



London Ambulance Service  
NHS Trust



# Clinical Audit and Research in the LAS

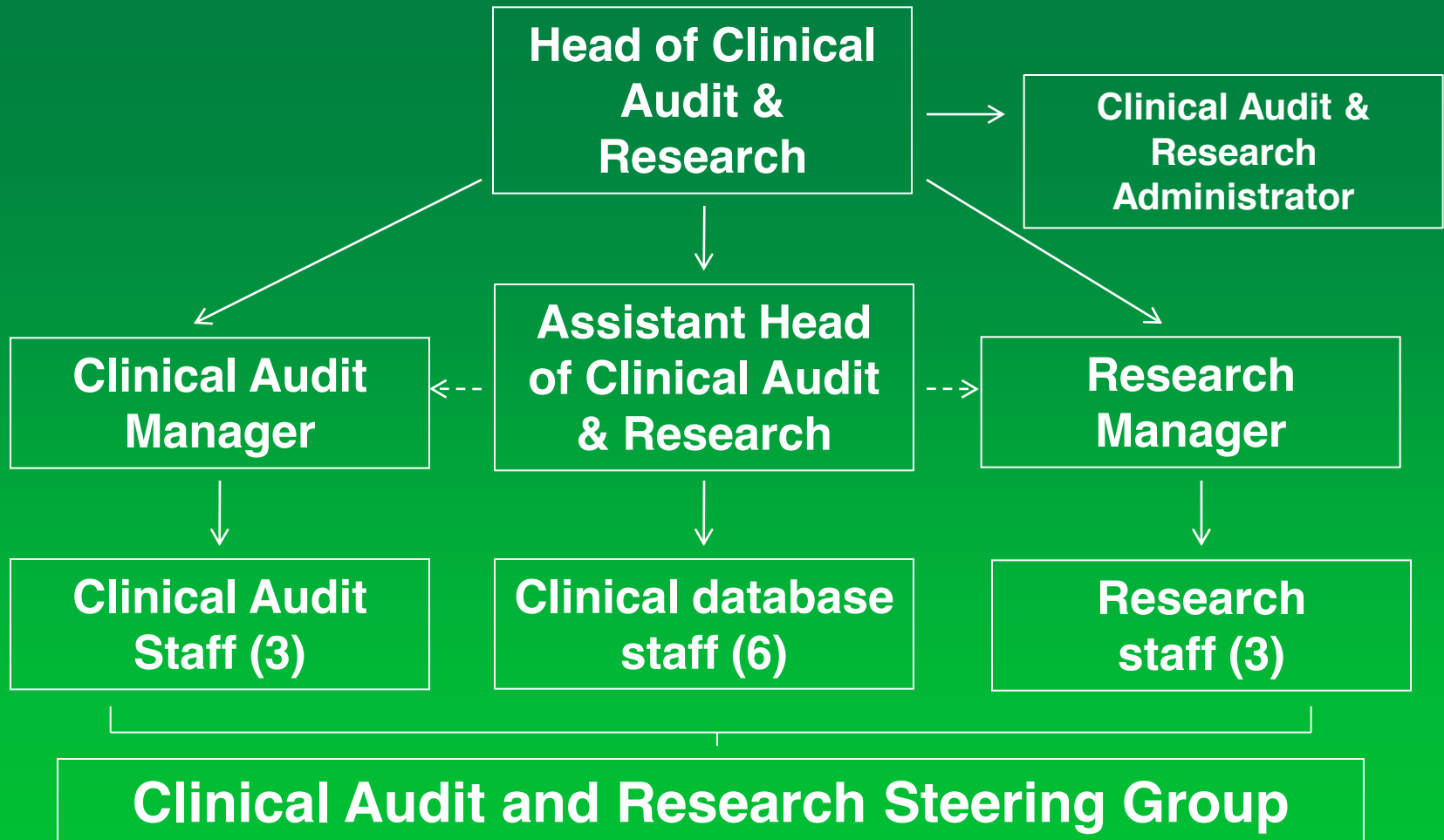
Gurkamal Viridi

Assistant Head of Clinical Audit and Research

Clinical Audit and Research Unit (CARU)

Clinical & Quality Directorate

# Structure of CARU



# Clinical Audit Programme

- LAS supports an annual programme of work
- Range of topic areas:
  - Topics identified using a set of Audit Triggers
  - Prioritisation Tool is applied to select high impact topics
- Different types of audit allow for in-depth ongoing review to snapshot look at practice
- Led by CARU
- Frontline clinician involvement
- Where possible work with partners in wider NHS

# Examples of recent projects

- **Paediatric pain management re-audit**
- Paediatric respiratory assessment
- Obstetric emergencies
- **Transient Loss of Consciousness (T-LOC)**
- **Adrenaline re-audit**
- SUDICA
- Mental Health
- **Overdose**

# Clinical Performance Indicators

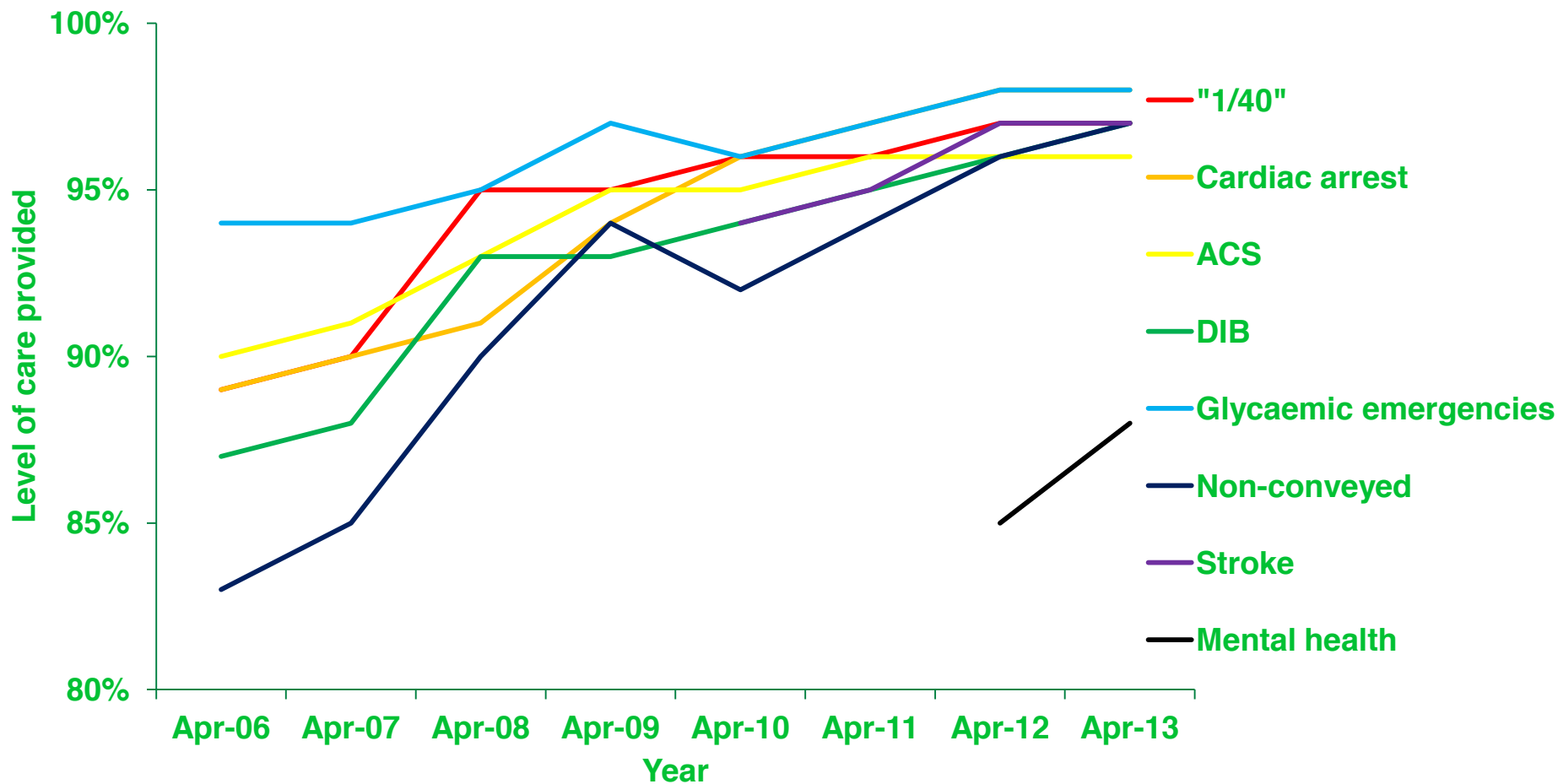
## Evidence Based:

- Cardiac Arrest
- Acute Coronary Syndrome (including heart attack)
- Difficulty In Breathing (asthma & COPD)
- Glycaemic Emergencies
- Stroke
- Mental Health (*new*)

Non-conveyed:  
Clinical risk

1 in 40: General  
Documentation

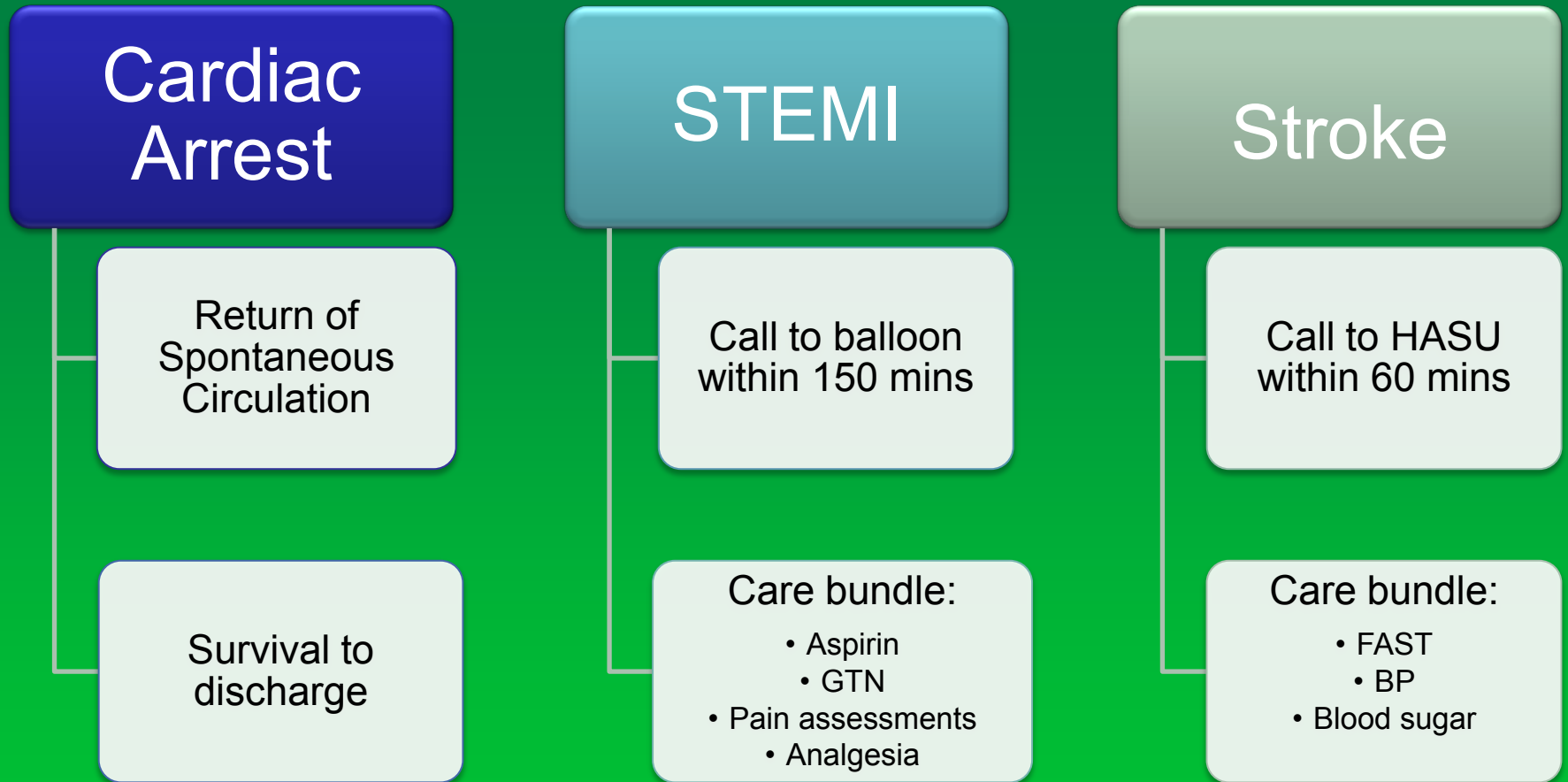
# Clinical Performance Indicators: influencing clinical practice



# Measuring Ambulance Services nationally ...

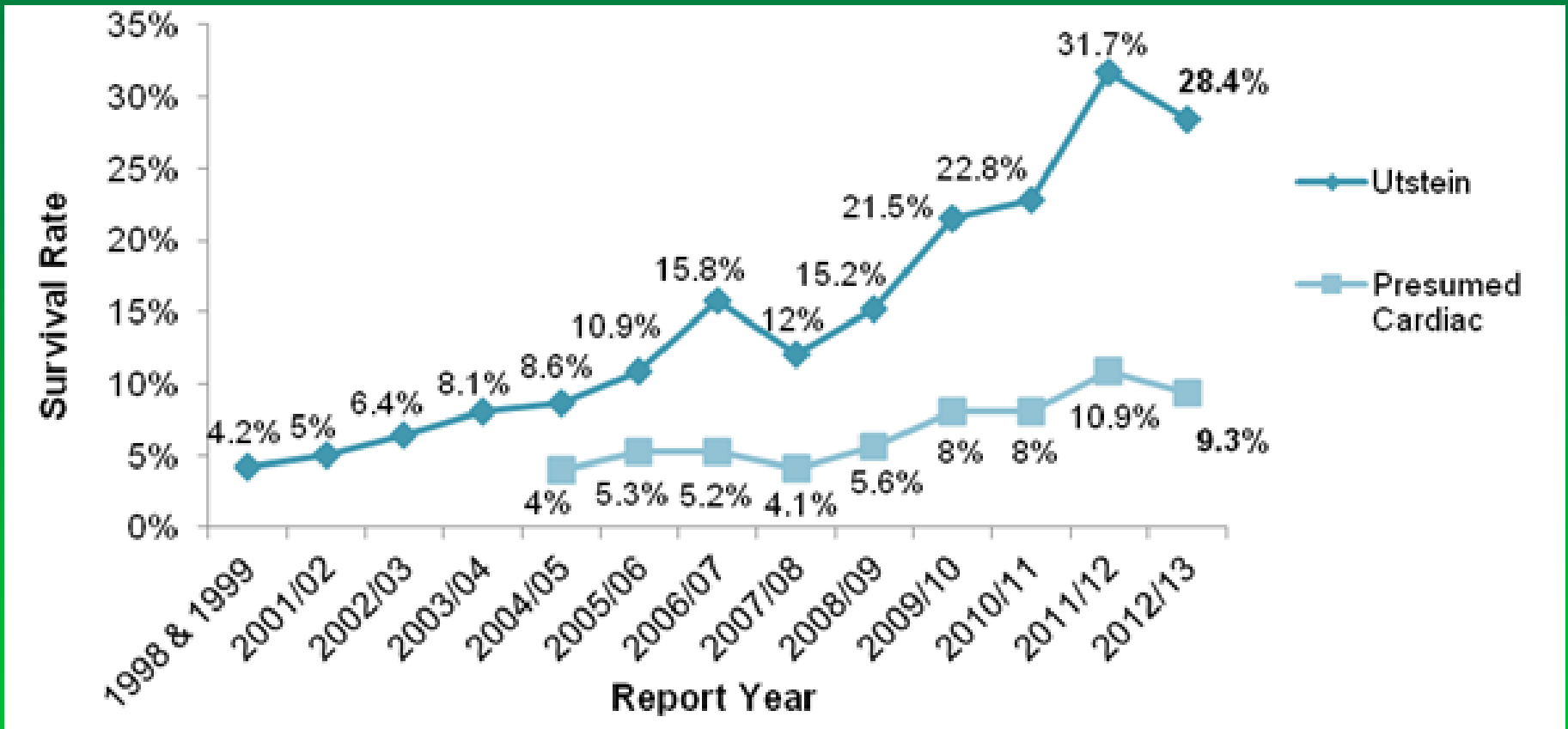


# Ambulance Quality Indicators

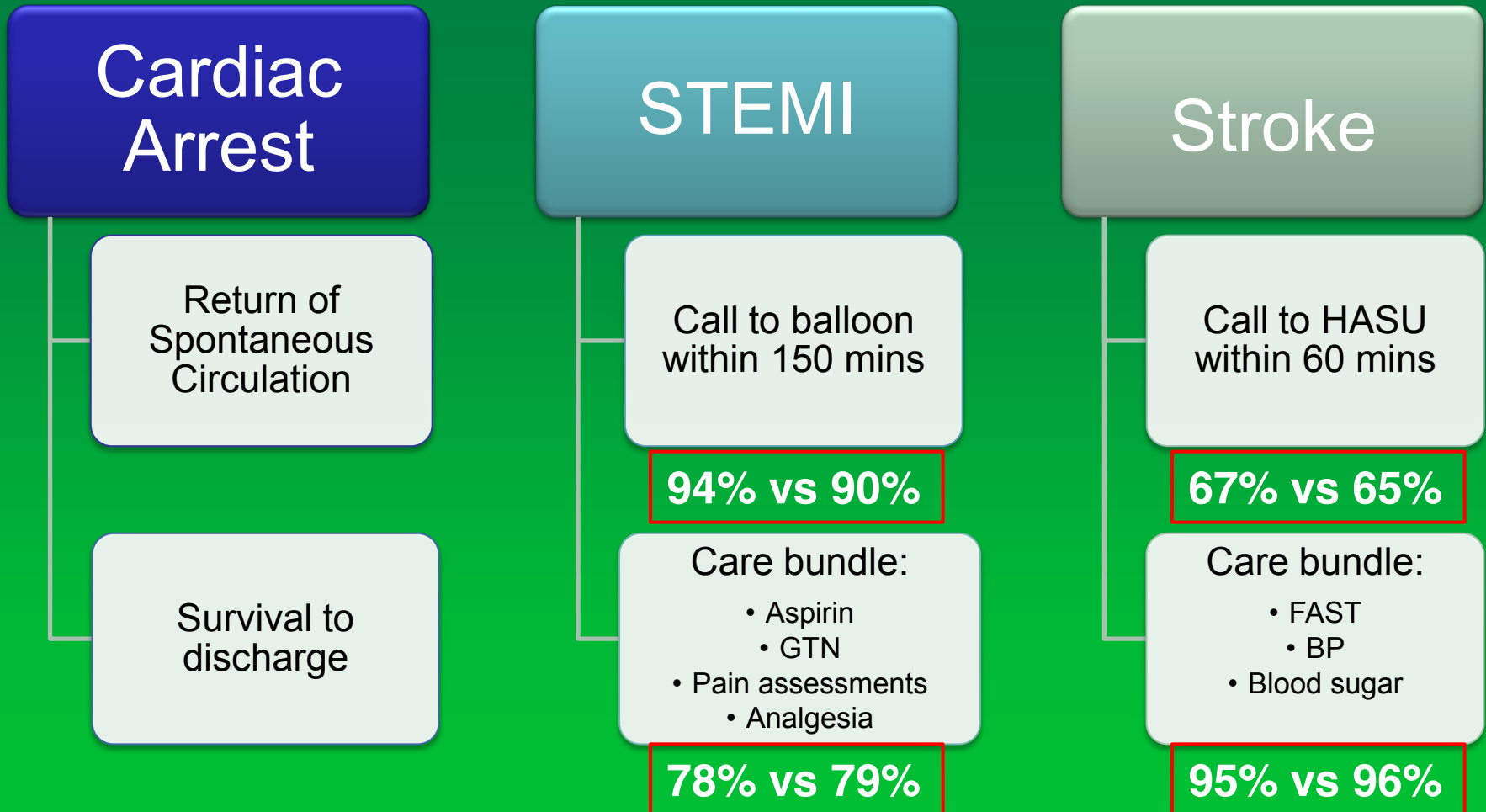




# Cardiac arrest survival rates 2012-13



# Ambulance Quality Indicators



### Ambulance Service Cardiovascular Quality Initiative in the London Ambulance Service

#### Background:

The London Ambulance Service NHS Trust (LAS) participated in a national project which aimed to improve clinical practice for cardiovascular disease (CVD). The Ambulance Service Cardiovascular Quality Initiative (ASCQI), CVD is the most common cause of death in the UK, with patients often presenting to ambulance services with a heart attack or stroke. Early treatment can prevent death and influence the patient's future health. As a result, CVD is a priority area for pre-hospital quality improvement.

The National Service Framework for Coronary Heart Disease and National Stroke Strategy outline best clinical practice for these patient groups. They were used in the creation of guidelines for ambulance services by the Joint Royal Colleges Ambulance Liaison Committee (JRCALC). The National Ambulance Quality Improvement Steering Group incorporated this guidance in developing national clinical performance indicators. These were used to benchmark ambulance services in England, through the systematic evaluation of clinical practice against standards, and also led to the development of the ASCQI project. Every ambulance service in England joined the initiative and developed their own unique project to improve pre-hospital CVD.

The LAS recruited a paramedic to lead and implement this clinical audit project locally, engaging other paramedics and emergency medical technicians in developing the quality improvement initiatives. The LAS has over 3,500 pre-hospital clinicians who attend approximately 3,500 heart attack patients and 20,000 stroke patients every year. Due to the potential health benefits for these large patient groups, this is a priority area for clinical audit. Pre-hospital clinical practice provided to stroke patients in London is of a high standard. Therefore, to ensure this project had a high impact, the LAS focused on improving clinical practice for patients who have suffered from a heart attack.

#### Aims and objectives:

The LAS aimed to use the clinical audit cycle as an ongoing method to prospectively drive change and improve the quality of clinical practice provided to heart attack patients. Optimal care was defined by a care bundle, used to ensure every patient received each element. The ultimate aim was to use this care bundle approach to improve outcomes for this patient group and engage pre-hospital clinicians in clinical audit and the diffusion of quality improvement methods.

#### Standard measures against:

Clinical audit standards were obtained from the JRCALC clinical practice guidelines (2006), encompassing evidence from the National Service Framework for Coronary Heart Disease (2006) and national cardiac ambulance audit scoring paper (2007).

The heart attack care bundle included pain scoring and the administration of aspirin, Glyceryl trinitrate (GTN) and analgesia.



#### Methodology:

The LAS undertook a retrospective clinical audit using a sample of 153 patient report forms collected from May 2009 that reported a heart attack. This identified key areas of the care bundle for the LAS to concentrate its quality improvement activity on.

Following the initial findings, LAS paramedics and emergency medical technicians developed ideas for local improvements to clinical practice using recognised quality improvement methodology, such as process mapping and root cause analysis.

The clinical audit cycle was repeated, and weekly clinical practice systematically evaluated whilst quality improvement initiatives were designed and tested.

#### Initial findings:

Findings from the initial retrospective clinical audit suggested pain management was a considerable area of concern for the LAS. The pain scores were recorded for 84% of patients, and 49% of eligible patients received analgesia. This means over half the eligible patients did not receive any form of pharmaceutical pain relief.

Administration of aspirin and GTN were well documented, 97% and 92% of eligible patients respectively received these drugs. However, the observed poor pain management meant only 42% of patients received the entire care bundle, and therefore an optimum level of care.

Root cause analysis findings highlighted pre-hospital clinicians' perceived barriers to effective pain management, leading to ideas to improve clinical practice. The barriers included: clinician belief regarding patients' pain or patients' inability to communicate pain due to language barriers, lack of availability of a pain assessment tool, and confusion regarding analgesia administration.

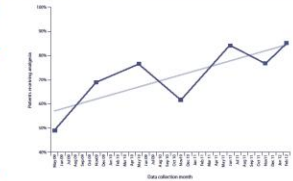


#### Changes in practice implemented:

Facussing quality improvement initiatives on pain assessment and pain relief for heart attack patients, LAS clinicians developed a pain scoring and management tool. A training session was designed for use at every ambulance station and LAS training school, this was supported by a poster and a heart attack audio podcast for the LAS internet. Clinicians also developed a flowchart for heart attack care, highlighting the importance of pre-hospital pain management.

Throughout the project the LAS raised awareness of the ASCQI aims and the importance of pain management for heart attack patients through several editions of ASCQI News', and unique 3D poster boards highlighting project progress and care bundle compliance. A champion at each station spread awareness to colleagues locally and articles in the service-wide clinical update publication ensured pre-hospital clinicians were aware of best clinical practice and progress of the project.

#### Analgesia administration to STEMI patients



#### Outcomes:

End of project findings from February 2013 demonstrated great improvement in LAS clinical practice for heart attack patients. Two pain scores were recorded for 84% of patients, and 85% of eligible patients received pharmaceutical pain relief. This shows a 26% improvement in analgesia administration.

Aspirin and GTN administration was maintained throughout the project, with over 90% of eligible patients consistently receiving these drugs. The observed improvement in pain management means 45% of patients received the entire care bundle, a 21% increase. Additional initiatives have been identified to further improve clinical practice across the LAS, ensuring improvements continue and are sustained.

### Prehospital Pain Management

London Ambulance Service NHS Trust

**The pain scale**  
The level of pain is being measured is illustrated below. This measurement is done on a one-card. The appropriate pain level will be identified depending on the patient's level of understanding.

**How to use it:**  
The sliding scale faces will be central to the patient's eye or ear. Ask the patient to point at the face which best describes their experience of the pain and match it with the corresponding numerical value on the chart. This should be recorded on the patient's chart.

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**Pain relief in acute coronary syndrome (ACS):**  
It is vital that we offer analgesia for patients with ACS (don't forget that pain relief is also a vital component of the STEMI care bundle).

- If other analgesia is used for ACS patients with pain scores 1-3
- If other analgesia of other morphine should be offered
- Do not use nitroglycerin for ACS
- It is vital that we provide code 333M to make trauma patients feeling on a scale from 1 to 10

**Documentation:**

- Record pain scores before and after
- It is important to use the code
- Remember to document on it

### Acute Coronary Syndromes Aide Memoire

A guide to assist with ACS management  
(Please note this does not replace a clinician's own clinical judgement)

**ISCHAEMIC CORONARY chest pain**

**Pain Score:** 0-10

**Aspirin 300mg**

**Recorded blood pressure > 90 systolic**

**GTN 400mcg**

**Pain Score:** 1-3

**Entonox**

**Pain Score:** 4-10

**Entonox**

**IV Morphine**

**Pain Score:** 1-3

**Repeat GTN, every 5 mins if blood pressure > 90 systolic**

**12 LEAD ECG - Changes in two or more adjacent leads:**

- ST 1 2mm (M, R, aVL, V4, V5, V6)
- ST 1 2mm (I, II, III, aVF)
- ST 1 2mm (max 1.5mm between C2&V2)
- ST 1 2mm (1, aVL, V4, V5, V6)
- T wave 1 or ST 1 any 2 leads
- Wide QRS, no Q, aVL, V4, V5, V6

**Posterior STEMI**

**Anterior STEMI**

**Lateral STEMI**

**High risk ACS**

**MONITOR TO PATIENT HANDBOOK: Record ECG, Pain Score, Analgesia**

**GIVE WHITE COPY OF PRF TO MAC AS soon as possible. Destruction code. Care Bundle Complete**

# National CPIs

- Compare and benchmark LAS clinical performance with other Trusts in England
- Four areas:
  - hypoglycaemia
  - asthma
  - lower limb fracture (trauma)
  - febrile convulsions

# Research Programme

- Programme is formed of internal, collaborative and externally led projects
- LAS is part of the North West Comprehensive Local Research Network (CLRN) and receives funding for research administration/management and governance
- Projects funded from range of sources, including:
  - Government bodies (e.g. National Institute of Health Research, Medical Research Council)
  - Charities
  - Industry

# ISRAS Study Findings

**HOT OFF  
THE PRESS**

# FAST vs. ROSIER

	FAST	ROSIER
Facial weakness	✓	✓
Arm weakness	✓	✓
Speech disturbance	✓	✓
Leg weakness	✗	✓
Visual field deficit	✗	✓
Loss of consciousness/syncope*	✗	✓
Seizure activity*	✗	✓

\* These signs reduce the likelihood of a stroke

# ISRAS

- Paramedics from three Complexes conveying patients to the Royal London Hospital.
- No difference in the proportion of strokes correctly identified by the ROSIER and FAST.
- ROSIER correctly identified a marginally greater proportion of non-strokes than the FAST.
- Absence of seizure activity predictive of stroke.
- Next step to test modified FAST.



# Ensuring Patient and Public Involvement (PPI) in research

- A Research specific PPI group is currently being established.
- Purpose of group will be to gain opinions on proposed research and advising on how we can ensure findings are widely disseminated
- Attend regular meetings (2 hours) and review documents providing comments as necessary
- First meeting next year...

Interested?

Send expressions of interest to [Julia.Brown@lond-amb.nhs.uk](mailto:Julia.Brown@lond-amb.nhs.uk)



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# Any questions?

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