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Quality Improvement through Care Bundles

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11 NHS Ambulance Services in England

- North East
- North West
- Yorkshire
- East Midlands
- West Midlands
- Great Western
- South Western
- South Central
- East of England
- London
- **South East Coast**

"Improving quality is about making health care safe, effective, patient-centred, timely, efficient and equitable." (The Health Foundation, 2013)

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What is a Bundle ?

A bundle is a structured way of improving the processes of care and patient outcomes: a small, straightforward set of evidence-based practices — generally three to five — that, when performed collectively and reliably, have been proven to improve patient outcomes.

They help health care providers more reliably deliver the best possible care for patients undergoing particular treatments with inherent risks.

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What makes a bundle so special?

The power of a bundle comes from the method of execution.

A bundle ties the changes together into a package of interventions that people know must be followed for every patient, every single time

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What's the difference between a bundle and a checklist?

A checklist can be very helpful and an important vehicle for ensuring safe and reliable care. The elements in a checklist are often a mixture of *nice-to-do* tasks or processes (useful and important but not evidence-based changes) and *have-to-do* processes (proven by randomized control trials). A checklist may also have many, many elements.

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Stroke Care Bundle

- FAST
- Blood Glucose recorded
- Blood Pressure
- Symptom onset times

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Acute Stroke FASTrack Pathway v4.03

'Time is Brain'

Aim for no longer than 60 minutes from Call to Hospital

Pre-Hospital Phases
- A) Call to Scene
- B) Assess and Treat
- C) Scene to Hospital

Stroke Symptoms FAST test positive

Yes

Is the blood sugar above 4.0 mmol/l?

No → **HYPOGLYCAEMIA** Treat hypoglycaemia in accordance with latest Clinical Guidelines (IV Glucose is first choice, IM Glucagon if not available). If symptoms persist with a BM above 4 mmol/l then treat as Stroke/TIA.

Yes

Can you confirm that the patient did not suffer a seizure at onset of new symptoms? (IF UNKNOWN ANSWER YES)

No → **Transport to local A&E as per guidelines with or without an ASHICE as appropriate**

Yes

Will the patient arrive at a hospital offering Stroke Thrombolysis within 5½ hours from onset of symptoms? (Check the list of hospitals and service times on the Acute Stroke FASTrack Pathway)

No → **Transport to local A&E as per guidelines with or without an ASHICE as appropriate**

Yes

BLUE LIGHT PATIENT TO HOSPITAL
Pass (ASHICE) Alert Message in usual manner
Add phrase "Alert Stroke Team"

DO NOT DELAY ON SCENE TIME BY PERFORMING A 12 LEAD ECG UNLESS CLINICALLY INDICATED

STROKE CARE BUNDLE
FAST TEST
BLOOD PRESSURE
BLOOD GLUCOSE

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Code Yellow Sepsis Pathway

A screening tool and care bundle that emphasises a rapid diagnosis, early treatment and rapid transport for antibiotic therapy.

The pathway aims to ensure that patients receive intravenous antibiotics within **one hour** of clinician diagnosis.

The sepsis six is a **resuscitative care bundle**, stating six simple tasks to be completed within the first hour of diagnosis:

- Give High Flow Oxygen
- Give Intravenous Fluids
- Give Intravenous Antibiotics
- Take blood Cultures
- Take Venous Lactate
- Take Urine sample/monitor Output

The care bundle can be started in the out of hospital environment, recognising sepsis early, transporting rapidly whilst administering high flow oxygen and intravenous fluids.

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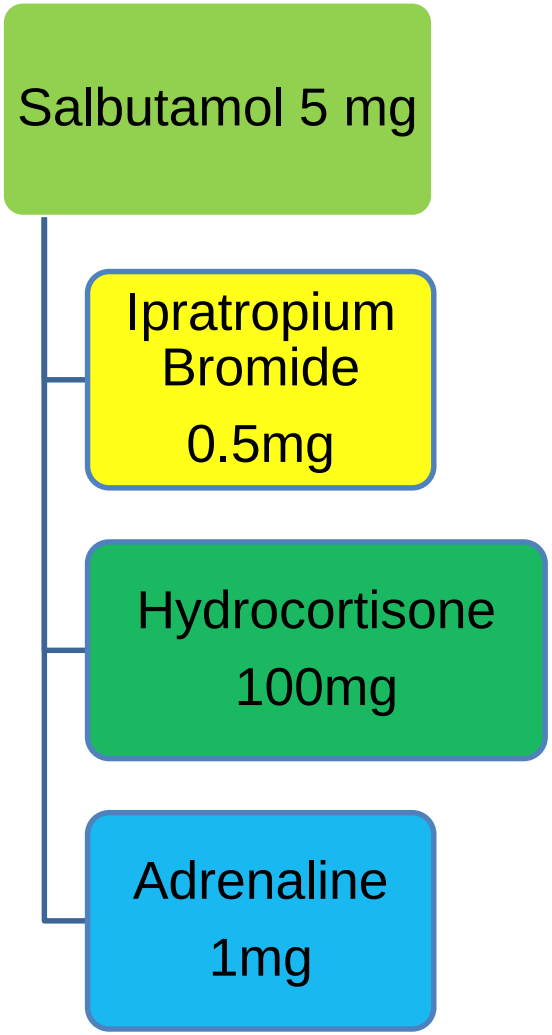
Asthma Care Bundle

- Respiratory Rate
- Oxygen Saturation (SpO_2)
- Document oxygen given
- Pre and Post peak flow rate
- Salbutamol given


Salbutamol 5 mg
Ipratropium Bromide 0.5mg
Hydrocortisone 100mg
Adrenaline 1mg

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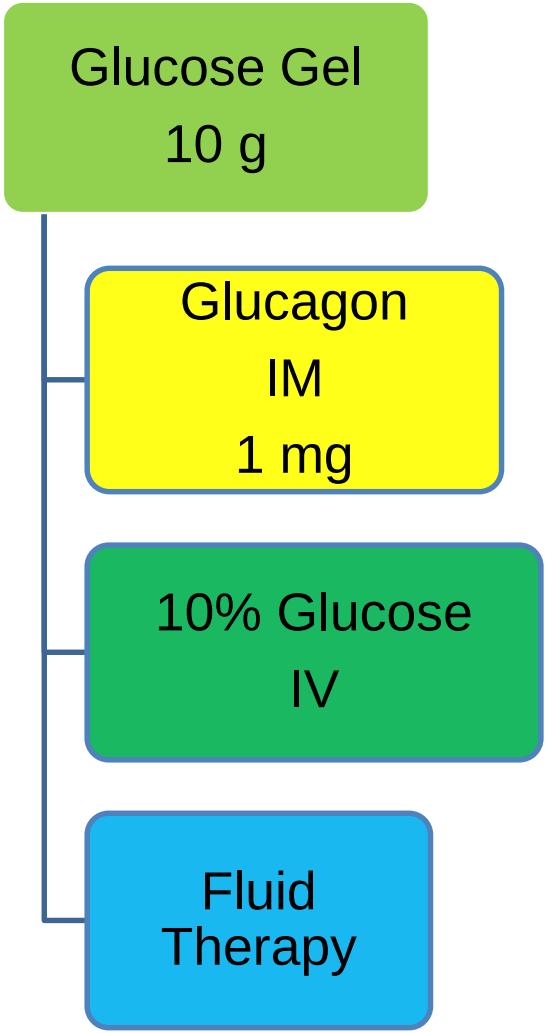
Hypoglycaemia Care Bundle

- Pre treatment blood glucose level
- Treatment recorded
- Post treatment blood glucose level
- Referral for non conveyed patients


Glucose Gel
10 g
Glucagon
IM
1 mg
10% Glucose
IV
Fluid
Therapy

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Febrile Convulsion Care Bundle

- Anticonvulsant given
- Blood Glucose level
- Temperature recorded
- Temperature management
- Oxygen saturation (SpO_2)
- Oxygen Therapy
- Discharge or referral

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Isolated Limb Trauma Care Bundle

- Assess distal circulation
- Immobilisation of limb
- Pre and Post analgesia pain score
- Analgesia given
- Oxygen Saturation (SpO_2)
- Oxygen Therapy

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STEMI Care Bundle

- Defibrillator (Lifepak) immediately available
- Aspirin
- Glyceril Trinitrate (GTN)
- Pre and Post Pain Score
- Analgesia
- ECG recorded and interpreted

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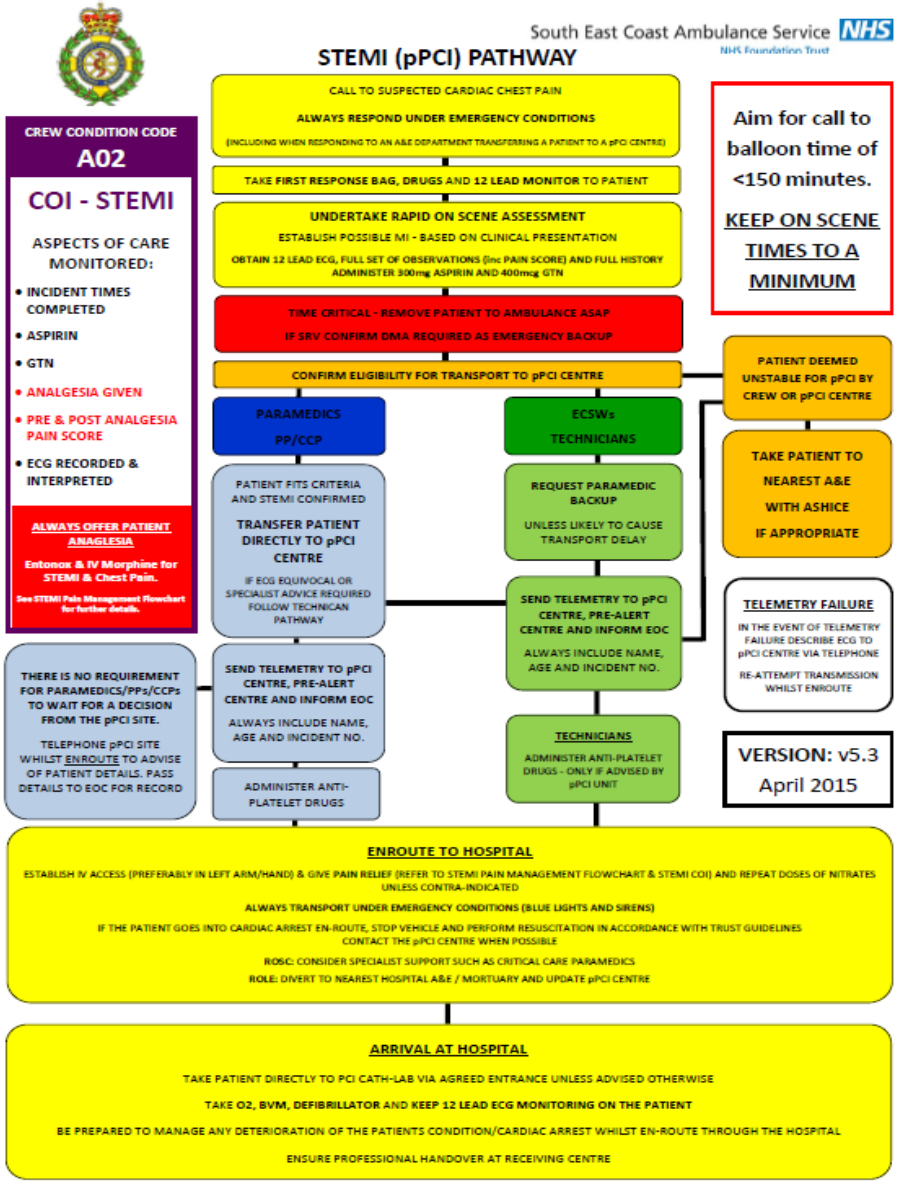

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STEMI PAIN MANAGEMENT

Clinically suspected cardiac chest pain

↓

Rapid on scene assessment, history taking and first pain score

↓

Administer 300mg Aspirin & 400mcg GTN if not already taken

↓

Obtain 12-lead ECG

↓

Re-assess patient's pain score

PAIN SCORE 0	PAIN SCORE 1-4	PAIN SCORE ≥5
Continue with management as per pPCI pathway	Offer patient analgesia – entonox or morphine	Offer patient opiate based analgesia (this is more effective in cardiac chest pain)

DO NOT DELAY ON SCENE
Continue to manage patient as per pPCI pathway and STEMI care bundle

CRITERIA

- In any patient with ST segment abnormalities (elevation or depression) Myocardial Ischaemia or Infarction must be considered.
- ST Elevation Myocardial Infarction (STEMI) can be diagnosed by the presence of >1mm (0.1mV) of new or presumed new ST segment elevation in 2 or more adjoining precordial leads, or in III and AVF (usually also in II).
- ST Elevation of >1mm (0.1mV) in aVR indicates occlusion of the Left Main Coronary Artery.

ECG LEADS

I lateral	**aVR** LMCA	**V1** anterior	**V4** anterior
II inferior	**aVL** lateral	**V2** anterior	**V5** lateral
III inferior	**aVF** inferior	**V3** anterior	**V6** lateral

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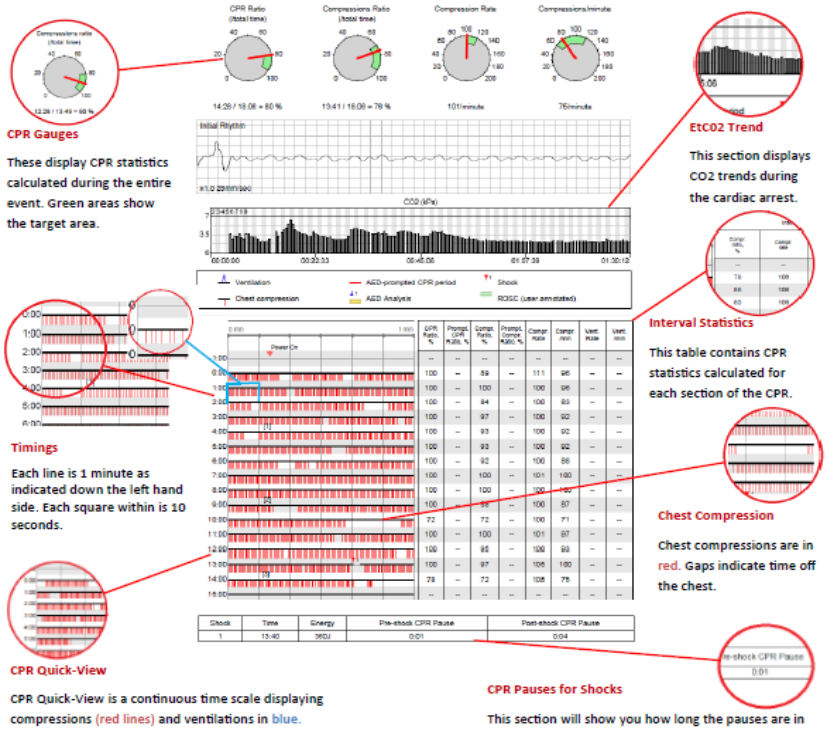
Cardiac Arrest Downloads

As soon as the pads are applied and the LIFEPAK® 12/15 is turned on, data is being collected. After a resuscitation, data can be transmitted from the LIFEPAK device to CODE-STAT software. A report will then be compiled by the Quality Improvement team to annotate and pass along to all clinicians involved while the incident is still fresh in their minds.

- If using a LP 1000 or an FR2 in a cardiac arrest please ensure that the LIFEPAK 12 or 15 is attached at the earliest opportunity, irrespective of the cardiac rhythm.
- Don't forget - At some point prior to turning the LIFEPAK off, enter the patient's details into your Lifepak, just like you would with pPCI transmissions. Please can you include an incident number with this.
- Following your resuscitation attempts whether this be applying ROLE or ROSC at hospital you are now able to transmit this data!
- The transmit location is "CLINICAL AUDIT". Transmit just as you would with pPCI, double checking it is the resus data and not any post ROSC 12 leads or other patient data. Make sure Report is filtered to "ALL".
- If you have turned your LIFEPAK off, this is OK, just head to Archives by pressing Options. If you haven't entered any patient details select Edit and complete relevant fields. You can then transmit the data.
- You will receive your summary not long after, no feedback will be given, just self reflection!



CPR Gauges

These display CPR statistics calculated during the entire event. Green areas show the target area.

EtCO2 Trend

This section displays CO2 trends during the cardiac arrest.

Interval Statistics

This table contains CPR statistics calculated for each section of the CPR.

Timings

Each line is 1 minute as indicated down the left hand side. Each square within is 10 seconds.

Chest Compression

Chest compressions are in red. Gaps indicate time off the chest.

CPR Quick-View

CPR Quick-View is a continuous time scale displaying compressions (red lines) and ventilations in blue. This is broken down to calculate statistics.

CPR Pauses for Shocks

This section will show you how long the pauses are in chest compression Pre and Post shock.

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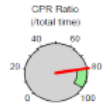
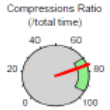
What is the code summary telling you?

CPR gauges display CPR statistics calculated during the entire event . The goal is to have needles within green parameters.



CPR Ratio

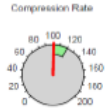
This determines the overall performance of CPR. It shows the proportion of the time uninterrupted CPR was performed for the entire case, accounting for CPR related interruptions shorter than 10 seconds.



Compression Ratio (Hands on Time)

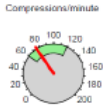
This determines the "hands on time." It gives the proportion of the time uninterrupted chest compressions were performed.

Interruptions greater than 3 seconds in chest compressions will count against overall figure.



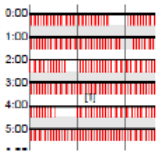
Compression Rate

This determines the rate in which chest compressions were performed.



Compressions per minute

This determines the average number of chest compressions delivered in one minute This will usually be less than the compression rate as it includes pauses for ventilations and pulse checks.

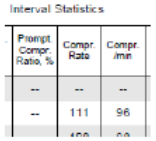


CPR Quick View

CPR Quick-View is a continuous time scale displaying compressions—each red line representing 1 compression and ventilations show in blue. This is broken down to calculate statistics.

Timings

Each line across the table represents one minute, as indicated down the left hand side. Each square within this is 10 seconds. You are then able to see pauses (no red lines) in compressions and estimate how long this was for.



Interval Statistics

This table to the right of your CPR quick view contains the CPR statistics calculated for each section of the CPR attempt.

Other features on your code summary

- Initial rhythm
- EtC02 trends during the cardiac arrest
- At the bottom of your report you are also able to see a table detailing the pre and post shock pauses.

Things to remember

- Manual override on Lifepak 1000
- Use metronome to maintain chest compression rate between 100-120bpm
- Aim for no more than 5 seconds off the chest at any time
- Adherence to Protocol C for VF and pulseless VT

Calculation of care bundle delivery and valid exceptions

Patient ID	Care bundle criterion 1	Care bundle criterion 2	Care bundle criterion 3	Care bundle delivered?
1	✓	✓	✓	Yes
2	✓	✓	x	No
3	✓	Exception	x	No
4	Exception	Exception	x	No
5	✓	✓	Exception	Yes
6	Exception	Exception	✓	Yes
7	Exception	Exception	Exception	Yes

New Care Bundles

- Care of Elderly patients
- Care of patients experiencing mental health (self harm)

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