINING

		Mon 31/8 SP/*Jandakot*	Tue 1/9 *FSH*	Wed 2/9 *CTEC*	Thu 3/9 *RPH*	Fri 4/9 *PCH*
IHPT	AM	0800 Introductions - Fred Jeff (CE) Kevin Brown GroupCO SJA Indigenous Health Rep	IHPT RSI demo. IHPT workflow. Assessment/packaging Δ IHPT RSI	**Critical Procedures** ***Human & Porcine Models*** *Needle Cricothyroidotomy* *Scalpel Cricothyroidotomy* *Lateral Canthotomy* *Intra-osseous proximal humerus/tibia* *Needle Thoracostomy* *Finger Thoracostomy* Resuscitative Thoracotomy Traumatic Amputation Limb Escharotomy	Airway in IHPT (Prep& Plan) Δ IHPT Sim 1 (intubation) Difficult IHPT (inc FONA) Δ IHPT Sim 2 (Inadvertent extubation) Medical Arrest Mx Δ IHPT Sim 3 (Medical Arrest)	Paediatric/infant transport Paed airway/drug/equipment calculations JCross Presentation Paed Sims 1, 2, 3 eg Asthma/Septic shock/Multitrauma
		Mental Health Rep Principles of TTP/Clinical Governance	Hamilton & Ventilation Δ Zoll & Brauns CVC/Artline Set ups Δ Human Factors			Package & Transfer to Heli pad
	PM	Move to Jandakot Sartain & CHS FRMS Induction CCP Meet & Greet Faculty Meeting / CCP led: Pack familiarity - Yellow & Red Δ Paed & Oxygen ΔMain Drug & Blood bags	Burns Mx Obstetric challenges Newborn Resus **Obstetric sims** 1) PPH, 2) Cardiomyopathy Arrest w R/Hysterotomy		Mental Health & Acute Behavioural Disturbance Sim 4 (ABD) Hospital tour + heliport	**ULTRASOUND IN PHRM**
	Wk 2	**Mon 7/9 *IRWIN***	**Tue 8/9 *IRWIN***	**Wed 9/9 *IRWIN* w DFES**	**Thu 10/9 *IRWIN***	**Fri 11/9 *IRWIN***
PREHOSPITAL	AM	Introduction to Prehospital Missions Prehospital Sims Explained	Splints: pelvic/femoral Δ Haemorrhage control (torniquets/packing)	Extrication/car cutting DFES Vehicle extrication scenarios	Critical Procedure Assessments	Final Assessment Day
		Prehospital workflow Δ Rapid Assessment of the trauma patient	Maxillo-facial haemorrhage Δ Prehospital Sim 1	Extrication devices Environmental extrication scenarios	Approach to Multiple patients Approach to Major Incidents	OSCES x 8 PHRM/IFT/Paed/Obs Assessment Sims
	PM	PHEA Δ Scene Management	Mx TBI Δ Sim 2	Environmental extrication sim	Active shooter scenario	
		Prehospital Sim Δ Vascular access & blood Mx	Paediatric Trauma Δ Sim 3	**651 to Irwin TBA**	Mass casualty scenario	