



AmbulanceVictoria



MONASH
University

Paramedic-performed point-of-care ultrasound in an Australian HEMS

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Cannot agree with this more. Practicing acute care without [#POCUS](#) (or training in POCUS) today is unethical. Period.



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Ambulance Victoria

- Statewide ambulance service
- ~4500 paramedics
- ~550 MICA Paramedics
- 42 MICA Flight Paramedics
- Small group of experienced, postgraduate-educated paramedics with high exposure to critically unwell patients
- **Average** prehospital experience 22yrs
- Robust clinical governance
- Heavily involved in prehospital research
- Respond on a fleet of 5 rotary and 4 fixed-wing aircraft





PANTS

Paramedic **A**cute **N**ew
Toy **S**yndrome



History – Ambulance Victoria

- 2007: PHAST pilot study (FAST only)
- 2011: MICA Flight Paramedics commence red cell concentrate administration
- 2012: Revisit concept of Point of Care Ultrasound (POCUS)
- 2015: Device selection and commencement of training
- 2016: eFAST introduced into clinical practice
- 2017: Traumatic arrest guideline revision
Expansion of indications



Scoping Review

Educational Curricula for Training Paramedics in Ultrasound:

A Scoping Review

- 2002 articles - 18 met criteria of paramedic ultrasound education
- Poor alignment of education with qualification level or clinical experience
- Highly variable educational processes – hours to days
- Variable confirmation of ability/accuracy
- Lack of standardisation in training and clinical protocol
- Poor correlation with clinical utility
- Prospective studies assessing standardised education and clinical utility are required



Meadley B, Olaussen A, Delorenzo A, Roder N, Martin C, St Clair T, Burns A, Stam E, Williams B. Educational standards for training paramedics in ultrasound: a scoping review. *BMC Emergency Medicine*. 2017;17:(18)

MICA Flight Paramedic training

- Four hours face-to-face training with senior emergency consultant
- Didactic and practical components
- One Paramedic Educator per base attended a one-day custom-designed prehospital POCUS course at Ultrasound Training Solutions, Melbourne
- Online learning support videos developed by Paramedic Educators
- Selected paramedics attended vascular access course with UTS



PREHOSPITAL ULTRASOUND



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Retrospective analysis – Year 1

VACIS data:

1st January 2016 – 31st December 2016

Primary HEMS trauma responses: **780**

	(n)	(%)
Negative eFAST:	193	(73.6)
Possibly positive:	25	(9.5)
Not clearly stated:	15	(5.7)
Positive eFAST:	29	(11.2)
eFAST scans:	262	



Retrospective analysis – Year 1

VACIS data:

1st January 2016 – 31st December 2016

	(n)	(%)
Cardiac:	0	(0)
Lung:	10	(34.5)
LUQ:	2	(7.0)
RUQ:	14	(48.2)
Pelvis:	3	(10.3)
Positive eFAST:	29	



Observations - The first year

- Prioritisation in assessment
- Ad-hoc confirmation of positives
- Scene time prolongation
- ePCR compliance/reporting accuracy
- Measures of clinical utility
- Relevance to receiving MTC
- Transmission of images
- Significant guideline changes:
 - Traumatic arrest
 - RCC administration



A couple of examples



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Future directions

- Standardised training curriculum for paramedics
- Component of registration for ICP/CCP
- Clear clinical indications based on demonstrated utility
- Priority in clinical assessment
- Expertise at eFAST *with* physician or sonographer confirmation
- Improved accuracy in reporting
- Seamless digital transmission to MTC - ?ED bypass
- Vascular access, nerve blocks, other indications

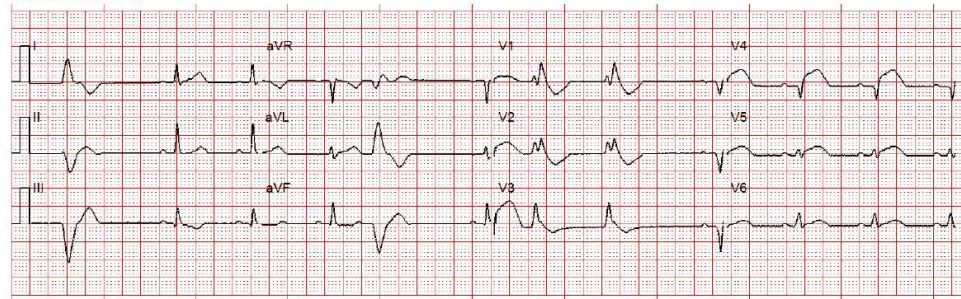


Future directions

ZOLL® M Series® Defibrillator 12-Lead Report 18:01:01 31 AUG 11

PATIENT NAME:		Vent Rate:	68	Normal sinus rhythm with frequent premature ventricular and fusion complexes
PATIENT ID:	201108311433	P Duration:	84 ms	Low voltage QRS
PATIENT AGE:	60	PR Interval:	158 ms	Cannot rule out Anteroseptal infarct, possibly acute
PATIENT SEX:	MALE	QRS Duration:	96 ms	*** ** * Acute MI * ** ** *
DEVICE ID:	FIRERESCUE	QT/QTc:	378/399 ms	Abnormal ECG
RECORDED:	18:01:01 31 AUG 11	P-R-T Axis:	61 55 2	*** Unconfirmed ***

18:01:01 31 AUG 11



25 mm/s 10 mm/mV 0.05-40 Hz, ECG x1

Grid size is 0.2 s x 0.5 mV

Pre-Hospital Notification Trial for Primary PCI: A Collaboration between the Victorian Cardiac Clinical Network (Department of Health), Ambulance Victoria and Participating Victorian Public Hospitals

H. Jangwal^{1,*}, H. Parker², B. Barger³, K. Smith³, G. Toogood⁵, K. Soon⁶, Y. Malaiapan⁷, W. Van Gaal⁸, R. Whitbourn⁹, L. Grigg¹⁰, A. Black¹¹, A. Broughton¹², O. Farouque⁴, L. Roberts¹, K. Sanders⁴, R. Harper², J. Lefkovits², G. New¹

¹ Box Hill Hospital Melbourne, Australia

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⁶ Western Hospital Melbourne, Australia

⁷ Monash Medical Centre Melbourne, Australia

⁸ Northern Hospital Melbourne, Australia

⁹ St Vincents Hospital Melbourne, Australia

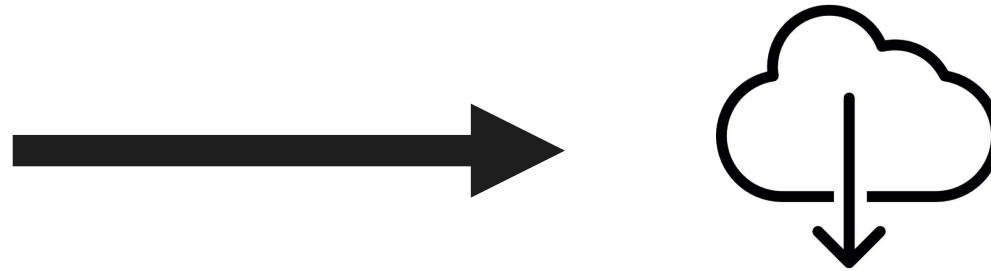
¹⁰ Royal Melbourne Hospital Melbourne, Australia

¹¹ Geelong Hospital, Australia

¹² Alfred Hospital Melbourne, Australia

Background: Following the results of the MonAMI pilot study, Pre-Hospital Notification of STEMI (PNS) has been introduced to all MICA ambulances (August 2009) and public hospitals that provide 24/7 Primary PCI in Victoria. It remains to be seen whether implementation across Victoria of PNS can achieve the same results as the pilot, the D2B Alliance and NHF/CSANZ D2BT recommendations.

Future directions





Thank you.

Questions?`