

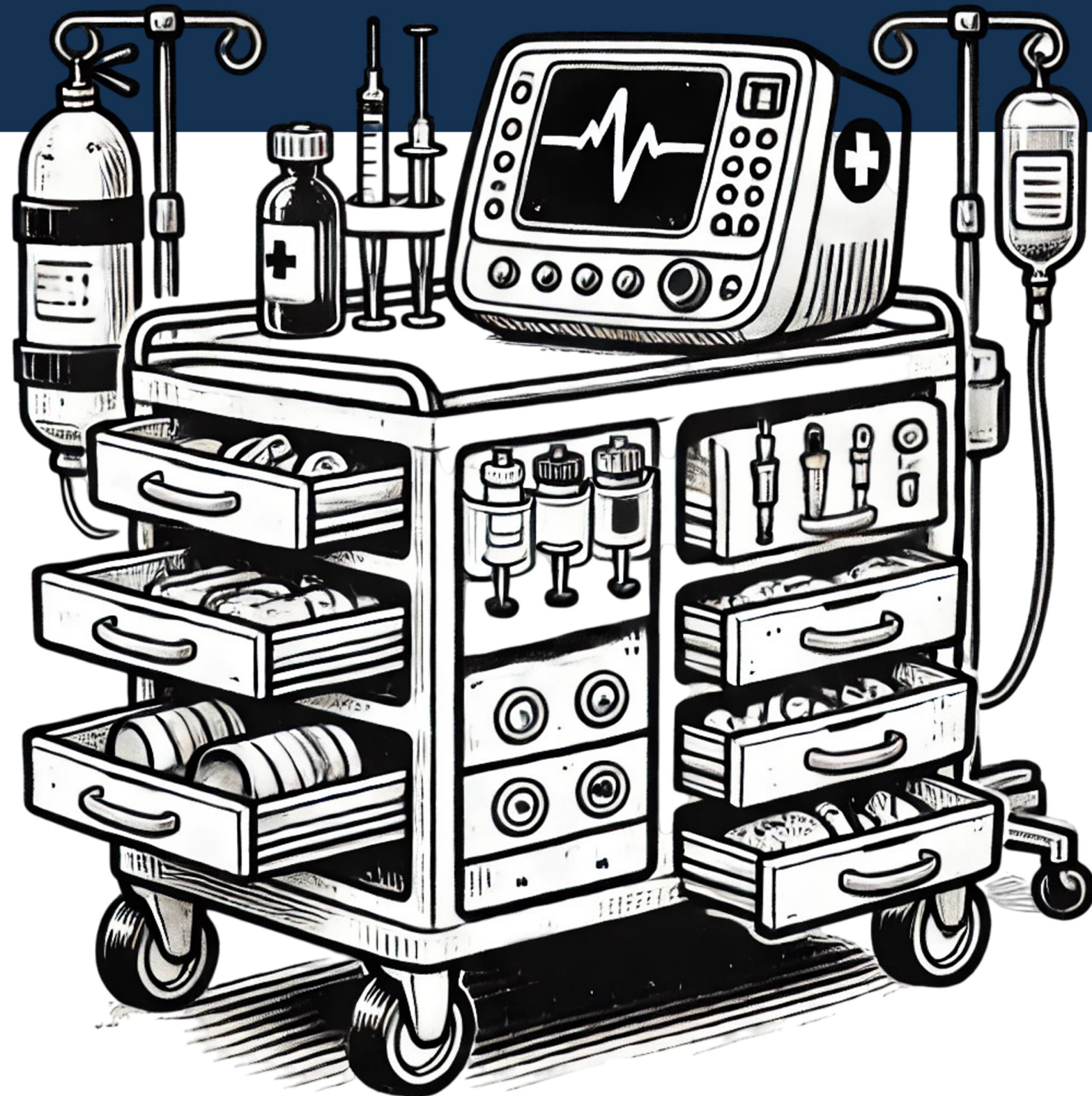
Optimising Maternal Cardiac Arrest Management: Implementing an Obstetric-Specific Cardiac Arrest Trolley

Jeremy Chui¹, Gyuseong Cho¹, Elia Keating², Siobhan Scully³, Abigail Richardson⁴, Sneh Shah⁴

¹ Anaesthesia Resident, ² Resuscitation Officer, ³ Senior Resuscitation Officer, ⁴ Consultant Anaesthetist



London North West
University Healthcare
NHS Trust



INTRODUCTION

Maternal cardiac arrest is rare [1] but catastrophic and requires immediate, multidisciplinary team (MDT) intervention. Management includes time-sensitive interventions and modifications to the standard adult resuscitation protocol in order to optimise the chances of successful return of spontaneous circulation in the mother [2]. A Plan-Do-Study-Act (PDSA) cycle guided a quality improvement process.

Key Challenge

- Equipment for certain obstetric-specific interventions not available on standard cardiac arrest trolleys.

Objective

- Optimise ability to deliver time critical interventions in a maternal cardiac arrest by modifying the adult cardiac arrest trolley.

PDSA Cycle

- Plan (Actions):**
 - Review of Labour Ward arrest cases
 - Review NAP7 findings
 - Involve key MDT stakeholders to plan simulation
- Do**
 - In situ scenario on the Labour Ward on a weekday in-hours
 - Treated as a 'real' scenario throughout
 - Participants (Full MDT): Obstetricians, Anaesthetists, Midwives, Neonatologists, Resuscitation Officers, Critical Care.
- Study (Debrief & feedback revealed):**
 - Trolley not stocked as per checklist
 - Key equipment (e.g. PMCS kit, thrombolysis drugs) not easily accessible
 - Poor visibility/accessibility of critical items
 - Themes echoed in NAP7 [3]
- Act (Next steps):**
 - Standardise trolley contents & layout across maternity areas
 - Add maternal arrest specific equipment (e.g. PMCS kit)
 - Improve signage, storage, and escalation cues
 - Embed simulation & audit in regular MDT training

EVENT

34 week pregnant patient with respiratory distress and chest pain brought to Labour Ward

Emergency Buzzer activated & Labour Ward team attended

HR 140, BP 75/40
SpO2 85% (Room Air)

Deterioration anticipated

Maternal Cardiac Arrest Call activated

Cardiac Arrest

CPR commenced

Most likely cause of arrest - Pulmonary Embolism

Consideration of Thrombolysis

SUCCESS POINTS

Early recognition of patient at risk of cardiac arrest

Appropriate Emergency Call Initiated

Prompt arrest team arrival

Early lateral uterine displacement

Early tracheal intubation

Early perimortem caesarean section

High quality BLS + NLS

Excellent knowledge & communication

OPPORTUNITIES

Checklist present but not easily located

Essential items missing from trolley (e.g. non-rebreathe mask)

Overstocking and unnecessary kit

Cognitive aid for maternal arrest not present

Unclear location of equipment e.g. perimortem caesarean kit / thrombolysis

Paediatric kit including neonatal equipment stored inappropriately

Small, congested location hindered arrival of equipment

INTERVENTION

Location labels added for adjuncts (e.g. PMCS kit)

Training and audit of re-designed cardiac arrest trolley

Review of cardiac arrest trolleys within maternity unit

MODIFICATIONS

Maternal cardiac arrest cognitive aid attached

Non-essential kit removed

Airway

- short-handled laryngoscopes
- video-laryngoscopes
- portable CO2 monitor

Drugs

- 8.4% sodium bicarbonate
- thrombolysis drugs

Fluids

- 2x blood giving set

Perimortem caesarean section kit

New cardiac arrest trolley checklist

CONCLUSION

The PDSA cycle and simulation exercise identified key system gaps in maternal cardiac arrest preparedness, including checklist inconsistencies, missing or incorrect equipment, and unclear locations of essential items such as the perimortem Caesarean section kit, thrombolysis drugs, and airway adjuncts. These findings echo themes from NAP7 [3], which highlights the critical importance of reliable equipment access and team readiness in obstetric arrests.

Future improvements will focus on:

- Standardising obstetric arrest trolley contents and layout across all maternity areas
- Introducing maternal-specific modifications (e.g. cognitive aid, reinforced tubes, eFONA pack)
- Improving visibility and access to equipment via signage, rationalised storage, and clearer escalation triggers
- Embedding simulation and audit into routine MDT training and practice

By treating simulation as a diagnostic tool and aligning with national guidance [2], we are moving towards a safer, more coordinated response to this rare but high-risk emergency.

¹ Beckett VA et al. The CAPS Study: incidence, management and outcomes of cardiac arrest in pregnancy in the UK: a prospective, descriptive study. British Journal of Obstetrics and Gynaecology 2017; 124: 1374-1381.

² Resuscitation Council UK. Special circumstances Guidelines. 2021. <https://www.resus.org.uk/library/2021-resuscitation-guidelines/special-circumstances-guidelines> (accessed 22.04.2045)

³ Cook TM et al. NAP7: Seventh National Audit Project – Perioperative Cardiac Arrest in the UK, 2023.