

CLINICAL PROCEDURAL DOCUMENTS

Document Title: Resuscitation and Deteriorating Patient Clinical Guideline

This document is relevant for staff at:	Luton Hospital site	Bedford Hospital site	Both Hospital sites X	
Document Type:	Clinical Guideline X	PGD	Clinical Policy	Integrated Care Pathway

Document Author / Responsible Author Names(s):

Sara Morrison – Lead Resuscitation Practitioner (Luton Site)
 Amy Brewster – Lead (secondment) Resuscitation practitioner/Senior Resuscitation Practitioner (Luton Site)
 Hayley Travers – Senior Resuscitation Practitioner (Luton Site)
 Emma Hutt – Lead Resuscitation Practitioner (Bedford Site)
 Sue Collins – Senior Resuscitation nurse practitioner (Bedford Site)

Document developed in consultation with:

Resuscitation and deteriorating patient committee

Is this clinical document merged for cross site use? YES

If NO please state why the document cannot be merged.

Is this document new or revised / or has minor amendments? Reason for minor amendments? Please highlight all amendments in your document.

Revised

Document Number:

CG62T

Version Number:

1

Target Audience/Scope:

All Trust Staff

Associated Trust Documents:

Intra Osseous (EZIO) clinical guidelines

Luton site

Treatment Escalation Planning (TEP) and Decisions Relating to Cardio-Pulmonary Resuscitation (CPR)
 Defibrillation and safe use of Zoll AED+ guideline
 Anaphylaxis clinical guidelines CG 215
 Emergency Thrombolysis Guideline for Massive Pulmonary Embolism in a Peri-Arrest and Cardiac Arrest
 Transfer and Escort of Patients T02
 Amendments to maternal cardiac arrest management.

Bedford Site

- Do Not Attempt Cardiopulmonary Resuscitation Policy
- Education & Learning Policy
- Induction Policy
- Medical Devices - Procurement, Deployment, Monitoring and Control Policy
- Medical Gases Policy
- Resuscitation Management in the Accident & Emergency Department
- Trauma Team Management

<ul style="list-style-type: none"> • Supporting Staff involved in a Traumatic Incident, Complaint or Claim • Therapeutic Hypothermia after Cardiac Arrest • Transfer Policy – Adult • Operational Policy - Recording • Operation Policy – Observations in the Adult <p>Treatment escalation plan and cardiopulmonary resuscitation decision policy</p>	
Date of Approval: 8 th June 2022	Review Date: June 2025
Chair of Clinical Guidelines Signature:  Jogesh Kapdia	Date: 8 th June 2022

Table of Contents

CLINICAL PROCEDURAL DOCUMENTS	1
1. Introduction	3
2. Purpose.....	4
3. Roles and responsibilities	4
4. Cardiac arrest prevention	6
4.1 Identification of patients at risk of cardio-respiratory arrest	6
5. Cardiac arrest management	6
5.1 Cardio-respiratory arrest response	7
5.2 Emergency response in a clinical area (main buildings)	7
5.3 Emergency response in non-clinical area (main buildings)	7
5.4 Cardiac arrest reporting.....	7
5.5 Infection prevention and control.....	7
5.6 Post Resuscitation Care	8
6. Cardiac arrest in special circumstances.....	8
6.1 Anaphylaxis.....	8
6.2 Maternal cardiac arrest (20+ weeks or unknown gestation)	9
6.3 Children.....	10
6.4 Trauma.....	10
6.5 Morbidly Obese Patients	10
6.6 Patients with an implantable cardioverter defibrillator (ICD) or pace-maker	10
7. Emergency Teams	11
8. Resuscitation Equipment.....	11
8.1 Cardiac Arrest Trolley.....	11
8.3 Ward/Department based defibrillators	12
8.4 Mechanical CPR device – LUCAS 3.....	12
8.5 Intra-osseous access device - EZIO	13
9. Cardiac arrest review process	13
9.1 The Process:	13

9.2 Learning from the review process.....	13
10. Training.....	13
11. Cardiac Arrest Audit Data	14
11.1. Resuscitation Decisions:.....	14
12. Monitoring and Compliance	14
13. References	15
14. Appendices.....	16
Appendix 1 Bedford Site.....	16
Appendix 2 Luton and Dunstable Site	17
Appendix 3: How to do perimortem caesarean section.....	20
Appendix 4:Luton and Dunstable Cardiac Arrest Review Process.....	22

1. Introduction

The aim of this guideline will be to ensure that the Bedfordshire Hospitals NHS Foundation Trust complies with National and International standards in provision of an effective resuscitation service.

All patients at Bedfordshire Hospital NHS Foundation Trust will be for cardio respiratory resuscitation unless current TEP/DNACPR documentation is in place that complies with trust TEP/DNACPR policy.

The guideline will set out the organisational objectives in the management of a resuscitation event and the process for managing risks associated with resuscitation.

Including specific guidance for healthcare workers (HCWs) on CPR in healthcare settings for patients with suspected or confirmed COVID-19.

This Resuscitation guideline has been developed in accordance with the Quality Standards for Cardiopulmonary Resuscitation Practice and Training document published by the Resuscitation Council (UK) (RC(UK), 2021). Key findings and recommendations from the National Confidential Enquiry in Patient Outcome and Death (NCEPOD), Time to intervene (2012) and Time Matters (2021) and UK Core Skills Training Framework (Skills for Health, 2021).

Bedfordshire Hospitals NHS Foundation Trust (The Trust) has an obligation to provide a high-quality resuscitation service and ensure that staff are trained regularly to a level appropriate to their job roles (RC(UK), 2021).

1.1. Most of the patients requiring care and treatment within the Bedfordshire NHS Foundation Trust have some form of acute pathology, and the anticipated risk of cardio-respiratory arrest is considered moderate to high in such patients.

1.2. It is essential to identify those persons in whom cardio-respiratory arrest represents a terminal event in their illness, and for whom CPR would be inappropriate. The Trust has clinical guidelines to provide support in such decisions which should be read in conjunction with this policy to ensure that CPR is only initiated for patients whom would benefit from such an intervention, this can be located on the Trust intranet.

2. Purpose

2.1 This guideline applies to all Bedfordshire Hospitals NHS Foundation Trust staff

2.2 This guideline will provide guidance in order to:

- Outline the role and composition of the Resuscitation Service.
- Outline the role and composition of the Resuscitation and Deteriorating Patient Committee.
- Outline the process for ensuring the continual availability of resuscitation equipment.
- Promote guidance on the recognition of patients at risk and prevention of deterioration and cardio-respiratory arrest utilising an Early Warning Scoring system and escalation protocol.
- Promote guidance on the initiation of resuscitation in clinical areas, including appropriate emergency calls are activated.
- Safe and Early defibrillation occurs.
- Ensure that all staff are appropriately trained to recognise cardiorespiratory arrest and respond appropriately.
- All other associated Trust resuscitation documents are highlighted and adhered to.
- Any patients with suspected or confirmed COVID-19 are resuscitated adhering to the RC(UK)2021 guidelines.

3. Roles and responsibilities

The Resuscitation service is trust wide and managed under the directorate of Corporate Nursing.

3.1 The service will:

- Provide training to all Trust staff, relevant to their roles and responsibilities.
- Provide support and advice.
- Ensure systems are in place for maintaining resuscitation equipment in good working order.
- Audit all cardiac arrests and provide data to internal sources and externally to the National Cardiac Arrest Audit (NCAA) database.
- Attend cardiac arrests within working hours where responsibilities allow providing guidance and support to Trust staff.
- Investigate all cardiac arrests as clinical incidents to identify any potentially avoidable cardiac arrests and escalate report to LIRP and/ or PEARL.
- Maintain their own education in resuscitation by attending and instructing on external resuscitation courses and attending professional resuscitation meetings.
- Ensure that cardiac arrest team briefs are suitably managed (Luton Site) Represent the Trust at national conferences where appropriate.

3.2 Resuscitation and deteriorating patient committee will meet quarterly and reports to the Specialist Committee Oversight Board (SCOB). The fundamental role of the committee is to oversee all aspects of resuscitation within the Trust.

The committee:

- Will advise on the composition of the cardiac arrest teams – adult and paediatric. It will ensure that appropriate resuscitation equipment and drugs (including those for peri-arrest situations) are available.
- Will ensure that an appropriate training programme exists within the Trust and that it is relevant to all specialties.

- Is responsible for implementing guidelines and policies governing cardiopulmonary resuscitation practice and training and other associated guidelines. The committee should also be aware of other local and community policies that may have implications for the Trust.
- Is responsible for ensuring that all related guidelines are implemented effectively.
- Committee members should be conversant with contemporary issues related to new developmental knowledge.
- Should ensure there is specific financial support for resuscitation services in the hospital.

3.3 Line managers are responsible for:

- Ensuring that their staff adheres to this Resuscitation and deteriorating patient Guideline and other associated policies and guidelines.
- Releasing their staff to attend mandatory resuscitation training, in accordance with Trust training requirements.
- Ensuring that all resuscitation equipment is checked in accordance to this policy to ensure it is in a state of readiness at all times.
- Taking any irresolvable queries to the resuscitation lead who will take it to the appropriate forum for resolution.

3.4 All clinical staff are responsible for ensuring that they:

- Alert the appropriate emergency team in the event of a medical/cardiac/obstetric/paediatric or neonatal emergency (see appendix 1 & 2).
- Practice within the RC(UK) guidelines and their individual professional code of conduct.
- Attend the appropriate resuscitation training annually as highlighted in section 10.
- Participate in the checking of emergency equipment where relevant to their job role.
- Are familiar with the processes for re-stocking emergency equipment.
- Are familiar with process of reporting faulty equipment.

3.5 Cardiac Arrest Team (section 7) are responsible for:

- Responding at the earliest opportunity to any cardiac arrest call, including the test calls.
- Managing relatives (who may or may not wish to be present at the cardio-respiratory arrest).
- Ensuring adequate post resuscitation care is provided, including appropriate transfer.
- Keeping their resuscitation training up to date.
- Adhering to Trust resuscitation policies and guidelines.
- Attend Cardiac arrest team briefs (Luton Site).

3.6 Cardiac arrest team leader is responsible for:

- Ensuring they have a current Advanced Life Support (ALS) provider certificate or has equivalent training for adult patient.
- Ensuring they have a current Advanced Paediatric Life Support (APLS) or European Paediatric Advanced Life Support (EPALS) provider certificate or has equivalent training if the patient is a child.
- Directing and co-ordinating the resuscitation attempt.
- Ensuring that current guidelines are followed.
- Ensuring the safety of those present.
- Ending the resuscitation attempt when appropriate.
- Documentation. A scribe sheet is available in the cardiac arrest folder on all resuscitation trollies.
- Communication with relatives.
- Handover of care to other clinical teams.
- Diagnosis and documentation of death if appropriate

3.7 Clinical Engineering are responsible for:

- Responding to reported faults with defibrillators, LUCAS mechanical chest compression device and Laerdel Suction Units (LSU).
- Repairing equipment where possible
- Providing loan equipment in the event of a fault
- Routine servicing of resuscitation equipment

3.8 Switchboard are responsible for:

- Testing the emergency call bleep system for all emergency teams each day.
- Responding to the 2222 calls to switchboard immediately.
- Recording the 2222 calls in a log.
- Documenting a cardiac arrest call.

3.9 Porter staff are responsible for:

- Attending all 2222 calls to provide support the clinical team.
- Bring additional equipment to cardiac arrests as requested by the cardiac arrest team leader.
- Assist with logistical issues, such as transporting the patient to a more appropriate place, once they have been stabilised at the scene.
- Taking blood samples for urgent analysis
- Collecting blood for transfusion

4. Cardiac arrest prevention

4.1 Identification of patients at risk of cardio-respiratory arrest

- The Trust has a clinical guideline for managing and mitigating risks relating to the performance of physiological observations and escalation to appropriate medical care.
- The observation charts/electronic observation system in use throughout the Trust have been designed to enable staff to identify patients that may have a cardiac arrest thus ensuring that they receive the appropriate intervention in a timely manner, helping to prevent avoidable cardiac arrests.
- All Trust staff will use the National Early Warning Scoring System (NEWS 2) (incorporated into the Trust patient observation chart/ electronic observation system) to identify patients at risk of cardiopulmonary arrest.
- Patients who are pregnant will have their observations recorded on an MEOVS chart designed in the same way but with modified parameters to ensure they are suitable for use with obstetric patients.
- Outreach will support the management of patients who are at risk of deterioration.
- The medical emergency team (**MET**) should be contacted when a patient requires emergency medical response following signs of deterioration. The universal **2222** number should be used. The precise location of the patient must be communicated promptly and clearly to the switchboard operator and time allowed to clarify understanding.

5. Cardiac arrest management

5.1 Cardio-respiratory arrest response

Cardio pulmonary resuscitation (CPR) should be commenced for all patients/staff/visitors who suffer a cardio-pulmonary arrest unless there is a known valid DNACPR decision in place.

5.2 Emergency response in a clinical area (main buildings)

It is the responsibility of all clinical staff to ensure all patients, staff and visitors suffering a cardio-pulmonary arrest receive the appropriate treatment immediately in accordance with the Resuscitation Council UK (RCUK) guidelines. Follow the link to:

[Adult Basic Life Support](#)

[Paediatric Basic Life Support](#)

The appropriate emergency response team should be summoned using the universal **2222** number and the precise location of the patient must be communicated promptly and clearly to the switchboard operator and time allowed to clarify understanding

For Site Specific 2222 calls see Appendix 1 & 2

Switch board operator will alert all members of the requested emergency team simultaneously on the bleep system. Each member must respond to the call immediately and respond providing advanced life support treatments to the patient.

The composition of the emergency teams can be found in section 7.

Emergency equipment should be located from the clinical area and made available for arrival of the emergency team.

5.3 Emergency response in non-clinical area (main buildings)

For a cardio-respiratory arrest occurring outside of a clinical area 2222 must be called as per section 5.2 and BLS started immediately in the found location.

Where additional help is available and an AED is close by, it should be sought and applied to patient where staff feel confident and competent (no specific training is required although this will be provided as part of Basic Life Support training nursing and midwifery statutory training), voice prompts to be followed.

For Site Specific non-clinical areas Emergency Response – see Appendix 1 & 2

5.4 Cardiac arrest reporting

All Trust cardiac arrests must be reported using the Trust's incident reporting system by completing an online incident form immediately after the cardiac arrest. The type of incident must be selected as cardiac arrest and the necessary fields completed.

5.5 Infection prevention and control

All Trust staff must adhere to infection control policy to minimise the risk of cross infection.

All clinical areas must have access to a bag valve mask (BVM).

Where patients are at increased risk of respiratory arrest this access must be immediate (such as the respiratory ward and paediatrics), these areas must have either of the devices close to the at risk patients (ideally at the head of the patients bed).

All patient transfers must be undertaken in line with the Transfer and Escort of Patients policy (T02) ensuring that the minimum equipment requirements are met.

Where a ventilation device is not available CPR must be started with chest compressions only.

Level 3 PPE must be readily available. This is located in a red drawstring bag on each resuscitation trolley.

5.6 Post Resuscitation Care

The cardiac arrest team leader has responsibility to ensure that once the patient has been successfully resuscitated they are transferred to an appropriate place for on-going care and that arrangements are made for their safe transfer (please refer to transfer Clinical guideline CG number required)

Patients that regain their cardiac output should be considered for admission to ITU. This decision can only be made by the Consultant on-call responsible for Critical Care.

The resuscitation trolley must be restocked immediately following the resuscitation attempt.

Support must be available for all staff involved in the resuscitation attempt (see supporting staff after a traumatic Incident, complaint or claim policy).

6. Cardiac arrest in special circumstances

Basic ([Adult Basic Life Support](#)) and Advanced ([Adult Advanced Life Support](#)) Life Support guidelines provided by the RCUK (2021) should be followed with additional considerations for the following:

6.1 Anaphylaxis

Please refer to the Trust Anaphylaxis Clinical guidelines (CG215) Luton Site, available on the Trust intranet and the Resuscitation Council (UK) guidelines for healthcare professionals from the following link [Anaphylaxis Guidelines](#).

6.2 Maternal cardiac arrest (20+ weeks or unknown gestation)

Airway & Breathing

- Ventilation may be harder to manage due to a reduced lung capacity.
- Early intubation must be considered as this will decrease the risk of pulmonary aspiration

Circulation

- Chest compressions can be harder to perform due to higher hand position
- After 20 weeks gestation the pregnant woman's uterus can press down against the inferior vena cava and the aorta, impeding cardiac output, venous return and uterine perfusion. This compression of the inferior vena cava limits the effectiveness of cardiac compressions. To aid circulation in initial CPR attempt manually displace the uterus to the left to remove caval compression. Left lateral tilt should only be used where this is possible on a firm solid surface (i.e. a tilting table, 15-30 degrees).
- IV or IO access should ideally be established above the diaphragm (please refer to the Intraosseous access guidelines for trauma and cardiac arrests for guidance on humeral head insertion).
- Delivery of the foetus by perimortem caesarean section (PMCS) may improve the chances of successful resuscitation where initial attempts fail. (See Appendix 1&2 for location of PMCS at each site). Survival is best achieved when the foetus is removed within 5 minutes of the mother's cardiac arrest (see appendix 1 for guidance on performing PMCS).
- PMCS must be carried out by a clinician competent to perform the procedure, which can include non-obstetric staff.
- Once the foetus has been delivered new-born resuscitation may also be possible for infants of 22 weeks gestation.

Disability & Exposure

- Ensure that blood glucose has been checked and that patient has been exposed to check for signs of internal/external haemorrhage, rashes and/or deep vein thrombosis (DVT)

Maternal cardiac arrest in the community

In the event of a maternal cardiac arrest in the community setting the community midwife should follow Resuscitation Council [basic life support guidelines](#) with the following considerations:

- The call for help should be via 999
- Manual displacement of the uterus should be carried out where there are sufficient responders to do so. Do not use pillows or blankets to tilt the patient.
- Consider allocating a bystander to direct and guide pre-hospital responders.
- PMCS can only be carried out in the community by a clinician that is trained to perform the procedure.
- The patient must be conveyed to the Emergency Department accompanied by the midwife.
- When possible the community midwife should inform delivery suite of the situation.

6.3 Children

Basic ([Paediatric Basic Life Support](#)) and Advanced (Paediatric Advanced Life Support) Life Support guidelines provided by the RCUK (2021) should be followed with additional considerations for the following:

- All staff with a regular commitment to paediatric resuscitation should attend national paediatric resuscitation courses, e.g. EPLS, APLS, NLS and provide a certificate of completion.

6.4 Trauma

Please see guideline for Trauma Team Management within the Emergency Department.

6.5 Morbidly Obese Patients

Airway & Breathing

- Airway may be harder to manage due extra tissue
- Early intubation must be considered as this will decrease the risk of pulmonary aspiration.

Circulation

- Adequate chest compressions may be harder to perform depth, consider changing the person performing chest compressions more frequently.
- Due to increased anterior-posterior size the bed should be appropriately positioned to allow the person performing chest compressions to optimise their position ideally shoulders should be in line with the hands.
- IV/IO access may be harder to achieve (please refer to Intra-osseous access clinical guidelines for trauma and cardiac arrest management for further details).
- Transthoracic impedance may be increased and higher defibrillation energies required
- The Mechanical Chest Compression Device – LUCAS 3, may not be possible to use. The use of the device is not restricted by weight, but it must be able to physically fit on the patient.
- The LUCAS device will fit patients with:
 - Chest Width up to 44.9cm/17.7 inches
 - Sternum Height of 17 to 30.3 cm/6.7 to 11.9 inches

6.6 Patients with an implantable cardioverter defibrillator (ICD) or pace-maker

Airway & Breathing as per standard RCUK (2021) guidelines ([Adult Advanced Life Support](#))

Circulation

- Whilst undertaking adequate chest compressions look for any obvious surgical scars which may be indicative on a pacemaker/ ICD insertion.
- If the pacemaker is located in the upper right clavicular region, then alternative pad placement would need to be used.
- Alternative pad placements include: anterior posterior placement and bi-axilla placement.
- Ring magnets can be used to deactivate an ICD on a monitored patient where the ICD is firing during a non-shockable rhythm [Link to ICD deactivation guidance](#)

Please see Appendix 1&2 for location of ring magnets at each site.

7. Emergency Teams

The adult cardiac arrest team will comprise of:

- On-Call Medical SpR
- On-Call Medical FY2
- On-Call Medical FY1
- On-Call Anaesthetist
- Resuscitation practitioner (subject to training commitments)
- Porter
- At least one member of ward / department staff
- A member of the patient's own team of doctors if the patient is not being cared for by a medical or DME consultant – these will require fast bleeping via switchboard at an appropriate time.
- The Senior Nurse / 555 bleep holder responsible for the ward / department should ensure the continued safe care of the remaining patients within the clinical area.

The paediatric cardiac arrest team will comprise of:

- On-Call Paediatric SpR
- On-Call Paediatric FY2
- On-Call Anaesthetist
- Resuscitation practitioner (subject to training commitments)
- Porter
- At least one member of ward / department staff
- A Senior Paediatric Nurse from the paediatric ward will attend where other commitments allow
- The involvement of senior medical staff must be considered at an early stage – e.g. Consultant Paediatrician and Consultant Anaesthetist.

The neonatal emergency team will comprise of:

- Senior NICU doctor
- NICU ST 4-8
- NICU ST 1-3
- Nurse in charge NICU
- NICU admission nurse

8. Resuscitation Equipment

Clinical areas throughout the Trust will have appropriate resuscitation equipment. This will follow a standard format and this should not be deviated from without discussion with the Resuscitation and deteriorating patient Committee or the Resuscitation practitioner.

8.1 Cardiac Arrest Trolley

All resuscitation equipment must be stored in a cardiac arrest trolley, with portable suction and oxygen fixed to the trolley. The defibrillator must be placed on the top shelf of the trolley.

Equipment kept on the cardiac arrest trolley is for emergency use only. DO NOT remove items for any other use.

The oxygen, suction unit and the defibrillator must be checked daily and this check is to be recorded. The trolley and defibrillator should be cleaned regularly as dust is a source of infection and may also hamper the performance of equipment.

A full check of the contents of the resuscitation trolley must be carried out on a weekly basis. All items should be checked for expiry date and to ensure that they are fit for use. This check must be documented on the trolley paper/electronic checklist. (Luton Site – electronic checklist via MyKitCheck) (Bedford site – paper checklist)

The trolley must be sealed – this seal must be checked daily to ensure that it is intact. Each day the first part of the checklist should be completed. If the trolley is used or the seal found to be broken, the trolley must be checked against the full checklist, any items that do not appear on the checklist but are on the trolley should be removed. Items that are missing must be replaced, or arrangements made for their replacement immediately.

Following a cardiac arrest, the trolley must be restocked **IMMEDIATELY** and the defibrillator, oxygen, and suction checked for correct functioning. The checklist must be completed and signed. It is the responsibility of the person in charge of the clinical area to ensure that this standard is maintained. The trolley must always be ready for immediate use.

All electronic resuscitation medical device equipment will be maintained and serviced in accordance with the EBME/Clinical engineering schedule. All faults must be reported to the EBME/clinical Engineering department immediately and will be investigated by the engineers once available.

Ensure that the emergency drugs on the resuscitation trolleys are replaced when the drugs are used or due to expire.

Replacement resuscitation equipment can be sought from the central resuscitation store or from Ward stock. For Site specific information please see section 10.

8.3 Ward/Department based defibrillators

The trust has different defibrillators at each site. Please refer to Appendix 1& 2 for site specific information

The defibrillator must be placed on the top shelf of the cardiac arrest trolley.

It must be checked at least daily for the presence of a charging light, battery light and to ensure it has passed the daily self-test procedure, the manufacturer recommends that it is plugged in whilst not in use so that the batteries maintain their charge. Note the Lifepak 20e (Bedford) will alarm if left unplugged for more than 15 minutes.

A manual weekly check must be performed as instructed on the weekly checklist.

The defibrillator must be kept uncovered and free from dust. If the defibrillator has failed the self-test procedure and cannot be rectified by carrying out a user test the EBME/clinical engineering department must be informed immediately and the unit replaced.

8.4 Mechanical CPR device – LUCAS 3

The LUCAS 3 may be considered where the clinical presentation is likely to result in prolonged cardiac arrest such as; thrombolytic treatment & hypothermia.

For information where the LUCAS 3 is located and how to access for each site please see Appendix 1&2

8.5 Intra-osseous access device - EZIO

Please refer to Trust EZIO clinical guidelines located on the Trust intranet

For information where the EZIO is located and how to access for each site please see Appendix 1&2

9. Cardiac arrest review process

9.1 The Process:

- Each Cardiac Arrest will be audited by the resuscitation team.

Luton and Dunstable Site:

- Following every cardiorespiratory arrest an initial investigation is completed to examine the events leading up to the point of the arrest, the procedure is outlined in **Appendix 4**.

Bedford Site:

- An on-going audit 'care management of patients during the 48 hrs preceding a cardiac arrest' is undertaken by the Resuscitation Team and Clinical Risk and Patient Safety Manager. Results are reported to each of the Clinical Business Units Audit meetings.

9.2 Learning from the review process

- All findings from avoidable cardiac arrests are to be used for local and Trust wide learning.
- The resuscitation service will present findings at appropriate medical and nursing forums.

10. Training

The Resuscitation Service produces an annual training plan based on the requirements of the Trust. This is published on the Intranet within the Training and Development department's training brochure. The training available includes:

- Adult Basic Life Support (BLS)
- Immediate Life Support (ILS)
- Advanced Life Support (ALS)
- Paediatric Basic Life Support (pBLS)
- Paediatric Immediate Life Support (pILS)
- European Paediatric Advanced Life Support (EPALS)
- Neonatal Life Support (in house NLS)
- Neonatal Life Support (Resuscitation Council (UK) NLS)
- Advanced Trauma Life Support Course (RCS)
- Care of the Critically Ill Surgical Patient (RCS)
- Generic Instructor Course (RC/ALSG)

It is Trust policy that, in accordance with the guidance issued by the Resuscitation Council (UK), all staff should undergo regular resuscitation training to a level compatible with their expected clinical responsibilities. For Further guidance please see the Resuscitation Training SOP.

11. Cardiac Arrest Audit Data

Data from cardiac arrest resuscitation attempts that meet the following criteria:

- A “2222” call placed
- Is attended by the hospital based resuscitation team
- Resuscitation event that commences in hospital
- Patient over 28 days’ old
- Chest compressions started and/or defibrillation occurred

Is collected and collated and submitted to the National Cardiac Arrest (NCAA) Database, administered by ICNARC.

A record of 2222 calls is held in a log book in switchboard. Once confirmation of a call has occurred the Resuscitation practitioners will view the patient’s medical notes to ascertain if a cardiac arrest occurred and if required start the review process. On completion of the cardiac arrest review the appropriate information is uploaded to NCAA.

NCAA supply a quarterly report to the Resuscitation Service giving a range of information including rates of return of spontaneous circulation and survival to discharge. This information analysed and disseminated to Resuscitation and deteriorating patient Committee for review. Trends in performance are reviewed and areas for investigation identified.

Following a cardiac arrest an on-line electronic incident report form must be completed.

11.1. Resuscitation Decisions:

- The audit of DNACPR policies is mandatory (Health Services Circular 2000/ 028). Please refer to the treatment escalation plan with cardiopulmonary resuscitation decision. Results are reported to the Resuscitation and deteriorating patient committee and escalated to the relevant forums.

11.2. Resuscitation Trolleys:

A monthly audit of **resuscitation trolleys** by the resuscitation department will assess:

- The availability and use of equipment
- Whether the trolley has been checked safely and correctly
- The availability of cardiopulmonary arrest and peri-arrest drugs

Any deficiencies will be reported onto the Datix Incident Reporting System for investigation by the Ward/Department Manager. Action plans and lessons learned will be monitored at the monthly Quality Committee within each of the Clinical Business Units.

12. Monitoring and Compliance

Individual members of staff are responsible for ensuring that they remain compliant with their statutory training this will be assessed by their line manager as part of their individual appraisal.

Compliance with training across the Trust is monitored by the Training and development department. Monthly reports are produced and sent to the Trust board, divisional and departmental managers to action where needed.

The effectiveness of this policy and compliance will be audited through the cardiac arrest review process by the resuscitation service, reported to the Resuscitation and deteriorating patient Committee and any necessary modifications will be made.

Cardiac arrest team debriefs allow members of the team to feedback any areas of concern.

13. References

Resuscitation Council (UK), (2021). *Quality Standards for Cardiopulmonary Resuscitation Practice and Training*. [online] Available at: <https://www.resus.org.uk/quality-standards/> [Accessed 12th January 2022].

Skills for Health (2021), *UK Core Skills Training Framework*. [online], Available at: <http://www.skillsforhealth.org.uk/services/item/146-core-skills-training-framework> [Accessed 12th January 2022].

National Confidential Enquiry in Patient Outcome and Death (NCEPOD), (2012). *Cardiac Arrest Procedures: Time to intervene?* [online] Available at: <https://www.resus.org.uk/quality-standards/> [Accessed 12th January 2022].

National Confidential Enquiry in Patient Outcome and Death (NCEPOD), (2021). *Time Matters* [online] Available at: https://www.ncepod.org.uk/2021ohca/Time%20Matters_Full%20Report.pdf [Accessed 12th January 2022].

14. Appendices

Appendix 1

Bedford Site

Responsibilities:

Switchboard

- Each team member will respond to all test calls appropriately on a daily basis. If a member of the resuscitation team does not respond the Switchboard Operator will repeat the test call. If a team member fails to respond to the second test call the Lead Resuscitation Practitioner, or delegated deputy, will be notified and must follow this up with the individual/s concerned.
- If **2222** does not work the alternative number is **3333**.

Portering staff

- If the call is outside of a ward or clinical department take the appropriate (there is an adult and paediatric one) *crash bag* which is situated in the porter's lodge. This contains resuscitation equipment, including oxygen and a defibrillator.
- Collect a blue drug box from CCU if necessary (which contains extra resuscitation drugs such as amiodarone if the resuscitation is ongoing/complex)
- If requested collect the difficult resuscitation kit from the locked cupboard outside the porter's lodge which contains igels and EZ IO gun
- Replacing the airway and drug boxes post cardiac arrest.

Emergency Response – in non-clinical areas:

Incidents outside of the hospital main site (i.e. Britannia Road)

Switchboard should be contacted via 2222 and asked to call an ambulance and to fast bleep the Resuscitation team. The resuscitation team must not attend as this will leave the trust depleted of medical staff and is also a health and safety risk for the team

Defibrillators

Ensure self-test completed and printed out on print strip. If self-test incomplete, ensure hands free cable attached to test load and initiate user test, if still incomplete inform the resuscitation practitioner on bleep 403 and the EBME/Clinical Engineering department.

The AED requires minimum maintenance – DO NOT switch the unit on to test, this is unnecessary and depletes the life of the battery. Check the 'window' has the appropriate black symbol showing – a red symbol should be reported to the CAP team immediately via the bleep system.

Resuscitation Equipment

The daily check list must be returned to the CAP team at the end of the month for monitoring purposes and a laminated copy of the contents of the trolley will be kept on the top of the resuscitation trolley to aid checking.

Staff must be aware of replacement procedures following cardiac arrest and must be aware of the steps to follow in the event of equipment failure.

Appendix 2

Luton & Dunstable Site:

Responsibilities:

Portering Staff:

- Collecting the ICU grab bag and anaesthetic drug box

Cardiac arrest team briefs

Team members often change daily or more frequently, especially when shift working is used. Members may not know each other or the skill mix of the team members. A Resuscitation Team meeting at the beginning of member's period on duty is recommended by the RCUK (2021) to:

- Introduce team members to each other; communication is much easier and more effective if people can be referred to by their name.
- Identify everyone's skills and experience.
- Allocate the team leader role; skill and experience takes precedence over seniority.
- Allocate responsibilities; if key skills are lacking (e.g. nobody skilled in tracheal intubation) the team must work out and agree how this deficit can be managed
- Review any patients who have been identified as 'at risk' during the previous duty period.
- Disseminate learning points from the cardiac arrest review process.

Emergency Response – 2222 Calls

The appropriate emergency response team should be summoned using the universal **2222** number and the precise location of the patient must be communicated promptly and clearly to the switchboard operator and time allowed to clarify understanding:

Adult state: Adult Cardiac arrest and location

Obstetric patient less than 20 weeks gestation state: Adult Cardiac arrest and location
(obstetric location will automatically trigger switchboard to call obstetric O/C registrar)

Obstetric patient 20+ weeks gestation (or gestation unknown but clearly pregnant) state:
Adult cardiac arrest, obstetric emergency and code blue with the location

Paediatric state: Paediatric cardiac arrest and location

Neonatal state: Code Blue and location

Emergency department only

For patients <28 days state: **Neonatal emergency in the Emergency department**

Emergency Response – in non-clinical areas:

- AEDs can be located in the restaurant, main reception, ground floor of the surgical block opposite the pharmacy and the connecting footbridge between medical and surgical block.
- The ward 16 staff receiving the 2222 call will collect the emergency AED and grab bag from Ward 16 and bring to the location as quickly as possible.

Out buildings and outdoor Trust premises

- When a cardio-respiratory arrest occurs in a location away from the main Trust buildings (as transfer is not possible by onsite emergency team) help should be summoned using **999**.
- BLS should be started in the found location and handed over to the ambulance service.
- In outbuilding areas equipped with an AED, this should be applied to the patient where staff feel confident and prompts followed.
- Equipment in these outbuildings must be present to support BLS until arrival of the emergency services.

These are to include:

- Limb fitting
- Breast screening
- Fertility clinic
- Any Trust car parks.
- Arndale House
- Orthopaedic hub
- Hearing Aid Department
- Zone T
- Eye Clinic
- Occupational Health

The following areas should initially summon help by calling **2222** as section 5.2, this should then be followed with a call to **999** stating cardiac arrest and giving an appropriate location:

- Urgent GP Care Centre

Defibrillators

The Trust has 3 defibrillators. One which is designed for use within a public area for first responders (no specific training required), a defibrillator for the safe transfer of patients and clinically based defibrillators which must only be used by staff specifically trained in their use.

Please refer to sections 6.2.2 and 6.3.3 for medical and nursing staff defibrillator use respectively, and the Defibrillation and safe use of Zoll AED+ guideline (CG155) for further information.

Out of hours, if the defibrillator has failed the self-test procedure and cannot be rectified by carrying out a user test, the Senior Nurse (carrying bleep 555) must be informed so that a replacement can be arranged from the equipment library. **The defibrillator must always be ready for immediate use.**

The AEDs available in the public areas can be located in the following areas:

- Main reception
- Main restaurant (on the pillar by the main serving area)
- On the medical/surgical block connecting bridge (next to the phone, medical end)
- Opposite pharmacy main reception in the surgical block.

LUCAS 3

- The LUCAS 3 is located on ward 16 and is available for Trust wide use.
- Other locations for the LUCAS 3 (not to be removed): Emergency Department and Cardiac Centre

EZIO

- An EZIO device can be accessed inside the ITU grab bag which is bought to all cardiac arrests across the Trust by the porter.
- When available the resuscitation officer will also bring an EZIO device to a cardiac arrest.

Other Trust devices are located in the emergency department (ED) and Paediatrics

ICD Ring Magnet

- A cardiologist can be contacted via switchboard.
- Rings magnets can be located in CCU/ward 16, cardiac centre, theatres 1-6, and Theatres A-H, and Emergency Department Resus

Resuscitation Equipment

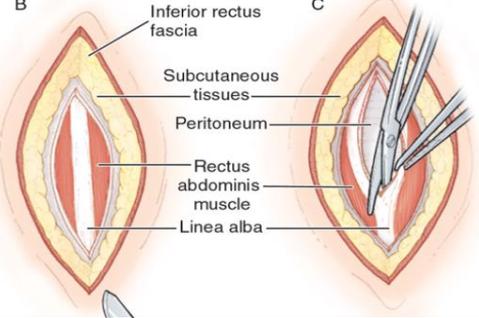
- The Luton site has a central store cupboard for adult resuscitation equipment; all equipment stored in this cupboard can be found listed on the restocking form in the black folder on top of the trolley.

Peri Mortem C-Section kits

- PMCS packs are located in the 3rd draw of the Resuscitation Trolley.

Appendix 3: How to do perimortem caesarean section

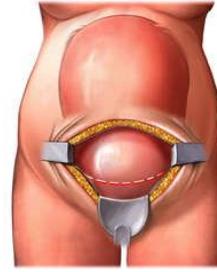
1. Operator - It can be non-obstetricians as well as obstetricians
2. Use appropriate personal protection equipment
3. Take the scalpel from 'C' drawer of the resuscitation trolley.
4. You do not need septic precaution to clean the abdomen
5. Make an abdominal incision either midline vertical incision or low transverse abdominal incision

Midline vertical abdominal Incision	Low transverse abdominal incision
	
<p>Proceed to incision down further into the peritoneum and into the abdominal cavity.</p> 	<p>The abdominal entry is the standard caesarean section. Once the rectus sheath is identified, go to the midline and enter the peritoneum into the intraabdominal cavity.</p>
<p>Make your intraabdominal incision wider for better access by cutting up toward the umbilicus or beyond superiorly; and downwards towards the suprapubic crease. This incision can be done using the scalpel or bluntly with your fingers.</p>	

Identify the uterus and make a vertical midline (classical) incision or lower segment transverse incision until you reach the baby



vertical midline (classical) incision



lower segment transverse incision

Delivery the baby. Clamp and cut the umbilicus cord.
Hand the baby to the neonatal team.

Pack the uterus with large swab or gauze.

Appendix 4: L&D Cardiac Arrest Review Process

