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.
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
P A N T S
Paramedic Acute New Toy Syndrome
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

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
Retrospective analysis – Year 1

VACIS data:
Primary HEMS trauma responses: 780

<table>
<thead>
<tr>
<th>Test Type</th>
<th>(n)</th>
<th>(%)</th>
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<tbody>
<tr>
<td>Negative eFAST:</td>
<td>193</td>
<td>(73.6)</td>
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<tr>
<td>Possibly positive:</td>
<td>25</td>
<td>(9.5 )</td>
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<tr>
<td>Not clearly stated:</td>
<td>15</td>
<td>(5.7 )</td>
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<td>Positive eFAST:</td>
<td>29</td>
<td>(11.2)</td>
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eFAST scans: 262
Retrospective analysis – Year 1

VACIS data:
1\textsuperscript{st} January 2016 – 31\textsuperscript{st} December 2016

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<table>
<thead>
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<tr>
<td>Cardiac:</td>
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<tr>
<td>Lung:</td>
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<td>LUQ:</td>
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<td>RUQ:</td>
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<td>(48.2)</td>
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<td>Pelvis:</td>
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<td>(10.3)</td>
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<td><strong>Positive eFAST:</strong></td>
<td><strong>29</strong></td>
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</table>
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
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
Future directions
Thank you.

Questions?`