

Pioneering Patient Care In Cardiac Surgery Following the Pandemic: The Introduction of ERAS on a Cardio - Thoracic ICU

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CERAS at SGH: a CTICU Team Sport

- ▶ ERAS refers to patient-centered, evidence-based, multidisciplinary team developed pathways for a surgical specialty and facility culture to reduce the patient's surgical stress response, optimize their physiologic function, and facilitate recovery.
- ▶ These care pathways form an integrated continuum, as the patient moves from home through the pre-hospital / preadmission, pre-/intra-/ post-operative phases of surgery and home again.

*AANA (American Association of Nurse Anesthesiology, aana.com/practice/clinical-practice-resources/enhanced-recovery-after-surgery)



NHS

St George's University Hospitals
NHS Foundation Trust

**WE ARE
CARDIAC
ERAS**

CERAS Guidelines & National Standards

- **ERAS Society:** erassociety.org (2017) & erasuk.net (UK Chapter)
- **Cardiac Surgery ERAS Society:** erascardiac.org
- **Guidelines for Perioperative Care in Cardiac Surgery. Enhanced Recovery After Surgery Society Recommendations** (Engelman et al, *JAMA Surg.* 2019;154(8):755-766. doi:[10.1001/jamasurg.2019.1153](https://doi.org/10.1001/jamasurg.2019.1153) Published online May 4, 2019).
- **Society for Cardiothoracic Surgery in Great Britain and Ireland (SCTS)**
- **Cardiac Advanced Life Support (CALS) : National & Internal Courses at SGH** (www.csu-als.org)
- **Getting it Right First Time. National Report on Cardiothoracic Surgery (2018)** (gettingitrightfirsttime.co.uk/surgical_specialties/cardiothoracic-surgery)
- **NICE 125 & 180**
- **Local Cardiac surgical guidelines**
- **'The Heart in Lockdown'. National Adult Cardiac Surgery Audit (NACSA) 2022 Summary Report. NICOR (The National Institute For Cardiovascular Outcomes Research)** (www.nicor.org.uk)

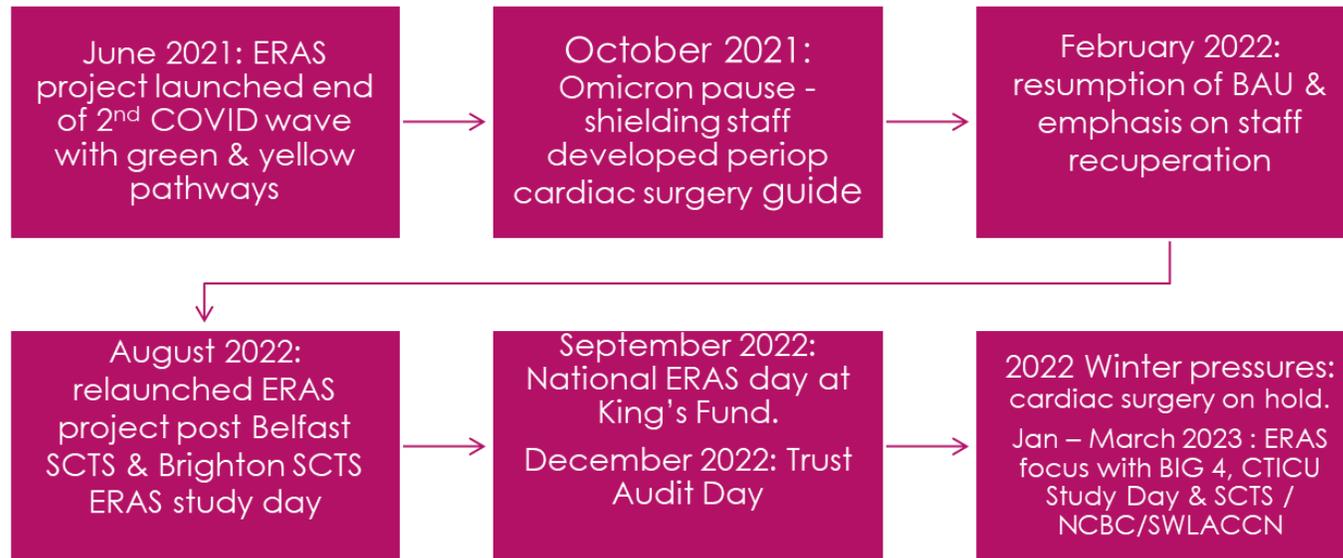


Development and Challenges

- ▶ 21 Bed CTICU with 6 beds for post op recovery
- ▶ February 2023: First 'ring fenced' cardiac surgical beds v competing teams
- ▶ March 2023: development of enhanced care/ HDU area on ward
- ▶ 130 + nurses, 10 + consultants plus large MDT of AHPs
- ▶ Constant pressure: 63 + Adult Critical Care beds - Level 1 Trauma Centre
- ▶ COVID 19 February 2020 – present – future
- ▶ Flu, Monkey Pox
- ▶ Rolling retention & recruitment
- ▶ Constant education & training needs
- ▶ New technology, Cardiogenic Shock & pVA ECMO service



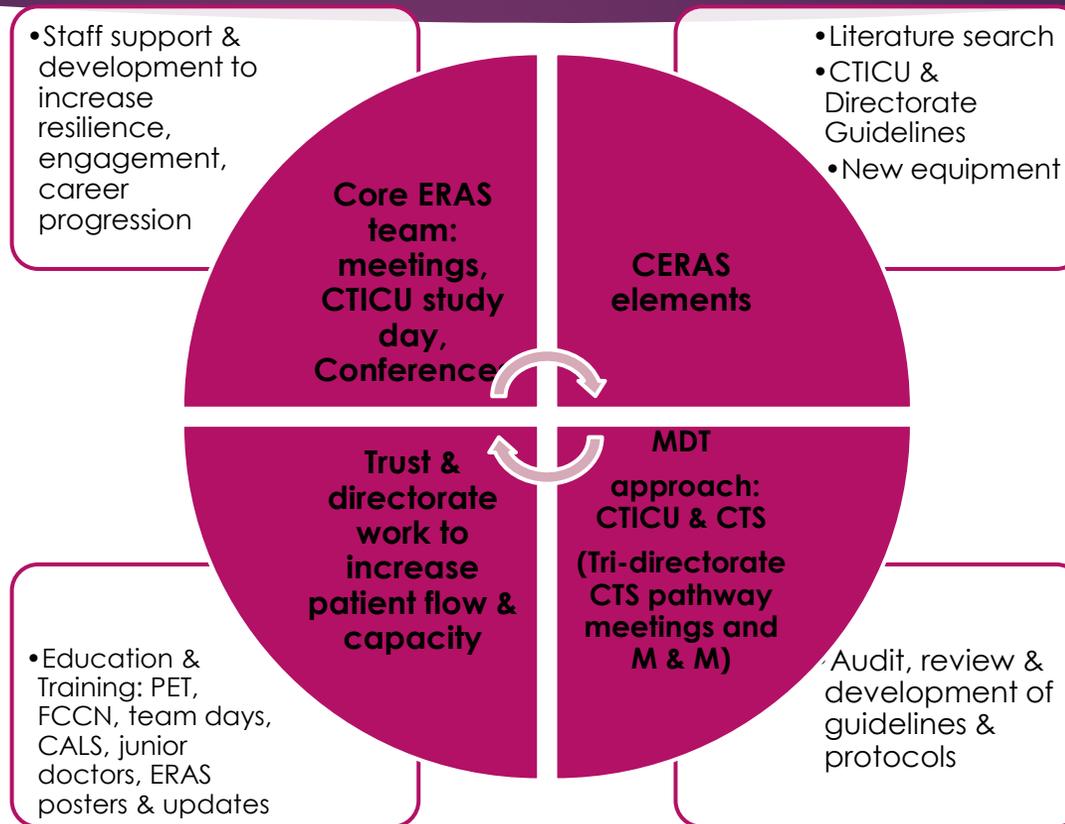
ERAS Timeline at St. George's Hospital



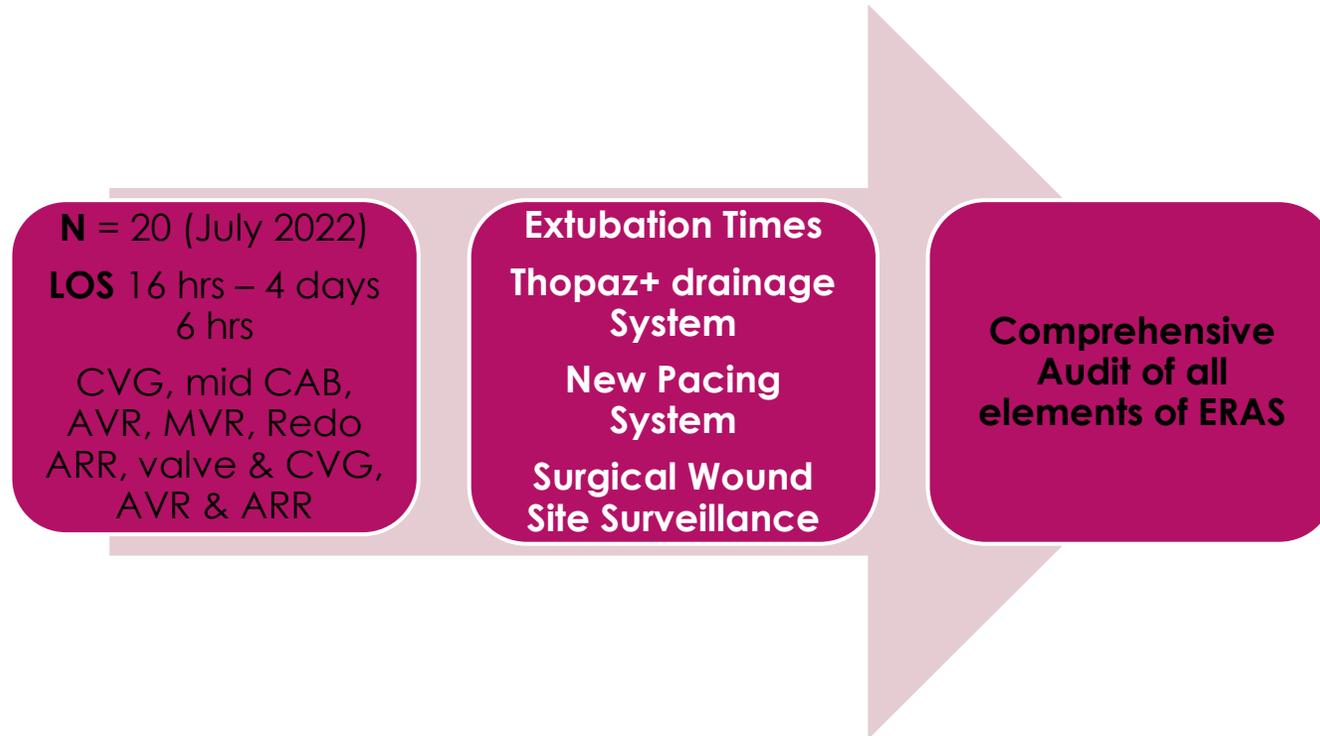
Key Elements

| CTICU ERAS Projects | Progress |
|---|--|
| Haemodynamic Optimisation: Goal - Directed Therapy, Hemosphere Guideline, Pulmonary Artery Flotation Catheters. | Guidelines reviewed. Requires audit. Teaching material to be finalised & New Volume View monitor introduced ERAS Quiz |
| Chest Drain management/ removal Guidelines | Awaiting approval & audit ERAS Quiz |
| New Pacing Box Guideline | Revised and on trial. First audit complete. ERAS Quiz |
| Pain Management | Research completed. Audit complete & analysed. Guideline appropriate. ERAS Quiz |
| Anti Embolic Stockings | Guideline approved & implemented post audit. Working with CTS ward. ERAS Quiz |
| Patients/ family education booklet for Cardiac surgery | Awaiting proof reading. Requires translation & an online link. |
| Thopaz+ digital drain system | Guidelines to be finalised & approved. Audited & presented internationally. ERAS Quiz |
| Delirium/ CAM-ICU | Research Completed . Audit complete & analysed. ERAS Quiz |
| Wound surveillance | Research completed. Documentation on line complete . Audit complete & analysed. ERAS Quiz |
| Glycemic control | Audit analysed: guideline review required ERAS Quiz |
| Early extubation Protocol (including normothermia) | Audit analysed: guideline review required ERAS Quiz |

Putting key elements into practice



Restarting the audit process post COVID: First 4 ERAS elements



EARLY EXTUBATION

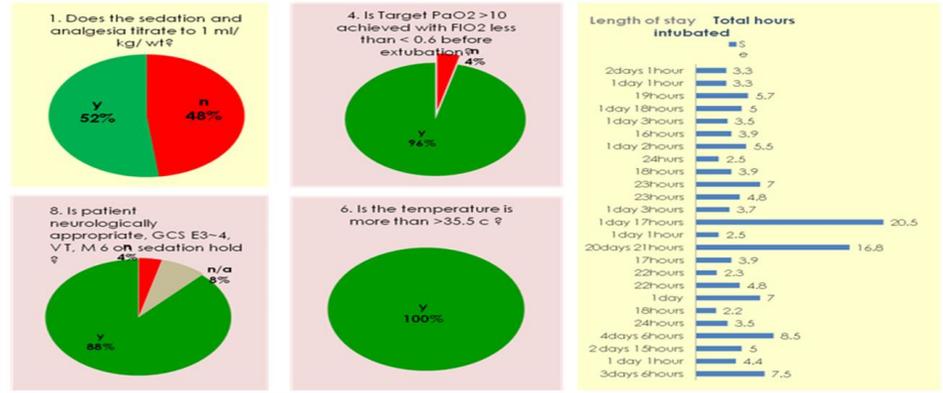
Cardiac Enhance Recovery After Surgery Cardiothoracic Intensive Care Unit

Aim: Early extubation, within 6 hours of ICU arrival
Titrate sedation on admission, temperature management post cardiac surgery

Study/Audit



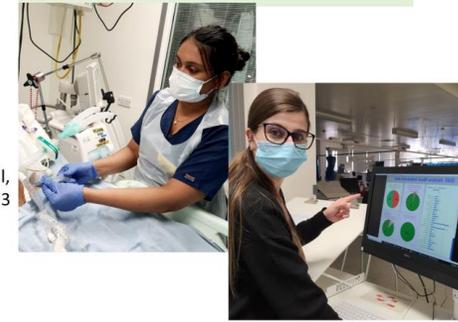
Findings/Graph: Short ICU stay in early extubated patients
Need to improve on sedation titration on admission



Recommendations:

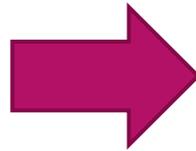
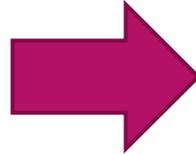
- Titrate sedation on admission
- -Continue current practice.

Pacing Participants: Priya Achary; Carmen Silva

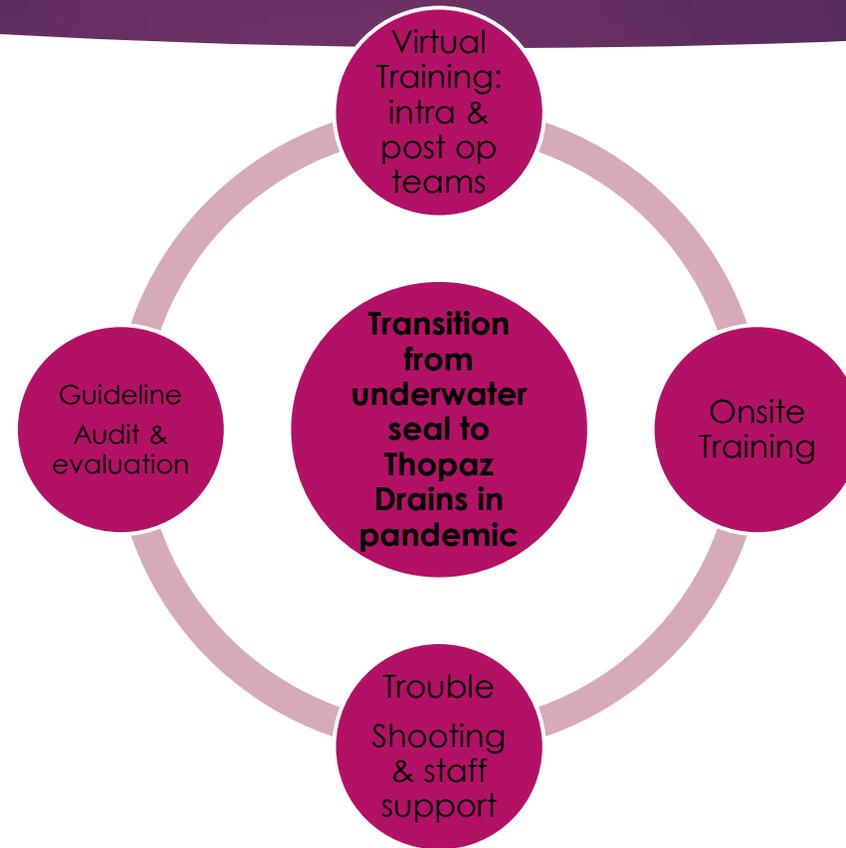


Reference :
-Guidelines for Perioperative Care in Cardiac Surgery. Enhanced Recovery After Surgery Society Recommendations (Engelman et al, JAMA Surg. 2019;154(8):755-766. doi:10.1001/jamasurg.2019.1153 Published online May 4, 2019). Ref 163-173
- NICE ERAS NG 180
<https://www.nice.org.uk/guidance/ng180/evidence/b-enhanced-recovery-programmes-pdf-8833151055>

Thopaz digital drainage system: Analogue switch to Digital



Team Transition to Thopaz + digital drainage system in COVID



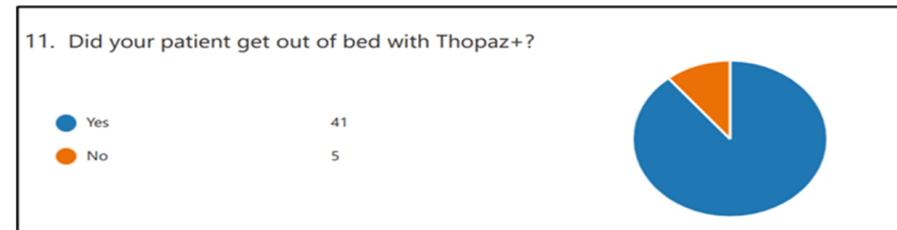
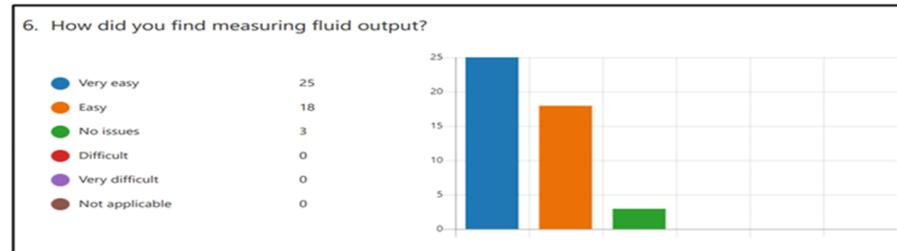
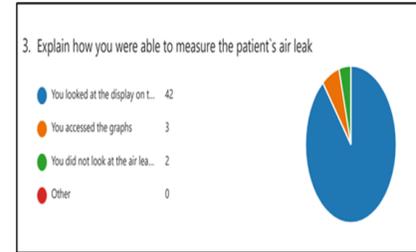
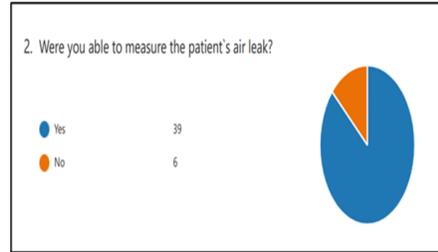
Thopaz Drain

Cardiac Enhance Recovery After Surgery

Cardiothoracic Intensive Care Unit

Aim: Safe transition from Analogue chest drain to Digital system

Evaluation collected from 46/130 Nursing Staff

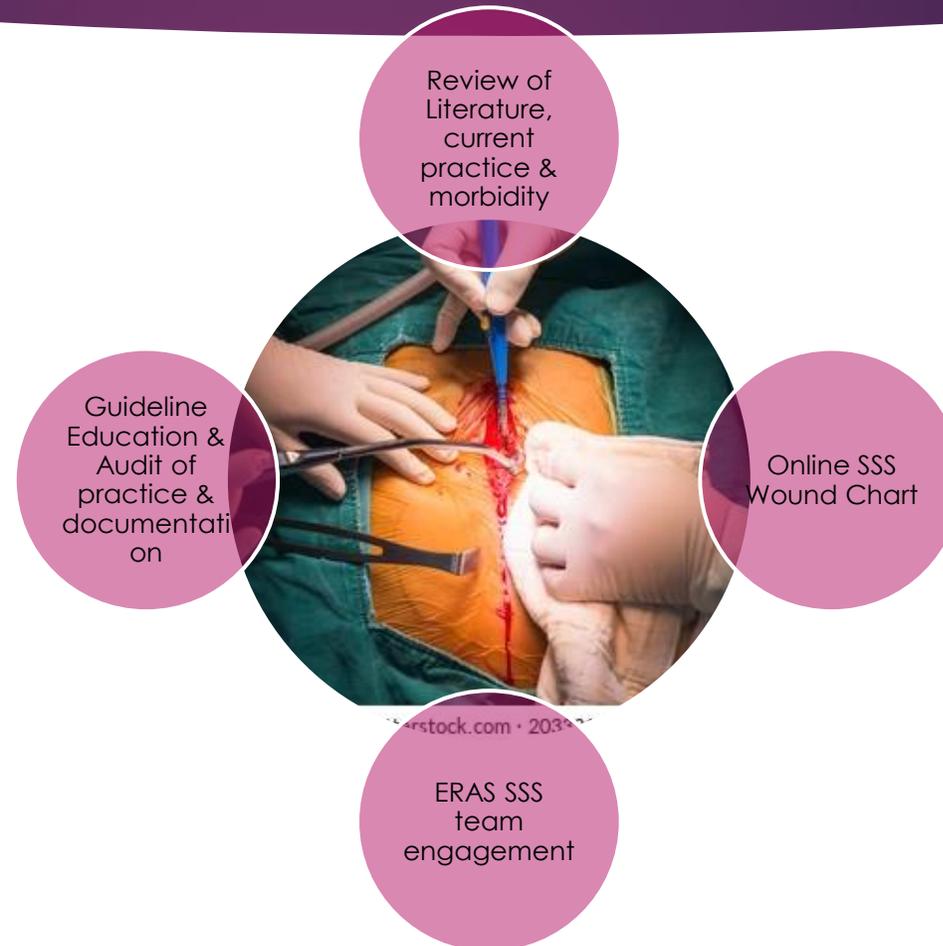


Findings: Successful transition, safe and easy.

*Reference : NICE ERAS Guideline/ ng180
NICE. Evidence-based recommendations on Thopaz+ portable digital system for managing chest drains. Medical technologies guidance /MTG37



Surgical Site Wound Surveillance Audit



Surgical Site Wound Surveillance

iClip Nursing Documentation

Surgical Site Wound Surveillance
Audit Form

CTICU Surgical Site Surveillance

Summary of Event/Operation/Procedure

Wound Assessment (mark [X] if applicable)

| No of Days: date | Chest | Right arm | Left arm | Right Leg | Left Leg | Remarks (state if wound is dressed and wound chart completed) |
|----------------------------|-------|--------------|-------------|--------------|-------------|---|
| Day 0: | | | | | | |
| Day 1: | | | | | | |
| Day 2: | | | | | | |
| Day 3: | | | | | | |
| Day 4: | | | | | | |
| Day 5: | | | | | | |
| Day 6: | | | | | | |
| Day 7: | | | | | | |
| On Discharge to ward | | | | | | |

To be completed if wound ooze, contamination, dehiscence, SSI

| Y/N | Consent Given |
|-----|--|
| | Picture's taken with patient's best interest. (MCA assessed) |
| | Picture's taken with patient's consent |

Date Reported: Y/N

AUDIT QUESTION FOR CARDIAC SURGICAL WOUND SITE

- Has the leg or arm bandage been removed on day 1?
Yes No
- Has wound dressing been changed on day 2 or when soaked?
Yes No
- Has opsite post-op or honeycomb dressing been used to change the post-op wound dressing?
Yes No
- Has surveillance chart been completed every shift?
Yes No
- If the wound has been oozing, infected or dehisced, has it been reviewed by the surgical team?
Yes No
- If wound has not healed for 2 weeks or more, has it been referred to tissue viability nurse?
Yes No
- Has anti-embolic socks (AES) been applied on both legs including donor site (subject to surgeon's discretion)?
Yes No
- If wound is oozing or infected, has swab been sent for investigation?
Yes No
- Is antibiotic prescribed and administered if wound is infected?
Yes No
- If patient is diabetic, is the blood sugar level been monitored?
Yes No



SURGICAL SITE SURVEILLANCE

Cardiac Enhance Recovery After Surgery Cardiothoracic Intensive Care Unit

Aim: To prevent and monitor surgical site infection.
To improve surgical site wound management

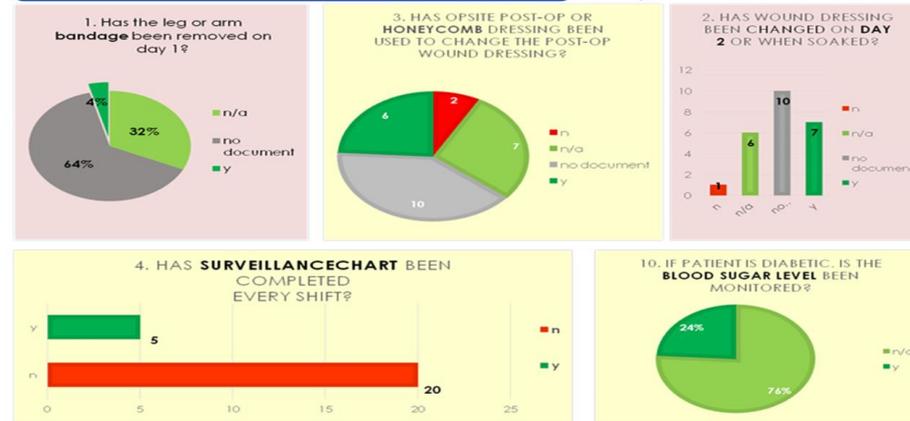
Study/Audit

N = 25 (July 2022)
LOS 16 hrs – 4 days
6 hrs
CVG, mid CAB,
AVR, MVR, Redo
ARR, valve &
CVG, AVR & ARR

Extubation Times
Thopaz+ drainage System
New Pacing System
Surgical Wound Site Surveillance,
CAMICU, Pain management,
Glycaemic control

Comprehensive Audit of all elements of ERAS

Findings/Graph: Poor documentation in grey



Recommendations: Complete surgical site surveillance on iclip each shift
Change the sternal wound dressing in 48hours
Remove bandages from the donor site on day 1 post op

Reference :

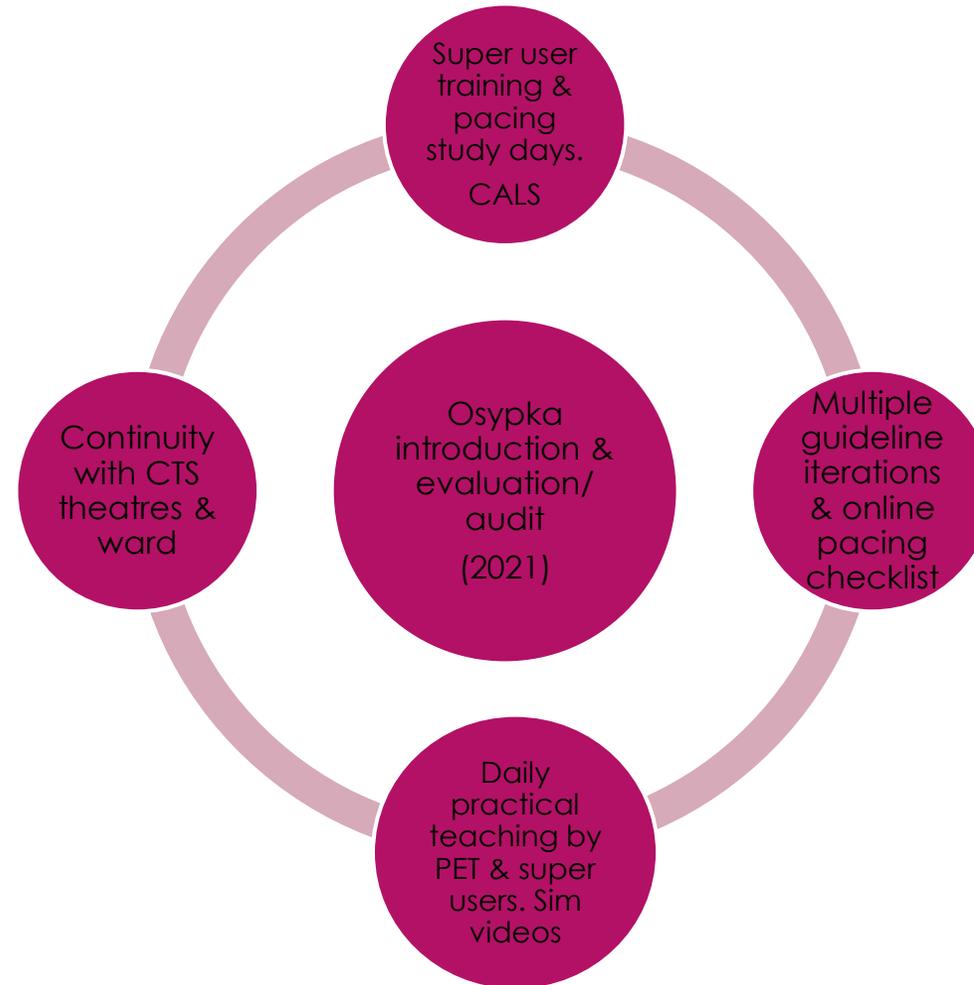
- Guidelines for Perioperative Care in Cardiac Surgery. Enhanced Recovery After Surgery Society Recommendations (Engelman et al, JAMA Surg. 2019;154(8):755-766. doi:10.1001/jamasurg.2019.1153 Published online May 4, 2019). Ref 55-70
- NICE ERAS NG 180

<https://www.nice.org.uk/guidance/ng180/evidence/b-enhanced-recovery-programmes-pdf-8833151055>



Surgical Site surveillance Participants:
Milafe Nimer; Parbata Kunwar

Transition to Osypka Pacing Box



Updated Epicardial Pacing Checklist

Cardiothoracic Surgery

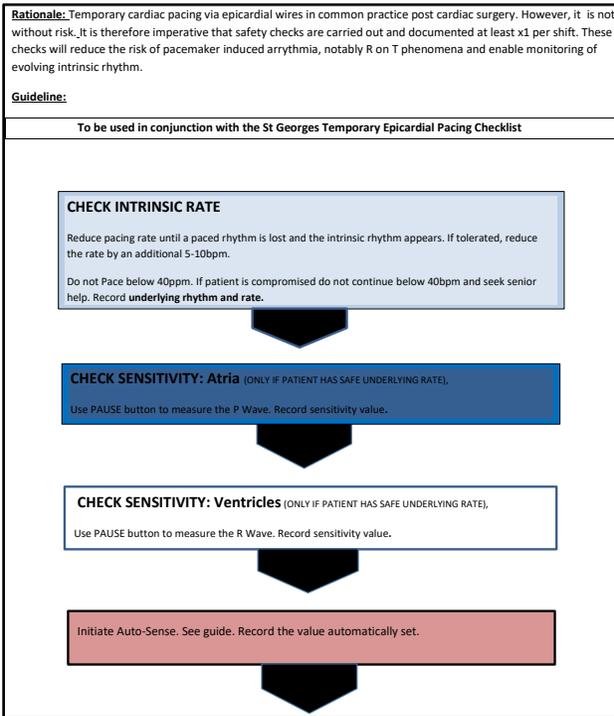
REFER TO PACING ALGORITHM FOR GUIDANCE*

TEMPORARY EPICARDIAL PACING CHECKLIST

Type of surgery: _____ Pacing wire type and location: _____ Pacing box serial no: _____

| | DAY 0 AND NIGHT CHECKS | | | DAY 1 AND NIGHT CHECKS | | | DAY 2 AND NIGHT CHECKS | | | D3 LD | D3 Night | D4 LD | D4 Night | |
|--|--|-------|--------------|------------------------|--------------|-------|------------------------|-------|--------------|-------|--------------|-------|--------------|-------|
| Time of check | | | | | | | | | | | | | | |
| Underlying rhythm | | | | | | | | | | | | | | |
| Underlying rate | | | | | | | | | | | | | | |
| Indication for pacing <i>circle one or more</i> | Brady Backup | AF BP | Brady Backup | AF BP | Brady Backup | AF BP | Brady Backup | AF BP | Brady Backup | AF BP | Brady Backup | AF BP | Brady Backup | AF BP |
| Pacing mode | | | | | | | | | | | | | | |
| Set rate | | | | | | | | | | | | | | |
| | ppm | ppm | ppm | ppm | ppm | ppm | ppm | ppm | ppm | ppm | ppm | ppm | ppm | |
| Sensing | | | | | | | | | | | | | | |
| A | Sensitivity value (measure P wave) | | | | | | | | | | | | | |
| | Set Auto-sense and record value (should be 1/3 of sensitivity value) | mV | mV | mV | mV | mV | mV | mV | mV | mV | mV | mV | mV | mV |
| V | Sensitivity value (measure R wave) | | | | | | | | | | | | | |
| | Set Auto-sense and record value (should be 1/3 of sensitivity value) | mV | mV | mV | mV | mV | mV | mV | mV | mV | mV | mV | mV | mV |

Epicardial Pacing Guideline



AV Delay

Check AV Delay is set on AUTO. If not set on AUTO, get senior help. Record value.

Impedance

Check impedance by twisting the voltage/amplitude knob of the chamber you are checking. Impedance in Ω will be displayed on the screen. Record value.



EMERGENCIES



Severe bradycardia, PEA or Asystole with AV wires in place

1. Check wires are connected and pacing box is on.
2. Press yellow key button and then Red EMERGENCY button on pacer
3. The pacer will check to see if the leads are connected and will pace at 18V both channels in DDO mode.
4. Sensitivity and Capture checks will need to be completed again once pacing has been successfully implemented. The mode will need to be returned to DDD, AAI or VVI.

Cardiac arrest (VF/VT)

1. Put pacer on to Standby Mode as follows:
2. Press OFF and select STANDBY
3. Pacer will turn off after two seconds.
4. If pacing is required after completion of Defibrillation, just press ON and it will return exactly as it was left before Standby mode was selected.

Audit measure:

Safety checklist completion to be audited in 3 months.



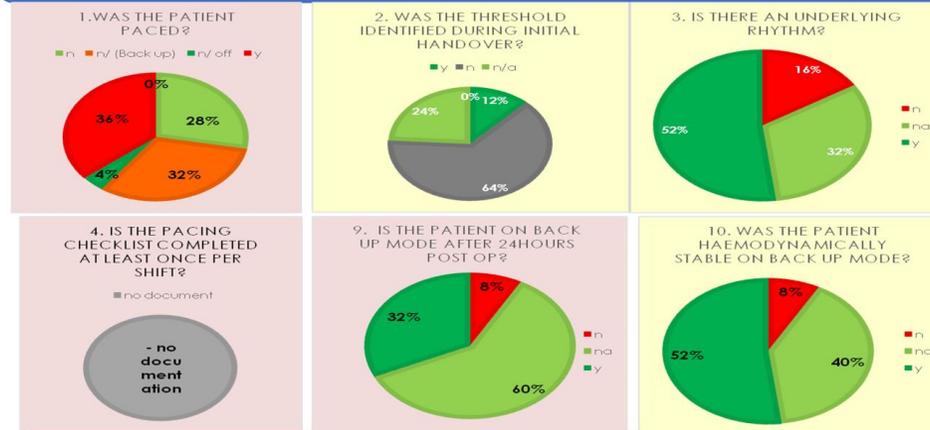
Cardiac Enhance Recovery After Surgery Cardiothoracic Intensive Care Unit

Aim: To ensure pacing box setting is appropriate for each patient.
To ensure pacing box is in good function

Study/Audit



Findings/Graph: Most patients' cardiac conductivities restored in Day 1 post op.
Poor compliance of nursing practice, and poor documentations



Recommendations:

- Complete pacing check list on admission/ beginning of each shifts, on abnormal rhythm changes
- Seek support from Pacing link nurses, senior nurses, NIC for pacing box checks
- Correct the pacing box settings to ensure patient's heart is adequately monitored and supported
- Keep a photocopy of pacing check list in sisters office for further audits.

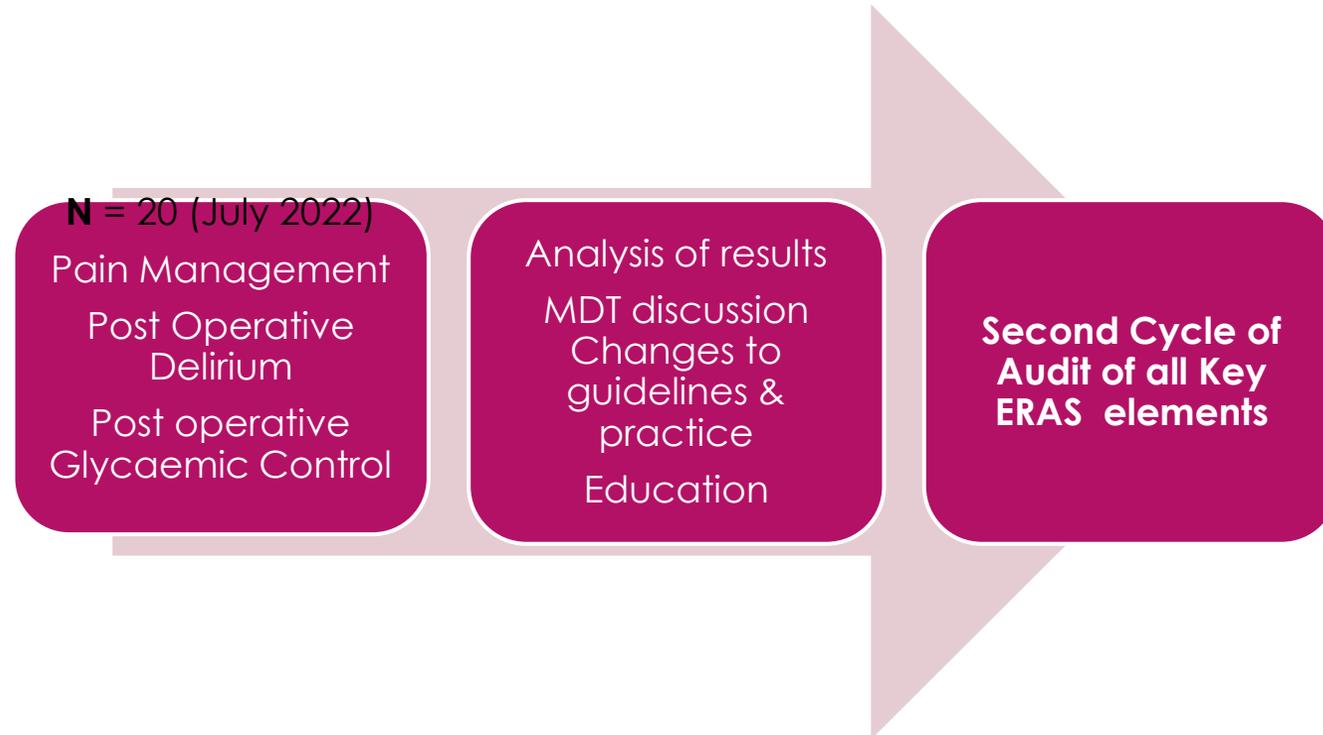
Reference :

- Guidelines for Perioperative Care in Cardiac Surgery. Enhanced Recovery After Surgery Society Recommendations (Engelman et al, JAMA Surg. 2019;154(8):755-766. doi:10.1001/jamasurg.2019.1153 Published online May 4, 2019).
- NICE ERAS NG 180, - NICE Ta88, Dual-chamber pacemakers for symptomatic bradycardia,, www.nice.org.uk/guidance/ta88
- Batra AS, Balaji S. Post operative temporary epicardial pacing: When, how and why? Ann Pediatr Cardiol. 2008 Jul;1(2):120-5. doi: 10.4103/0974-2069.43877. PMID: 20300253; PMCID: PMC2840753.



Pacing Participants: Michele Stevens; Kavya Payyanadan; Rashika Pradhan

Progressive audit of second 3 ERAS Elements



PAIN MANAGEMENT

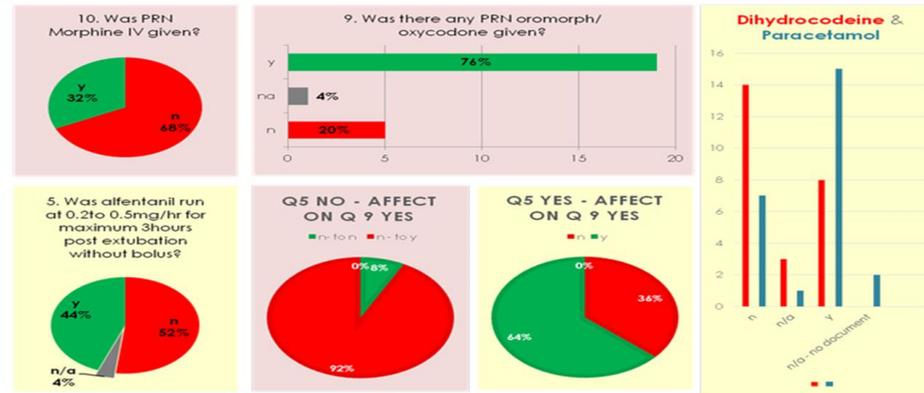
Cardiac Enhance Recovery After Surgery Cardiothoracic Intensive Care Unit

Aim: To maintain appropriate pain control, and minimise the use of opioids.
To prevent and reduce patients agitation and delirium

Study/Audit



Findings/Graph: Better pain control in patients received small dose of alfentanil ivi post extubation. Pain scoring-Poor documentation. Poor compliant with guidelines. Prescription missing- Regular Dihydrocodeine



Recommendations:

- Complete pain scoring 1 hourly
- Follow the current pain management guideline-continue 0.2~0.5mg/hr of alfentanil max 3hour post extubation
- Chase regular dyhydrocodeine & paracetamol prescription

Reference :

- . Guidelines for Perioperative Care in Cardiac Surgery. Enhanced Recovery After Surgery Society Recommendations (Engelman et al, JAMA Surg. 2019;154(8):755-766. doi:10.1001/jamasurg.2019.1153 Published online May 4, 2019). Ref 99-119
- NICE ERAS NG 180 <https://www.nice.org.uk/guidance/ng180/evidence/b-enhanced-recovery-programmes-pdf-8833151055>

Pacing Participants:
Amelia Guyguyon;
Sandra Micksch



DELIRIUM/ CAM ICU

Cardiac Enhance Recovery After Surgery Cardiothoracic Intensive Care Unit

Aim: To detect delirium as early as possible and treat underlying causes.

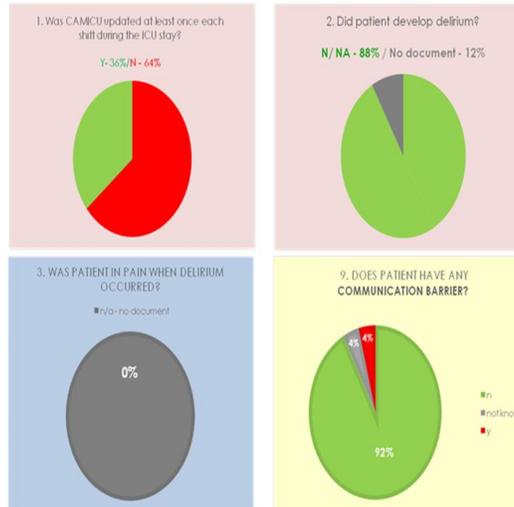
• Study/ Audit

N = 25 (July 2022)
LOS 16 hrs – 4 days 6 hrs
CVG, mid CAB, AVR, MVR, Redo ARR, valve & CVG, AVR & ARR

Extubation Times
Thopaz+ drainage System
New Pacing System
Surgical Wound Site Surveillance,
CAMICU, Pain management, Glycaemic control

Comprehensive Audit of all elements of ERAS

Findings/ Graph: Poor Documentation

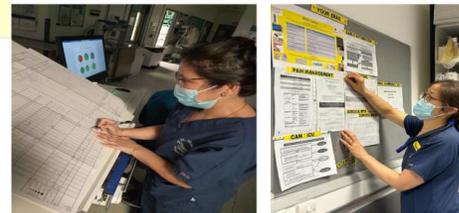


Recommendations:

To complete CAMICU x 2 each shift NICE guideline recommended intervention should be included to prevent delirium, particularly reorientation, medication review, hydration and sleep hygiene.

CAMICU is the quickest and easiest way to monitor delirious patients.

Delirium/ CAM ICU Participants: Tenzin Choedon; Cha Young Kim



** Reference : - Guidelines for Perioperative Care in Cardiac Surgery. Enhanced Recovery After Surgery Society Recommendations (Engelman et al, JAMA Surg. 2019;154(8):755-766. doi:10.1001/jamasurg.2019.1153 Published online May 4, 2019). Ref 120-133- NICE ERAS NG 180 <https://www.nice.org.uk/guidance/ng180/evidence/b-enhanced-recovery-programmes-pdf-8833151055>"

GLYCAEMIC CONTROL

Cardiac Enhance Recovery After Surgery Cardiothoracic Intensive Care Unit

Aim: To prevent Hyper/Hypoglycemic episodes post op
To improved glycemic control with insulin & DXT in DM patients

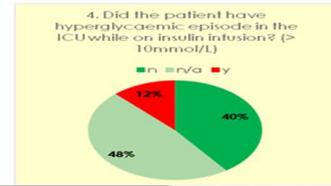
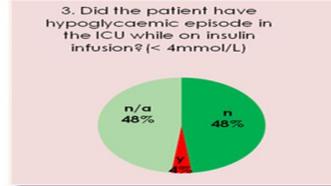
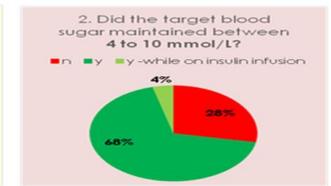
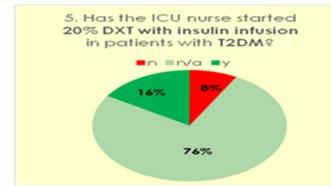
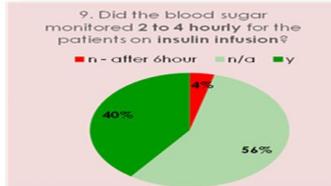
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Thopaz+ drainage System
New Pacing System
Surgical Wound Site Surveillance,
CAMICU, Pain management, Glycaemic control

Comprehensive Audit of all elements of ERAS

Findings/ Graph:
BM monitoring 2-4 hourly- to aim 100%
8% of DM pats with insulin Iv infusion did not receive 20% DXT
Hyper/Hypoglycaemic episodes on insulin Iv infusion- to aim 0%



Recommendations:
To monitor BM 2-4 hourly, and patients with insulin infusion more often.
To start 20% DXT for DM patients with Insulin IV infusion.
To develop glycaemic control guidelines for post Cardiac surgery.

Reference:
- Guidelines for Perioperative Care in Cardiac Surgery. Enhanced Recovery After Surgery Society Recommendations (Engelman et al, JAMA Surg. 2019;154(8):755-766. doi:10.1001/jamasurg.2019.1153 Published online May 4, 2019). Ref 120-133
- NICE ERAS NG 180
<https://www.nice.org.uk/guidance/ng180/evidence/b-enhanced-recovery-programmes-pdf-8833151055>



Glycaemic Control Participants: Linju Bose; David Moothoo

Future Action Plan for CERAS on CTICU.

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Increased surgical activity

Tri directorate working

Shared ERAS guidelines

Continued PDSA Cycles

Education

Upskilling

Patient & family booklet & involvement

Extra ERAS elements
Haemodynamics & VTE

Drive forward change and audit on CTICU despite ongoing challenges



Everything You Need to Know: Cardiac Surgery



Patient-Family Education Booklet Cardiac Enhance Recovery After Surgery

pacings wires are inserted during surgery, through the chest, and attached directly to the heart. These wires are connected to an external pacing box, which delivers a current to the heart to make it beat normally. These wires are usually removed Day 3 post cardiac surgery.

Redivac Drain- This drain will be removed once the pacing wires have been removed, usually on day 4, to collect any remaining blood or fluid.

Wounds- You may have multiple wound sites post cardiac surgery depending on what surgery you have had. Most patients will have a long midline chest incision where the surgery was performed. If you have had a vein graft from your leg or an artery graft from your arm, you will have a smaller wound in these places too. Your wounds will be checked daily by the nursing staff to monitor for any signs of infection. They will only be changed on day 2 and 5 post surgery, unless oozing. All dressings will be removed prior to discharge home.

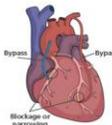
Pain Management- Cardiac surgery is a major operation and it is normal to expect some discomfort. You will be given pain control medication regularly in the postoperative period, but if you do suffer pain, please discuss this with your nurse who is able to assist you in managing your pain. Continue to take pain-relief medication such as paracetamol for as long as necessary. Keeping your pain under control will help you to keep mobile, practice your deep breathing exercises and cough up any secretions from your chest (phlegm).

Preventing blood clots- Post surgery you will wear anti embolism stockings (AES) to prevent any blood clots. You are required to wear the stockings until you are fully mobile. The

Cardiac Surgery

Coronary arteries are the blood vessels which supply the heart muscle with oxygen and energy. These arteries can become narrowed or blocked due to the build up of various substances and this may limit the blood supply to the heart muscle, causing symptoms. The most common symptom is chest pain and this is often called angina, however, some people may not experience any symptoms.

A coronary artery bypass graft (CABG) is a surgical procedure used to treat coronary heart disease. It involves taking a vein or artery from the arm, leg or behind the breast bone (the mammary artery) joining it to the aorta and then positioning it beyond the blockage or narrowing. This diverts blood around the narrowed or clogged parts of the major arteries to improve blood flow and oxygen supply to the heart.



Valve Surgery- Within the heart there are 4 valves which make sure that the blood flows around the heart in one direction. These are:

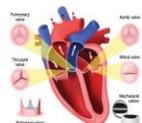
1. Tricuspid
2. Pulmonary
3. Mitral
4. Aortic

The valves can become damaged or diseased causing them to leak (valve regurgitation) or they may become narrowed and rigid (valve stenosis).

These problems can cause strain on the heart which the patient may recognize as tiredness or being short of breath.

In some patients, only one valve is affected, in others there may be two or more. The aortic and mitral valve are the most commonly affected. There are two options for valve surgery: valve repair and valve replacement.

- **Valve repair** is often used for mitral valves that become floppy and leak but aren't seriously damaged.
- **Valve replacement** is when the old valve is replaced with a new valve. The most common types of replacement valves are mechanical (artificial) valves or tissue (animal) valves.



Mechanical Valve - these are usually made of carbon or steel. This type of valve will require you to take anticoagulant tablets for the rest of your life (usually Warfarin). This is to prevent blood clots forming on the artificial surface of the valve.

Tissue Valve - The tissue is a valve from a pig or cow which has been treated with a substance which helps to preserve it. If you have a tissue valve, you may only have to take Warfarin for up to three months, if at all, and will depend on the surgeon's advice. This type of valve will "wear out" and currently is expected to last for approximately 15 - 20 years before needing re- replacement.

Post surgery

stockings should be removed daily to check the skin and ensure the wounds are healing. In addition to these stockings, you will have an injection, given to you by the nurse, daily in the days following surgery that you may require to continue when returning home for a few weeks.

Mobilising- Early mobilisation post cardiac surgery is essential to prevent postoperative complications, improve cardiac function whilst reducing length of hospital stay. Nurses will help sit you out into a chair on day 1 post surgery. It is important to remember to protect your breastbone (also known as your sternum) after cardiac surgery. This includes no pushing, pulling or lifting with your arms for the first 12 weeks after your surgery. You will be seen by the physiotherapist during your hospital stay, who will show you techniques with carrying out daily activities. They will also encourage you to cough. Don't be afraid to cough as it does not interfere with the healing of your surgical wound. Coughing post cardiac surgery is extremely important to help expand your lungs and prevent chest infections.

- Sit upright
- Support your wound by putting your hands on your chest.
- Take a deep breath in, then cough strongly from your tummy



Cardiothoracic Intensive Care Unit

Cardiac Surgery usually takes between 3-6 hours, for which you will be kept asleep for the entire duration. When the surgery is finished you will be transferred to the Cardiothoracic Intensive Care Unit (CTICU) for close monitoring.

Endotracheal Tube (ETT) - You will be sedated to keep you asleep and have a tube down your throat to help you breathe (ETT) - the tube may be uncomfortable and you will be unable to speak, however, most patients don't remember having the tube in place. When you are ready to wake up and breathe on your own, the nurses will wear you off the ventilator, remove the breathing tube and apply an oxygen mask over your nose and mouth.

Central Venous Catheter (CVC) - you will have a catheter placed in a large vein in either your neck (internal jugular vein), chest (subclavian vein) or groin (femoral vein) which will be used to administer medications and fluids that are unable to be taken by mouth. The CVC is usually removed on day 2-3 post surgery.

Urinary Catheter- you will have a tube in your bladder which allows you to pass urine. It is normal to feel the need to urinate whilst the tube is in place, do not panic as it is collected into a bag. The urinary catheter is usually removed on day 2 post surgery, once you are more mobile and independent.

Chest Drains- You will have chest drains post cardiac surgery, allowing for the clearance of blood, fluid and air to prevent postoperative complications. They may cause pain and discomfort when you breathe. Ensure you ask the nurses for additional pain relief. Chest drains are usually removed Day 1 post surgery.

Temporary Pacing Wires- Post cardiac surgery, it is normal for your heart to go into abnormal rhythms. Therefore, temporary

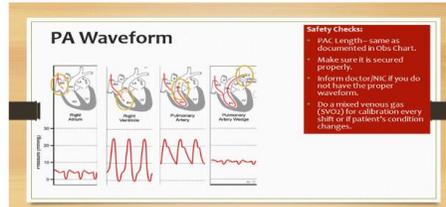
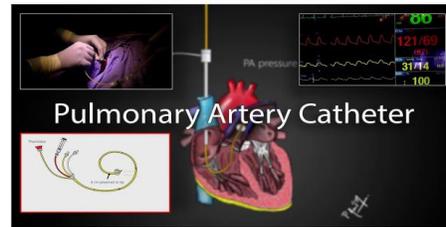
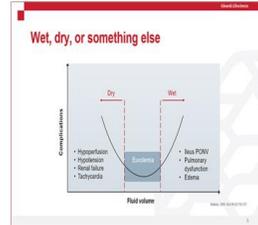
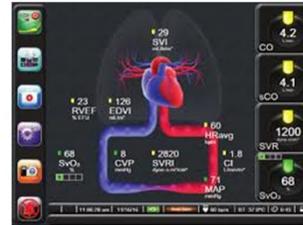
Participants:



Reena Manunath

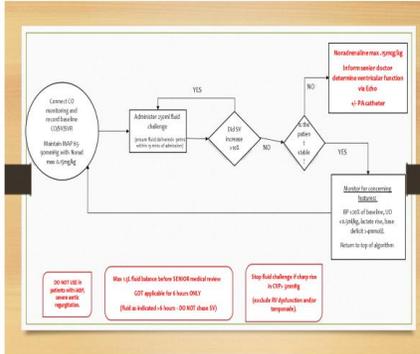
Nicola Stafford

Haemodynamic Optimisation : Goal- Directed Therapy, Hemosphere Guideline, PAC



Haemodynamic Parameters

- Stroke Volume**: Volume of blood that is ejected during systole. $SV = HR \times CO$
- Cardiac Output**: Total amount of blood that flow through cardiac cycle. It consist of preload, contractility and afterload
- SW**: Stroke Volume Variation represents the variability of the stroke volume across a respiratory cycle.
- Systemic Vascular Resistance**: The amount of force exerted on circulation blood by the vasculature if the body.
- SvO2**: Shows the balance between oxygen supply and oxygen demand of the body
- Lactate**: A product of anaerobic metabolism in which can help in determining tissue hypoxia.
- ScvO2**: The measurement of the oxygen saturation of blood in the SVC
- Urine Output**: Represents the average pressure across a single cardiac cycle in systole and diastole. It is used to evaluate organ perfusion.
- MAP**: Represents the average pressure across a single cardiac cycle in systole and diastole. It is used to evaluate organ perfusion.



Participants: Eliseo Sampiano, Amelia Guyguyon, Kathleen Dizon, Monica Jimenez

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ERAS Cardiac



Enhanced Recovery After Surgery in
The Society for Enhanced Recovery After Cardiac Surgery (ERAS® Cardiac) mission is to optimize perioperative care of cardiac surgical patients through collaborative discovery, analysis, expert consensus, and dissemination of best practices.

| ERAS Recommendation | CTICU Projects |
|---------------------------------|---|
| Goal-Directed Therapy | Haemodynamic Optimisation : Goal- Directed Therapy, Hemisphere Guideline, PAC |
| Chest Drain Management | Chest Drain Removal Guideline Thopaz digital drain system |
| Multimodal Analgesia | Pain Management |
| Delirium Screening | Delirium/ CAMICU Screening |
| Early Extubation | Early Extubation |
| Glycaemic Control | Glycaemic Control |
| Reduce surgical site infections | Surgical site surveillance |
| Thromboprophylaxis | Anti Embolic Stockings |
| Patient education | Leaflet for patient and Family Education Post Cardiac Surgery |
| Ect. Biomarker AKI | Ect. Pacing |

Who we are
Young (team leader):
Myrna, Alan, Eli, Amelia, Michele, Andrea R, Jisha, Monica, Nicola, Linju, Sunita, Reena, Tensin, Milafe, Parbata, Priya, Carmen, David, Amina, Sandra, Fred, Gipsy, Karen S





Timeline

| 2021 | 2022 | 2023 |
|---|--|--|
| <p>June 2021 - Launched ERAS project when the 2nd wave of Covid 19 subsided.</p> <p>Oct 2021 - ERAS project paused as Omicron variant hit UK and CTICU was back as the centre of Covid ICU.</p> <p>3 Nurses at home - carried out the research, contents for perioperative cardiac surgery guide.</p> | <p>April 2022 - Assessed <u>Thopaz+ evaluations</u> from nurses</p> <p>Aug 2022 - <u>Re-launched</u> ERAS project and is ongoing</p> <p>Oct 2022 - <u>6 audits</u> carried out and <u>guidelines reviewed</u></p> | <p>Jan 2023 - ERAS awareness day, Big 4, ERAS folder on CTICU Data base</p> <p>There will be further audits / Re-audits carried out</p> |



Reference : NICE ERAS NG 180
 - Guidelines for Perioperative Care in Cardiac Surgery. Enhanced Recovery After Surgery Society Recommendations (Engelman et al, JAMA Surg. 2019;154(8):755-766. doi:10.1001/jamasurg.2019.1153 Published online May 4, 2019).



JOIN OUR UPCOMING

CTICU CARDIAC ERAS Awareness Day

(Enhanced Recovery After Surgery)

March 15, 2023

8 AM-2 PM

CTICU seminar Room
(1st Floor, Atkinson Morley Wing)

Everyone Is Invited

(doctors, nurses, physiotherapists, dietitians, pharmacist, SALT, theatre scrubs, ODPs, perfusionists, recovery practitioners and pre assessment team)

Sessions are approximately 10 minutes and are repeated every hour so feel free to drop into a session when you are free.

SEE YOU ALL

CERAS: A CTICU Team Sport

Cha Young Kim
Eliseo Sampiano
Allan Bravo
Milafe Nimer
Parbata Kumar
Carmen Siva
Priya Achary
Linju Bose
David Moothoo
Tenzin Choedon
Nicola Stafford
Amelia Guyon
Aminata Kargbo

Andrea Rondal
Fred Ahenkora
Kathleen Dizon
Gipsy Joseph
Jisha Kadaliparambil
Kavya Payyanadan
Rebekah Thomson
Michele Stevens
Sunita Rai
Rashika Pradhan
Reena Manunath
Ryisa Gillespie
Sandra Micksch
Karen Stephenson

Dr Gabor Zihali (St. James, Dublin)
Dr Mohamed Ahmed
Professor Marjan Jahangiri
Dr Jens Bolten
Dr Mark Edsell (Brompton)
Dr Nawaf Al-Subaie
Dr Mohammed Ellisy
Edwige Elandou-Quaynor (Epsom)
Matthew Moore (Kingston University)
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