



AIR AMBULANCE CHARITY  
KENT SURREY SUSSEX

# Arterial Lines at KSS; can early insertion influence subsequent management?

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# Thank you to our team

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- Richard Lyon





Pre-hospital intra-arterial blood pressure monitoring provides advanced monitoring in a safe and time-effective manner in semi-rural HEMS

- Invasive Blood Pressure monitoring has a potential to benefit a subset of patients attended by AAKSS. Beat by beat accuracy.
- Ensure no delay on scene and that time is managed appropriately
- Stage 1 towards more nuanced care and bridge to further endovascular interventions



# Our Indications

1

Patients with clinical evidence of brain injury (either medical or traumatic) and requiring rapid sequence induction

2

Patients who have sustained an isolated spinal cord injury and require blood pressure support with vasopressors

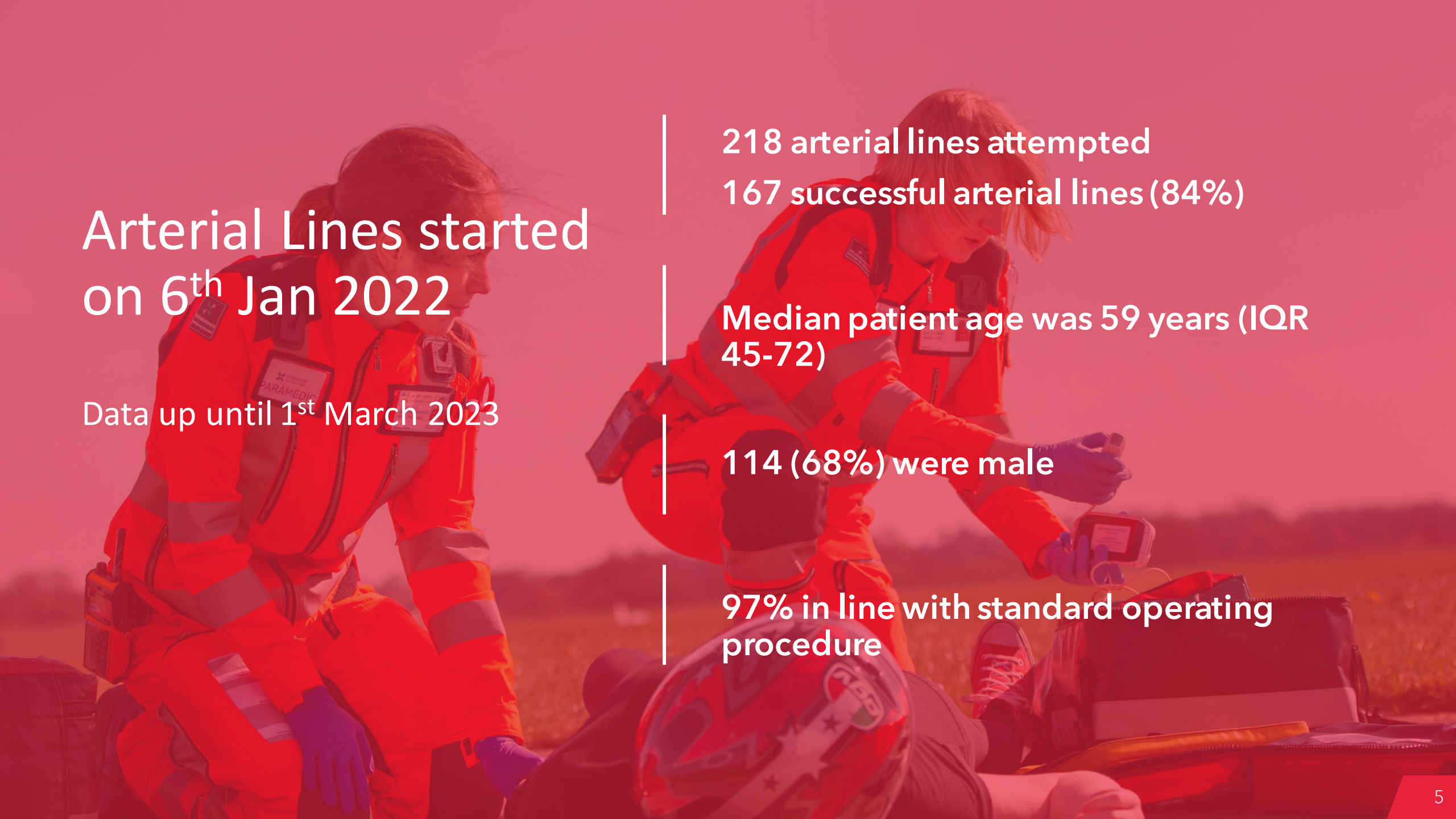
3

Patients who have suffered a cardiac arrest and have ROSC

4

Inter-hospital transfer patients who are being ventilated or who require vasoactive drugs





# Arterial Lines started on 6<sup>th</sup> Jan 2022

Data up until 1<sup>st</sup> March 2023

218 arterial lines attempted  
167 successful arterial lines (84%)

Median patient age was 59 years (IQR  
45-72)

114 (68%) were male

97% in line with standard operating  
procedure

# Indications



Indication	Number of patients (%)
<b>Brain Injury (including hypoxia post hanging)</b>	121 (65%)
<b>Spinal Cord Injury</b>	1 (0.5%)
<b>ROSC</b>	39 (21%)
<b>Interhospital Transfers</b>	18 (10%)
<b>Off SOP Indications</b>	6 (3%)

# Arterial Lines

Primary expected location is Radial Artery



- Radial Artery (n= 155, 93%)
- Right sided (n=123, 74%) - avoided in PCI patients
- Of successful - 80% first time, 99% on second attempt
- 7% of clinicians used Ultrasound
- 53 (32%) x Leadercath & 114 (68%) x FlowSWITCH

# RSI Scene Time

37 minutes



38 minutes

Before COVID and the  
introduction of Arterial  
Lines (1<sup>st</sup> Oct 2018  
until the 1<sup>st</sup> Jan 2020  
(n=326)

After introduction of  
Arterial Lines



A background image showing two paramedics in orange uniforms attending to a patient lying on a stretcher in an outdoor setting. The image is overlaid with a semi-transparent red filter. The paramedics are wearing reflective gear and have 'PARAMEDIC' patches on their uniforms. One paramedic is kneeling and looking at a device, while the other is leaning over the patient.

**Time from arriving on scene to arterial line  
(started to transduce)**

– Median 20 minutes (IQR 16-26)

**Time from arterial line (started to transduce)  
to RSI**

– Median 8 minutes (IQR 6-12)

**Total scene time for these patients**

– Median 38 minutes (IQR 32-46)

**Crew composition didn't seem to make a  
difference**

**38 minutes**



A background image showing two paramedics in orange uniforms attending to a patient on a stretcher outdoors. The image is overlaid with a semi-transparent red filter. The paramedic on the left is looking down at the patient, while the one on the right is holding a medical device. The text 'Follow-up to understand safety' is written in white on the left side of the image.

# Follow-up to understand safety

The first 70 (74%) radial arterial line patients had hospital follow-up

Two patients had related complications (one local infection and one neuropraxia). Both minor and no long term harm.

Very labour intensive to get follow-up. Due to low number of complications conclusion drawn on cohort sampled.

Arterial Lines at AAKSS are safe and efficiently done with low complication rates.

# Propofol Infusions

Propofol

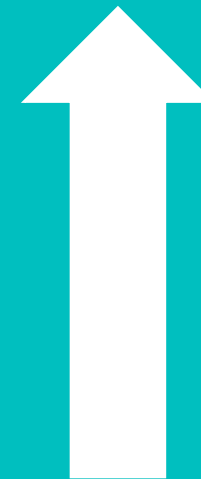
.....mg/ml.



# Metaraminol Usage

metaraminol

.....mg/ml





# Our Conclusion

This prospective clinical audit highlights that KSS have introduced intra-arterial blood pressure monitoring safely and efficiently with low complication rates.

# What is next?

Introduction of Femoral Arterial Lines

Exploring a possible role in Code Red patients

Physiological studies looking at impact of introduction of arterial lines



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# Questions

# ?