CARDIOPULMONARY RESUSCITATION AND EQUIPMENT

PRACTICE GUIDELINE ©

DOCUMENT SUMMARY/KEY POINTS

The phone number for calling the
CHW Code Blue Team / Mobile arrest team or SCH Code Blue Team is 2222

- On discovering a collapsed or seriously unwell person, use the DRSABCD approach to Basic Life Support, call the Code Blue team for help and start Advanced Life Support when appropriate staff arrive.

CHW

- If you are in a **ward area** - dial 2222 and state "**Send the Code Blue team to …**" and state the ward, level and patient location.
- If you are in a **non-ward area** - dial 2222 and state "**Send the Mobile Arrest Team to …**" and state the patient location, level, adult or child.

The ward and mobile arrest trolleys all have the necessary equipment for Advanced Life Support management of an arrested patient from a newborn through to an adult.

SCH

- For all areas within SCH and POWH dial 2222 and state "**Code Blue Caller's name, location eg. Building, Ward, Bed number, Adult or Child**"

This document reflects what is currently regarded as safe practice. However, as in any clinical situation, there may be factors which cannot be covered by a single set of guidelines. This document does not replace the need for the application of clinical judgement to each individual presentation.

Approved by:	SCHN Policy, Procedure and Guideline Committee	
Date Effective:	1st March 2020	**Review Period:** 3 years
Team Leader:	Nurse Educator	**Area/Dept:** Education Centre

CHANGE SUMMARY

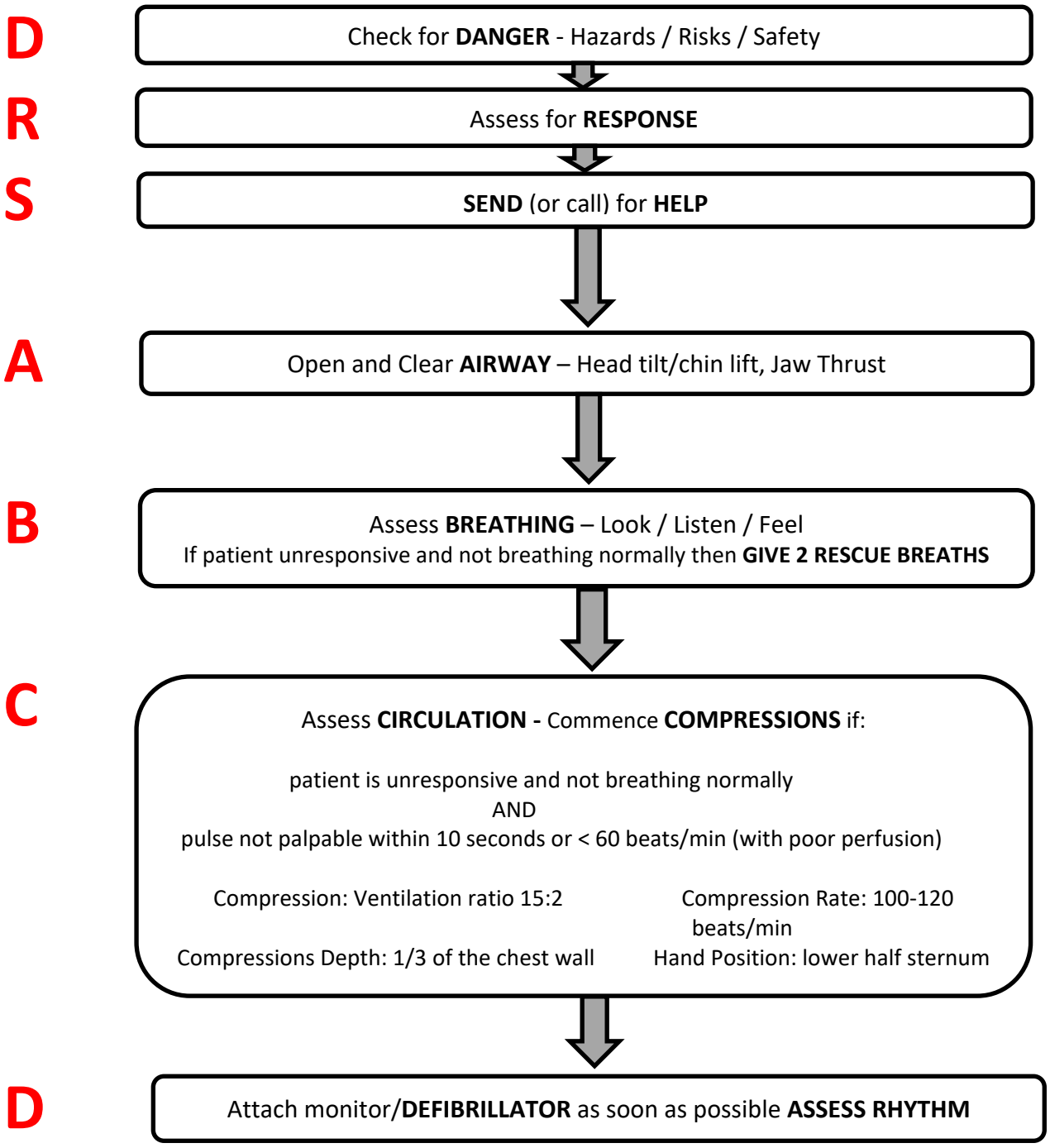
- Update of practice guideline to be applicable across the Network with site specific information as required
- Removal of educational content which is now located on the SCHN Intranet: Education and Development
- Resuscitation information updated as per the Advanced Paediatric Life Support Guidelines and the Australian Resuscitation Council
- **21/07/22**: Minor review. CHW arrest trolley contents and checklist updated. Changes were approved at the CHW CERS committee and acknowledged by SCH CERS committee.

READ ACKNOWLEDGEMENT

- All staff should be familiar with the section on Basic Life Support and how to call for help from the Code Blue team or mobile arrest team (CHW only).
- All targeted nursing, medical and allied health staff are required to read and acknowledge this practice guideline.

Algorithm A: Basic Life Support

Paediatric Basic Life Support (BLS) for Healthcare Workers



Algorithm B: Paediatric Advanced Life Support

Paediatric Advanced Life Support (ALS) for Healthcare Workers

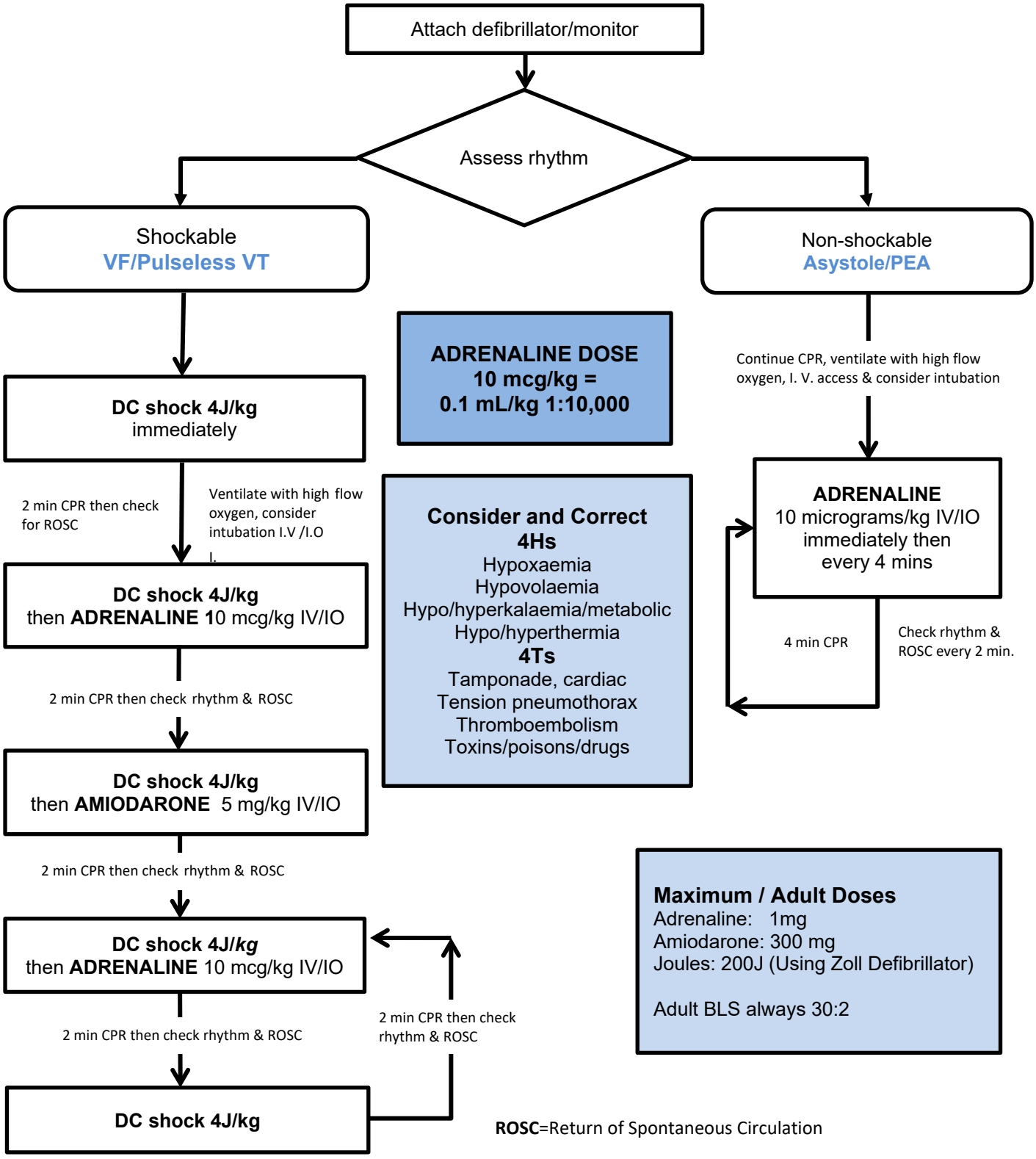


TABLE OF CONTENTS

1 Cardiopulmonary Resuscitation

In the event of a presumed cardiac arrest, resuscitative measures must be commenced immediately by any nursing and medical staff present. The only exception to this is when the patient's medical records clearly state 'not for resuscitation' usually in the following:

CHW: "Allow a Natural Death" form (See CHW policy "Allow a Natural Death by Limiting the Use of Life-Sustaining Treatment") .

SCH: Resuscitation Plan – Paediatric (See SCHN policy "Resuscitation Plans – End of Life Decisions")

On discovering a collapsed person, commence basic life support (BLS) as per the Paediatric BLS Algorithm above (pages 3 & 4).

1.1 BLS Algorithm Explanatory Notes

D: Danger — *Approach cautiously checking for hazards, risks to your safety. Remember standard precautions e.g. gloves*

R: Responsiveness — *Attempt to get a response from the patient by calling their name or providing tactile stimulus. If there is no response, then*

S: Send (or call) for Help by:

1. Pressing Emergency/Arrest button
   - *On hearing the emergency / arrest call, all available ward nursing and medical staff present should respond.*
   - *The first two people to pass the resuscitation trolley and Zoll trolley (if available in the clinical setting) should collect them and deliver the trolleys to the room. If assistance is slow in arriving, leave the patient briefly to collect the resuscitation trolley and return to the patient to commence basic CPR until assistance arrives.*
2. Dialling the Emergency number to summon the Code Blue Team

---- CHW ONLY----

If you are in a ward area - dial **2222** and state "Send the Code Blue team to …" and state the ward, level and patient location/bed number.

Except:

Grace Centre for Newborn Care: In the event of a non-neonatal arrest summon a mobile arrest team; dial **2222** and state "Send the Mobile Arrest Team to Grace Neonatal Nursery, level 3, bed x"

Hall Ward: For all arrest calls dial **2222** and state "Send the Mobile Arrest Team to Hall Ward, level 1, bed x"

If you are in a non-ward area - dial **2222** and state "Send the Mobile Arrest Team to …" and state the location and level.

---- SCH ONLY ----

For all areas within SCH and POWH, dial **2222** and state the following:

- Code Blue
- Your name
- Location (e.g.; building, ward and bed number)
- Adult or child

Airway

Clear the airway with simple airway manoeuvres (head tilt and chin lift or jaw thrust) and suction the oropharynx as necessary. Consider insertion of an appropriately sized oropharyngeal (Guedel) airway.

Breathing

Check the breathing by looking for chest movement and listening and feeling for breaths from the patient's mouth and nose for 10 seconds.

If the person is breathing spontaneously and effectively, but remains unresponsive, continue to maintain an open airway, apply oxygen and await the arrival of the Code Blue Team / mobile arrest team (CHW only).

If the patient is not breathing normally, provide 2 rescue breaths. These breaths should be delivered slowly over 1-1.5 seconds each in order to reduce gastric distension.

Note: The Hospital recommends that a self-inflating resuscitation bag be used to ventilate the patient. Mouth-to-mouth/mouth and nose ventilation is not recommended. If a self-inflating resuscitation bag is not immediately available, pocket masks can be obtained in fire hydrant cupboards marked by the symbol opposite at CHW and is contained within the Emergency Packs by the bed and in some Allied Health areas at SCH.

Circulation

Check the pulse for no more than 10 seconds. (The second nurse on the scene should perform this duty). The pulse is best assessed in the following places:

- Infants (<12 months) - femoral or brachial pulse.
- Child/Adult (>12 months) – carotid, femoral or brachial pulse.

If there is an adequate pulse, recheck the breathing and, if spontaneous breathing has not resumed, continue bag-valve-mask ventilation with a self-inflating resuscitation bag connected to high flow oxygen (greater than 14L/min) at a rate of 12 -20 breaths per minute (1 breath every 3-5 seconds)

Start chest compressions if:

- Patient unresponsive and not breathing normally, **AND**

- No palpable central pulse, **OR**
- A slow pulse (< 60 beats per minute with poor perfusion)

Note: For a newborn within 2 hours of birth e.g. baby delivered in the Emergency Department, use compression to ventilation ratio of 3:1 and compression rate of 120/min.

Table 1: Summary of CPR technique

	INFANT	CHILDREN > 1YR	ADULTS
Airway Position	Neutral	Sniffing	Sniffing
Pulse check	Brachial or femoral	Carotid, femoral or brachial	Carotid, femoral or brachial
Chest Compression Landmark	Lower ½ of sternum		
Chest Compression Technique	2 fingers or 2 thumbs encircling	1 or 2 hands	2 hands
Chest Compression Depth	1/3 chest depth 4cm	1/3 chest depth 5cm	1/3 chest depth >5cm
Chest Compression Rate	100-120/min		
Compression to Ventilation Ratio	15:2	15:2	30:2
CPR Feedback Pads	<25kg	<25kg or >25kg	>25kg

1.2 Paediatric Advanced Life Support Algorithms

The SCHN has the following algorithms/polices available on the intranet:

- Anaphylaxis and Generalised Allergic Reaction (GAR) in ED and at Home
- Seizure- Acute Management in Children
- Cervical Spine (suspected) Injury (paediatric): Patient Management
- Supraventricular Tachycardia: Management in the ED- CHW
- Hyperkalaemia (being updated)

The following algorithms are available via the Advanced Paediatric Life Support (APLS) Webpage:

- Paediatric Basic Life Support algorithm
- Choking Child algorithm
- Cardiac Arrest Management algorithm
- Paediatric Advanced Life Support algorithm
- Bradycardia algorithm
- SVT algorithm

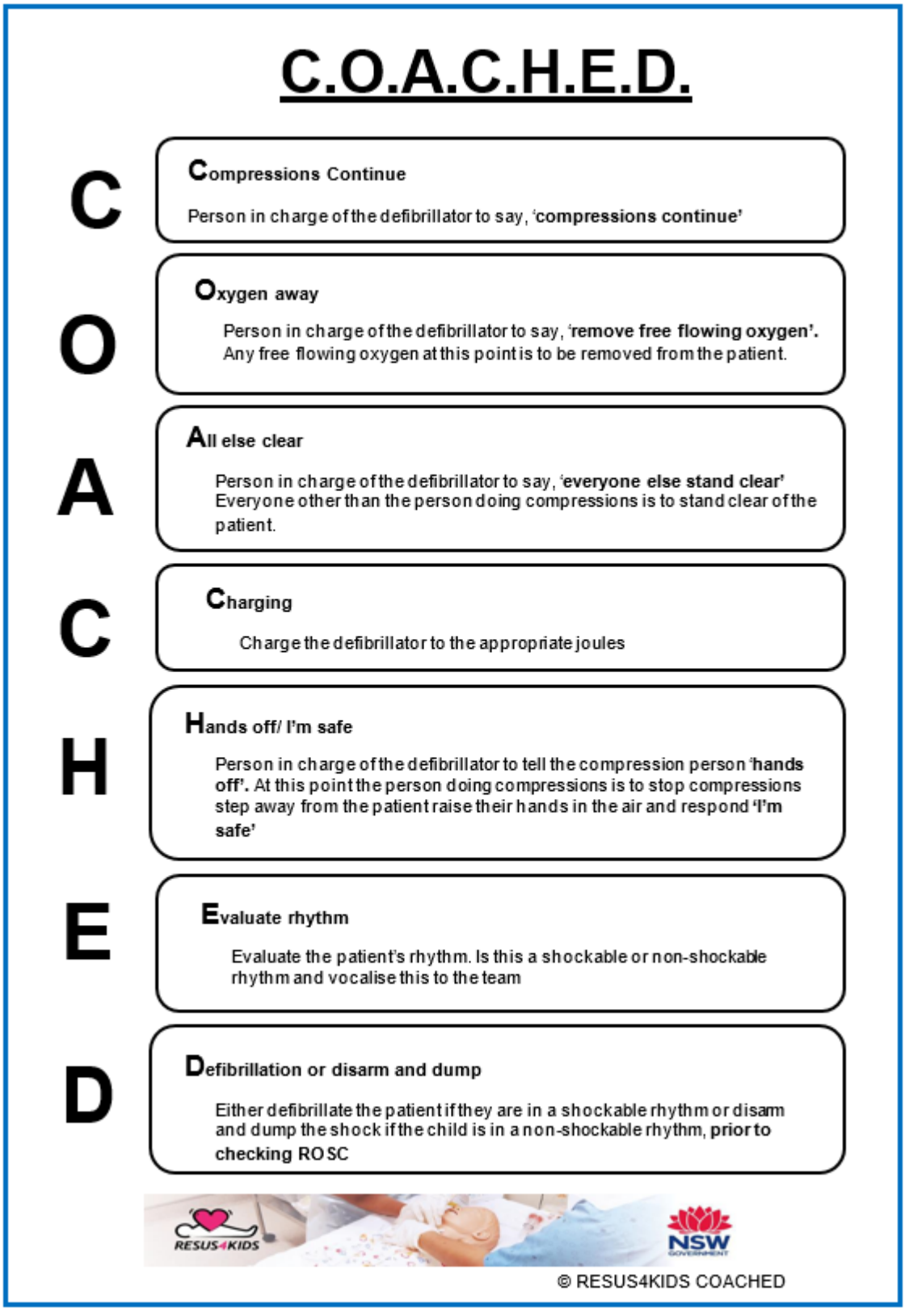
- VT algorithm
- Decreased Conscious Level algorithm
- Dehydration algorithm
- ARC / NZRC Newborn Life Support algorithm

The official APLS Australia app is available to download for all iPhone® and Android® phones and can be access free of charge at iTunes® or Google Play®.

Use the search term ‘APLS’.

1.3 Defibrillation

1.3.1 COACHED approach to defibrillation



1.3.2 Defibrillation Doses for children

Rhythm	Mode	1st dose	2nd & all subsequent doses
VF, Pulseless VT	asynchronous	4 J/kg	4 J/kg
VT with pulse or SVT	**synchronous**	1 J/kg	2 J/kg

1.3.3 Defibrillation Doses for Adults(Using Zoll R /X series Defibrillator)

Rhythm	Mode	1st dose	2nd Dose	3rd Dose
VF, Pulseless VT	asynchronous	200J	200J	200J
VT with pulse	**synchronous**	100	200J	200J
SVT	**synchronous**	50J	100J	150J

*** Use the above adult doses as maximum paediatric doses**

1.4 Cessation of Resuscitation

Cardiac arrest in children has a particularly poor outcome. In the ICU, because of the rapidity of intervention, some children who in other settings may have died, may be successfully resuscitated. The decision to stop resuscitation is based on a number of variables including the pre-arrest state, response to resuscitation, reversible factors, patient and parental wishes, likely outcome and opinions of experienced staff. In the ICU, the attending intensivist is responsible for the decision to terminate resuscitation and should always be consulted before resuscitative attempts are abandoned.

2 Ward Arrest/Code Blue Calls

2.1 Roles *before* the Arrest/Code Blue Team Arrives

- On hearing the emergency/arrest call all clinical staff should respond. The resuscitation trolley and Zoll trolley (if in the immediate area) should be collected and taken to the room/area. If the Zoll Trolley is not in the immediate clinical area a staff member needs to be assigned to collect it (as indicated on chart behind resuscitation trolley) (see Appendix 2).
- A limited supply of bedside emergency equipment is kept at the patient bedside in all general wards. The equipment is located in the left hand drawer of the bedside locker directly below the wall oxygen outlet or at the back of the bedspace in box attached to the wall. Equipment has been standardised to support the commencement of basic life support until additional resources are obtained

Bedside Emergency Equipment	
Pocket Mask (SCH ONLY)	x1
Non rebreather oxygen mask – child and adult	x1 each
Oxygen Tubing	x1
Suction Catheters – FG 8,10, 12	x1 each
Yankauer sucker	x1
Short size 12 suction Catheter	X1
Non-Sterile Gloves (singles)	x1
Gauze/Combine	X 2

- First responder on scene – checks for danger, assess patient responsiveness, press emergency / arrest button, assess airway and breathing and commence bag-valve-mask ventilation or pocket mask- face ventilation if required.
- Second responder on scene – Call, or assign an assistant to call the emergency number to activate the Code Blue team / mobile arrest team (CHW only). Then assess circulation and commence compressions. From here there is a delegated CPR team. One staff members perform cardiopulmonary compressions and the other CPR Team watches the Zoll machine delivering feedback to the other staff member, at the 2 minute mark they swap roles
- Additional Responders on scene- ensures the necessary resuscitation equipment is available
    - Places resuscitation trolley in such a way that equipment is readily accessible
    - Places the Zoll trolley opposite the person performing cardiac compressions (when available).
    - Places step/stool next to the person performing cardiac compressions (when available).
    - Ensures all monitoring is connected (ECG, SaO2 and BP).

2.2 Code Blue Team Members & Roles

- If Ward Arrest/Code Blue team members are unavailable, it is their responsibility to ensure they have arranged appropriate cover should an arrest be called.
- All team members must report to the Code Blue Team Leader when arriving at the arrest.
- It is the role of the Scribe to ensure that all team member names are recorded on the NSW Health Paediatric Resuscitation Chart.

Table 2: A guide to Members and Roles

Ward Arrest/Code Blue Team Member	Roles
Medical Registrar: Code Blue Leader (The ICU Registrar or ICU Nurse Practitioner may be the team leader)	• Assume primary responsibility for resuscitation & direction of all individual personnel • Co-ordinate resuscitation efforts: Airway, Breathing, Circulation, Disability (CNS) • Liaise with Attending Medical Officer and team • Co-ordinate disposition of patient • Ensure completion of documentation on arrest form • On night shift the Advanced Trainee Medical/Senior on Site (SOS) Registrar will assume the team leader role and delegate tasks to the Medical Registrar
ICU Registrar: Circulation Doctor	• Obtain IV access & blood specimens • Responsible for fluid administration • Monitor ECG and cardiac output • Push bolus medications during arrest sequence • Liaise with ICU to organise disposition of patient
Anaesthetic Registrar: Airway/ Breathing Doctor	• Airway management • Ventilation • Monitor CNS status • Accompany patient to final disposition if ventilated
Medical Resident	• Obtain history & other information from clinical notes & attending staff & family • Assist with vascular access, blood sampling and documentation as designated
ICU Nurse	• Bring arrest drug pack and EZI-IO from ICU (CHW Only) • Bring the transport bag and EZI-IO (SCH Only) • Responsible for co-ordinating and overseeing nursing management of the resuscitation • Accompany patient during transport to final disposition • CICU Team Leader does not attend Code Blue Calls (SCH only)
Senior Nurse Manager	• Reallocate nursing staff to ensure nursing care of patient throughout resuscitation & relocation • Provide communication link between resuscitation scene and rest of hospital • Maintain resuscitation nursing team to established number and roles. • Arranges ambulance transfer to Westmead hospital for adult arrests as required. • Designate nursing staff to accompany patient to receiving unit • In absence of Social Work staff performs functions described for Social Worker below. • Ensures documentation is completed and forwarded appropriately. • Ensures maintenance of patient privacy.
Social Worker	• Assist family to a designated area • Counsel & support family throughout resuscitation • Ensure follow-up dependent on outcome of resuscitation
Nursing Roles	
Nurse 1: Nurse Team Leader (TL) of the ward	• Handover to arrest team leader (may be done by nurse looking after patient) • In consultation with PICU nurse allocate nurses to primary roles of airway, circulation & scribe • Coordinate additional resources as required e.g. equipment, runner & personnel at local level • Maintain safe environment for patients/families/staff in consultation with Senior Nurse Manager • Ensure Resuscitation Trolley is restocked after the arrest (see Appendix 1)
Nurse 2 : Airway Nurse (Often attended by ICU Nurse)	• Assemble necessary equipment for airway management from resuscitation trolley • Prepare suction & high flow oxygen • Ensure scribe is informed of ETT size, location & length at lips

Nurse 3: Circulation Nurse (may require 2-3 nurses)	• Assist with chest compressions if required • Arrange for "Resus Drug Calculator" to be printed from intranet based on patient's weight • Set up for IV cannulation/IO access • Prepare & label drugs for intubation & resuscitation as directed, with a 2nd RN check
Nurse 4: Scribe	• Document all drugs & fluids administered, observations, interventions • Do not leave the foot of the bed to do other procedures unless instructed by TL

2.3 Mobile Arrests/Code Blue Call in non-ward areas

---- CHW ONLY----

If you are in a non-ward area - dial 2222 and state:

"Send the Mobile Arrest Team to …" and state the patient location and level (e.g.: "*Send the mobile arrest team to the Bear Brasserie on level 2*").

This arrest page should be put out for all arrests, adult or paediatric, which occur in a non-ward area.

- One staff member should be sent out to the nearest communal area to direct the team to the site of the arrest.

If there is no immediate assistance available, leave the patient briefly to summon help and then proceed as per the BLS algorithm.

- The Mobile Arrest Pack will be brought to the scene by the ED nurse. The Mobile Arrest Pack contains the same equipment as the ward resuscitation trolleys, with the addition of a ZOLL R Series feedback machine. (See Appendix 1)

---- SCH ONLY ----

For all areas within SCH and POWH, dial **2222** and state the following:

-Code Blue

- Your name

- Location (eg; building, ward and bed number)

- Adult or child

- One staff member should be sent out to the nearest communal area to direct the team to the site of the arrest.

If there is no immediate assistance available, leave the patient briefly to summon help and then proceed as per the BLS algorithm.

- The Code Blue Team will bring the mobile arrest trolley which contains the same equipment as the ward resuscitations trolleys, with the addition of ZOLL R Series feedback machine

- For **SCH Code Blue Team and CHW Mobile Arrest Team** Members please refer to Appendix 3. Note: A full complement of nursing staff may not be available in a non-ward area. Additional staff may be deployed if required from other areas such as ICU and ED to assist until the patient can be transferred to a ward environment. The Nurse Manager/After-hours Nurse Manager will help facilitate this.

2.4 Disposition following Code Blue

2.4.1 Children

- **Inpatient:** may be appropriate to remain on the ward after discussion with ICU. If transfer to ICU is required the ICU nurse will organise suitable monitoring for transport. **CHW Only**: In the event of a Mobile Arrest, the Mobile Arrest Team will organise suitable monitoring for transport and is responsible for the care of the patient until transfer to definitive care.
- **Non-inpatient/Outpatient:** should be assessed by the Arrest/Code Blue team and have emergency management commenced and then be transferred to the Emergency Department for ongoing management. The Arrest/Code Blue Team Leader must notify the admitting officer on CHW 52454 or SCH 21000.

2.4.2 Adults

CHW Adult Arrest Calls

- Patients requiring ambulance transfer to Westmead Hospital (WMH)
  - Patient should be assessed and managed on the scene by the mobile arrest team and have urgent ambulance retrieval from the scene to WMH.
  - Senior Nurse Manager to arrange urgent ambulance retrieval to WMH.
  - The mobile arrest team leader will alert the Admitting Officer at Westmead Emergency Department 158222 and provide appropriate documentation.
  - In the event that WMH is only accepting life threatening only (LTO) cases, this can be overridden if the case is discussed with and directly accepted by one of the Emergency Physicians at WMH, phone Admitting Officer 158222.
  - If team require patient trolley, oxygen, scoop or cervical spine collars the Senior Nurse Manager to page the porter (pager number 6788) to collect them from the Emergency Department and bring to scene.
- Patient requiring non-ambulance transfer to WMH – patient should be assessed by the mobile arrest team and have their initial treatment at the scene and then be transferred to WMH in a wheelchair with hospital porter and/ or nurse escort if appropriate, or by their own transport if well enough.
- Patient not requiring further hospital assessment – patient should be assessed by the mobile arrest team and then arrange own follow up with Local Medical Officer (LMO).
- If arrest location is unsuitable for team to manage patient while awaiting ambulance (e.g. patient privacy etc), transfer patient to the Emergency Department (ext 52454). The patient's movement to ED should be discussed with the Admitting Officer prior to moving to ensure that a bed space is available
- Mobile Arrest Form (M48CB) documentation to be completed. Pink carbon copy to be sent with patient. White copy to be given to ED administration assistant.

SCH Adult Code Blue Calls

- Adult patients visiting SCH areas who require urgent medical transfer to Prince of Wales Hospital (POWH) should have a Code Blue Call activated:
    - For all areas within SCH and POWH dial 2222 and state:
    - Code Blue
    - Caller's name
    - Location e.g. Building, Ward, Bed number
    - 'Adult' or 'Child'

- The Adult Code Blue Team (from Adult ICU) plus equipment and porter will respond. The Paediatric Code Blue Team will also respond.

- After assessing and stabilising the patient, transfer to POWH ED will be facilitated through the Adult Code Blue Team. Standardised paper form to be completed by first responders and transferred to POWH ED with patient. Incident report to be filled out by Bed Manager/After-hours Hospital Manager.

3 Maintenance of the Resuscitation Trolleys

3.1 Checking of Equipment

- The resuscitation trolley **must** be checked on a daily basis (or each operational day i.e. Monday – Friday) and this check should be signed for on the resuscitation checklist attached to the trolley. The following must be ensured:
- The appropriate checklist should be utilized to cross reference the correct contents of the trolley.
- The ZOLL R series must also have a manual test completed daily utilising the ZOLL R series checklist. Once completed staff must sign the resuscitation form to confirm checking completion
- Security Tags/Tamper Seals should be used following daily checks.
    - At CHW, the trolley should be sealed with the chain linked security tag (Seal) system this ensures that the correct equipment is in place in the trolley. To check the trolley contents break the security tag (Seal) by pulling the tag or by opening a drawer.
    - At SCH, the trolley should be sealed with a red and numbered disposable tamper seal. To check the trolley contents, break the seal by opening the side latch of the resuscitation trolley

The application of a security tag or tamper seal does not negate the need for daily checking of the resuscitation trolleys

- The drug drawer contains a resuscitation drug kit which is sealed and has not exceeded its expiry date. If seal is broken or kit is past its expiry date it must be replaced through pharmacy (See Appendix 4)
- Expired fluids should be replaced from ward stock or ordered through pharmacy if not a routinely stocked fluid.

- Once trolley contents have been checked and are correct re-seal security tag by feeding the chain link through the trolley handles and clip the new security tag in place. Then add the security tag number and sign on the appropriate space on the daily checklist. This helps to identify if the trolley is sealed and when it was last sealed or if it has been tampered with.
- All areas that have been allocated a ZOLL Trolley must complete the ZOLL R-Series Daily Checklist. For a list of areas with a ZOLL Trolley , see Appendix 2.

3.2 Re-stocking of the trolley following an arrest

The restocking of the resuscitation trolley after an event should be attended as soon as practicable (see Appendix 4).

- At CHW, non-ward stock items can be replaced from the biomedical stockroom on level 3.
- At SCH, every effort should be made to anticipate items that are soon to expire and replacement stock should be ordered via Oracle and NOT obtained from CICU. In the event that an item has been used as part of an emergency and replacement is required urgently, this can be replaced by CICU in the short-term, however an order of stock should be obtained and an equal amount of stock be returned to CICU to replenish their supply.

4 References

1. International Liaison Committee on Resuscitation (ILCOR) Resuscitation 81S (2010) e213-e287
2. Australian Resuscitation Council (ARC) Guidelines December 2010; www.resus.org.au
3. Advanced Life Support Group. Advanced Paediatric Life Support - The Practical Approach, 5th edition. BMJ Publishing, 2010.
4. Perspectives on ADAPTIV Biphasic Technology, Medtronic 2004.
5. An Update on Biphasic external Defibrillation: Published Evidence from Clinical Research – April 2004, Medtronic.
6. Is There a Need for Biphasic Energy Greater than 200 Joules? An Evidence – Based Approach, Medtronic 2005.
7. New 2005 guidelines for Emergency Cardiovascular Care: What is the Role of escalating Energy in Treating VF? Medtronic 2005.

5 Appendix 1: Resuscitation Trolley Content Lists

The site specific Resuscitation Trolley Contents list can be found on the SCHN Intranet Forms Page under Clinical Forms or at the below links:

CHW

- Ward Resuscitation Trolley Checklist
- Mobile Arrest Trolley/Pack:

EQUIPMENT	**MOBILE ARREST TROLLEY**
Oxygen cylinder porter to bring Scoop device porter to bring Ambulance trolley porter to bring ED drug pack from fridge: • Suxamethonium 100mg/2mL – 2 amps • Rocuronium 50mg/5ml – 2 amps	Defibrillator (ZOLL) with ECG dots, pads & razor. Sharps container tied to top of trolley Mobile Arrest Trolley Checklist tied to top of trolley Arrest Team Access Card tied to top of trolley Mobile Arrest Pack Magnet

MOBILE ARREST PACK

OUTSIDE OF PACK	
Sleeve Pocket Under Defibrillator	**Top Pocket**
Mobile arrest documentation form x2 Envelopes x2 Pens x2	Res-Q-Vac suction device, disposable suction catheter and container Self-inflating resuscitation bags – child and adult Laerdal masks – 00-4 - one each
Bottom Pocket	**Right Side Pocket**
1000mL Sodium Chloride 0.9% – two 500mL Glucose 10% - one Blood pump set – one Giving set - one	pads 9x20 and 20x20 – five each gauze swabs – five steristrips tegaderm
Left Side Pocket	
Sphygmomanometer Stethoscope	Neuro torch Spare ECG dots

INSIDE LID OF PACK	
Pocket 1	**Pocket 2**
Gloves – non-latex in a variety of sizes	Vomit bags

Pocket 3 (IO Needle Pack)	
IO needle 16 gauge – one IO needle 18 gauge – one T-piece extension set with needleless injection cap - two	Armboards – small/medium/large – one each Brown Elastoplast Alco wipes – five
INSIDE OF PACK	
Intubation Roll	
Two laryngoscope handles Straight blade 0, 1, 2 one each Curved 3, 4, 5 one each Spare battery and globes (small and large) Endotracheal tubes: size 2.5 (two) size 3.0,3.5,4.0,4.5,5.0,5.5,6.0 uncuffed 1 each size 6.0, 7.0, 8.0 cuffed one each.	Endotracheal introducer – small, medium & lge Magill forceps – adult, child and infant sizes KY jelly – three White tape for ETT Brown elastoplast Tinc Benz Co Disposable CO_2 detector – small (1-15kg) and large (>15kg)
Airway (blue pack with green stripe)	
Guedel airways 0-4 one each NRB Oxygen mask (1 x adult; 1 x paed) Nebuliser kit (1 x adult; 1 x paed)	Oxygen tubing Intragastric tubes 8, 10 one each
Circulation (Orange Pack x 2)	
Pack 1 - Cannulation	
Blunt 19G drawing up needles - five 25 gauge needles - five Butterflies 23 and 25 gauge – two each T-piece extension set with needleless injection caps – two Cannulae sizes 16,18, 20, 22, 24 gauge 3 each Tourniquets – one Alco wipes – twenty Blood gas syringes – two	Blood tubes – X-match, FBC, EUC – one each Sodium Chloride 0.9% “Posiflush” 10mL – five Steristrip packet – two Tegaderm – two Brown elastoplast Bandaids – five Cannula caps clearlink – two (NOT red combi-lock) (armboards in IO needle pack inside lid of pack)
Pack 2 – syringes: 2mL, 5mL, 10mL – three each	
Drugs/Glucometer (yellow pack)	
Adenosine 6mg / 2mL - 3 ampoules Adrenaline 1:10,000 & 1:1000 -5 each Amiodarone 150 mg– two amps Anginine (see glyceryl trinitrate – 1 bottle) Aspirin – 4 tablets Atropine 600micrograms – two amps	Promethazine Hydrochloride 1 x 50mg/2mL Propofol 200mg – one amp Salbutamol 0.5% solution – one 30mL bottle Sodium bicarbonate 8.4% 1x10mL amp Thiopentone 500mg one.

Calcium chloride 10% 10mL – one amp GlucaGen Hypokit (1mg) - one Glucose 50% 50mL – one vial Glyceryl Trinitrate 600 micrograms - 100 tabs Hydrocortisone 100mg vials- two Naloxone 400micrograms – two amps Lignocaine 1% - two amps Midazolam 15mg/5mL –two amps	Vecuronium 1x10mg amp; 1x 4mg amp Water for injection 10mL – five Syringes – 50mL – two each Three way connector and minimal volume extension tubing – one each Additive labels – five Red drawing up needles - ten Scissors Glucometer

SCH

MOBILE ARREST PACK

OUTSIDE OF PACK	
TOP FRONT POCKET	**BOTTOM FRONT POCKET**
Ambu-Bag circuit; Large and Small with PEEP valves, large and small.	IO Gun IO needles: 15g (15mm), 15g (25mm), 16g Gas syringes 4 x 3ml syringes Alcohol wipes 1x 0.9% Sodium Chloride Posiflush
Left Side Pocket	**Right Side Pocket**
Suction Catheters: 14,12,10,8,6 12 short, yankeur sucker LMA's 1, 1.5, 2, 3.	Stethoscope CO2 detectors, paed and adult ECG dots NGT 6,8,10,12

INSIDE OF PACK	
Blue Airway pouch	
Laryngoscope handles, large and small Laryngoscope blades: Mill 00, 0. Mac 1, 2, 3. Batteries: 2x AA, 2x C. Introducers, small and large Magells forceps: child Nasopharygeal Airway Guedels airways: 000/00/0/1/2/3 Suction port ETT's cuffed: 4, 4.5, 5, 6, 6.5, 7, 7.5, 8, 8.5, 9. ETT's uncuffed: 2, 2.5, 3, 3.5, 4, 4.5, 5, 5.5, 6, 6.5, 7.	Brown ETT tape Cotton tape Lubricant Tongue depressors Bougies small and large

Small round green and blue pouch	
Masks, infant, baby, child, 2, 3, pocket mask. 02 Tubing NRB mask small and large	
Fluid	
0.9% Sodium Chloride 1L bag 5% Glucose 500ml bag 10% Glucose 1L bag	
Yellow IV access pouch	
4 x 0.9% Sodium Chloride Posi flushes Tourniquet Tegaderm Bungs Labels IV giving set x 2 Syringes 50ml x 2, 10ml x 2, 5ml x 2, 1ml x 2 Spigot x2 T piece x 1 3 way tap x 2 Cannulas: 24g x 2, 22g x 2, 21g x 2, 20g x 2, 18g x 2, 16g x 2.	Tapes Steristrips Alcohol swaps Sodium Chloride 10ml amps Drug stickers Rapid infuser Gas syringe x5 Extension set x 2 Butterflies: 21g x 2, 23g x 2 Needles: Blunt and filter
Large Medications box (supplied by pharmacy)	
Adenosine x1 Adrenaline 1:1000 x5 Adrenaline 1:10,000 x5 Amiodarone x2 Atropine 600mcg x2 Calcium Gluconate x3 Glucose 50% x1	Lignocaine 1% x2 Magnesium 49.3% x2 Naloxone x5 Sodium Bicarbonate x1 Thiopentone x1 Water for Injection x2
Small medication box (CICU) CHECK EXPIRY DATES	
Rocuronium x1 (can be out of fridge 12 weeks) Propofol 20mls x1 Metaraminol x1	
PPE Inside pouch	**Top pouch inside**
1 x sharps box 2 x masks 2 x yellow gowns Non sterile gloves 2 x vomit bags Aprons Sterile gloves 6, 7, 8	Scissors Pens Pen torch Calculator Stop clock Thermometer

Twin-o-vac: Check it works	
Defibrillator	**Folder (back of bag)**
Feedback defib pads, adult and paediatric	Documentation Campus Map Checklist Drug calculations for each weight Swipe Access card for POWP

- Ward Resuscitation Trolley Checklist

6 Appendix 2: Location and Features of Defibrillators

CHW

LEVEL	WARD	DEFIBRILLATOR
Level 1	Hunter Baillie	R Series
Level 2	Camperdown	R Series
	Emergency Department	R Series R Series on Mobile Arrest Trolley
	Cardiac Catheter Lab (Radiology)	Lifepak - standard unit + pacing
	Medical Imaging – MRI 1.5	R Series
	Medical Imaging – MRI 3.0	R Series
	Clinical Research Centre/Kids Research Institute	R Series
	Kids Simulation Australia	R Series (training only)
Level 3	Variety Ward	R Series
	Edgar Stephen	R Series
	Cardiac Theatre	Lifepak-standard unit + pacing + internal defibrillation paddles R Series
	Recovery	R Series
	Middleton Day Stay	R Series
	Cardiology (Stress Lab)	R Series
	GCNC	R Series

	PICU	R Series + pacing + internal defibrillation paddles
	Close Observation Unit (COU)	R Series
	Biomedical Engineering	R Series (spare)

NB: The defibrillator trolleys include the defibrillator, pads, leads and a razor.

SCH

LEVEL	WARD	DEFIBRILLATOR
Level 0	Outpatients	R Series
	Respiratory	R Series
Level 1	Emergency	R Series
	Recovery	R Series
	C1S	R Series
	CICU	M Series (cardiac bed)
	CICU	M Series (cardiac bed)
	CICU	M Series (cardiac bed)
	CICU	R Series (resus trolley)
	CICU	R Series (resus trolley)
	CICU	X Series (transport)
	C1SW	R Series
Level 2	C2N	R Series
	C2S	R Series
Level 3	C3W	R Series
Level 7	Bright Alliance	R Series

ZOLL R SERIES Daily Checklist

Recommended checks and procedures to be performed daily

1. Condition

Remarks: Unit clean, no spills, clear of objects on top

2. Hands-free Therapy electrodes (Exp date)

1 set OneStep paediatric pre-connected
1 set OneStep adult
1 spare OneStep paediatric

3. Inspect cables for cracks, broken wires

ECG electrode cable
OneStep defib cable & red connector
Other monitoring cables

4. Batteries/External power supply

Plugged into AC mains power (green light on front panel)
Fully charged battery in unit
- 5 green lights on battery
- green light on front panel

5. Disposable supplies

ECG electrodes
Recorder paper
Alcohol wipes
Defib gel or gel patches (for external pads)

6. Operational checks

A) Power On Sequence

Turn unit to MONITOR, 4-beep tone heard
"MONITOR" message on display
ECG size x 1
"PADS" as lead selected

B) Defibrillator

OneStep cable connected to test connector, or OneStep electrodes

Set defib energy level to 30 joules
press SHOCK button "30J TEST OK" message on screen
confirm green tick on Code readiness indicator

C) Recorder

Press RECORDER button - Recorder runs
Press again - Recorder stops
Inspect Recorder printing

7 Appendix 3: Team Members and Roles

SCH Code Blue Team Members Roles

Sydney Children's Hospital CODE BLUE response pager List (Updated February 2018)

IN HOURS RESPONDERS (0800-1630)

In-hours OURS CODE BLUE CALL **ESSENTIAL** RESPONDERS
• ICU Registrar
• ICU Nursing Staff (ACCESS Nurse)
• Anaesthetic Registrar
• Porter
• Radiographer
• Chief RMO
Other in hours CODE BLUE CALL RESPONDERS/NOTIFICATION
• Bed Manager
• ICU Fellows
• ICU Education staff
• Emergency Department Senior Medical Staff (ED SMS may attend emergency calls if able)
• ED Nursing Staff
• Nurse Educator ED (responds to ED calls only)
• ED Clinical Nurse Educator (responds to ED calls only)
• ED Clinical Coordinator (Respond to ED Emergency Calls and notification of in hospital emergencies)
• Social Work (On-call pagers, to attend ED calls only)

AFTER–HOURS RESPONDERS (1630-0800 and weekend and PHOLS)

After hours CODE BLUE **ESSENTIAL** RESPONDERS
• ICU Registrar
• ICU Nursing Staff (ACCESS Nurse)
• ICU Nursing Staff (Team Leader)
• Anaesthetic Registrar
• A/H Nurse Manager
• Porter
• Senior On Site Registrar
• After Hours Ward Registrar
• After Hours Ward RMO
• After Hours Junior Registrar
• Radiographer
Other after hours CODE BLUE RESPONDERS/NOTIFICATION
• Emergency Department Senior Medical Staff (ED SMS may attend emergency calls if able)
• ED Clinical Coordinator (responds to ED Emergency Calls and notification of in hospital emergencies)
• Social Work (On-call pagers, to attend ED calls only)

SCH staff /roles requiring notification of all SCH Code Blue events

SCH Staff requesting notification of all Code Blue calls
• Nurse Manager Patient Flow
• Nurse Manager -Staffing
• Care Continuum Coordinator (covers NM Patient Flow)
• CRMO
• Clinical Director- Nursing
• Clinical Director- Nursing
• Dep. Director Clinical Governance
• Emergency Plan Committee (Chair)
• Nurse Manager - ICU
• Clinical Development Nurse

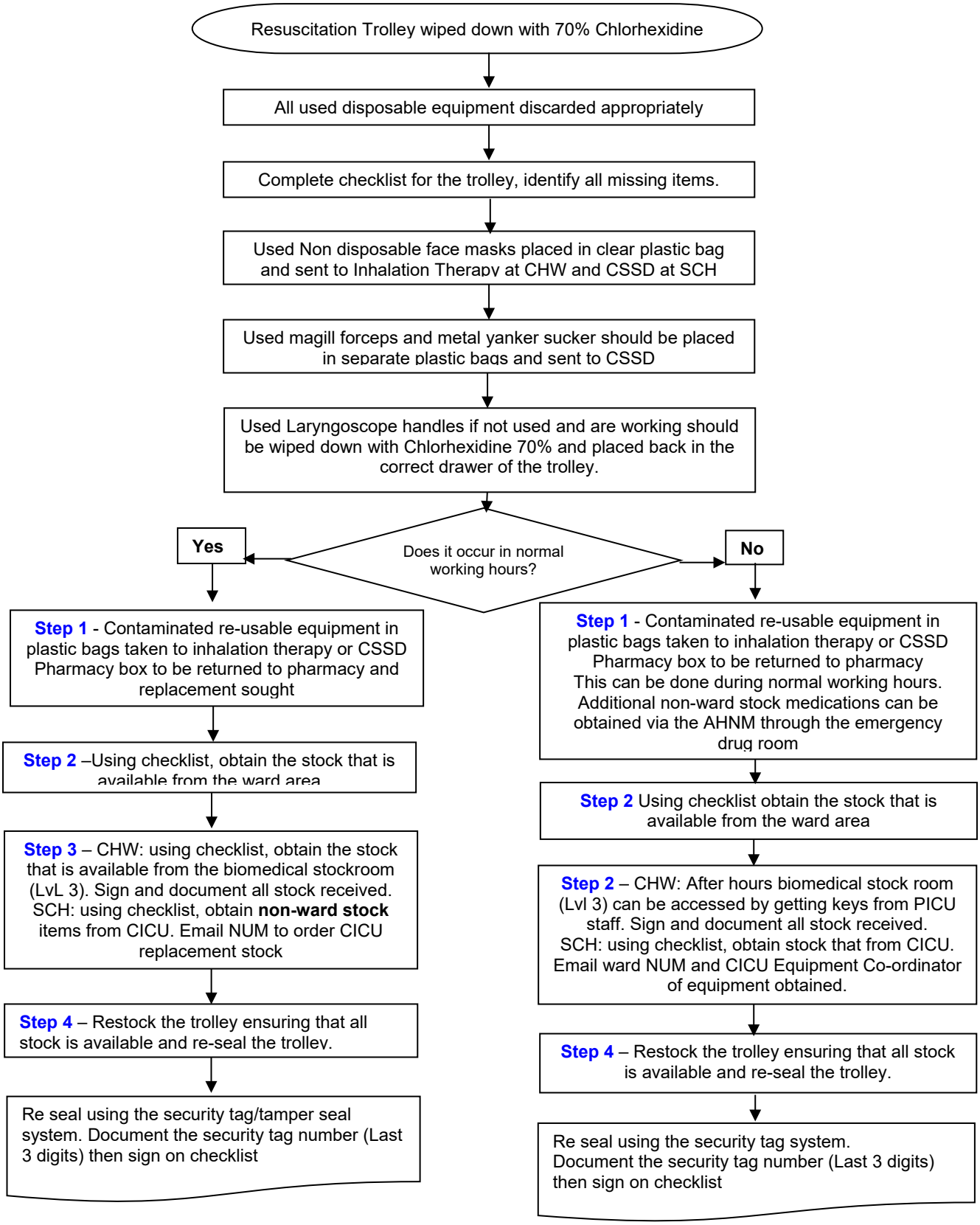
CHW Code Blue Team Members and Roles

Mobile Code Blue Member	Roles
Medical Registrar: /Code Blue Team Leader	• Assume primary responsibility for resuscitation & direction of all individual personnel • Obtain history from attending staff & family • Co-ordinate resuscitation efforts: Airway, Breathing, Circulation, Disability (CNS) • Monitor ECG and cardiac output • Liaise with attending medical officer and team • Co-ordinate disposition of patient • Ensure completion of documentation on arrest form
Advanced Trainee Medical Registrar (night shift only): /Code Blue Leader	• on night shift (2230-0830hrs) the Advanced Trainee Medical Registrar will assume the Team Leader role and delegate tasks to the medical Registrar
ED Consultant/Fellow *	• Provides support for Medical Registrar
Anaesthetic Registrar: Airway/ Breathing Doctor (Does NOT need to attend Mon-Fri 0800-2300hrs)	• Airway management • Ventilation • Monitor CNS status • Accompany patient to final disposition if ventilated
Medical Resident: Circulation Doctor	• Perform manual BP if patient has an output • Obtain IV access & blood specimens • Responsible for fluid and push bolus medication administration during arrest sequence • Assist with chest compressions if required.
ED Nurse	• Bring Mobile Arrest Trolley and drug pack from ED • Attach the ECG dots and connect the patient to the ECG monitor. A paper recording of the patient's rhythm should be obtained. • Obtain a set of observations • Perform glucometer reading if appropriate • Prepare drugs & fluid as required • Accompany patient during transport to final disposition • Restock Mobile Arrest pack (see Appendix 1)

Nurse Manager Patient Flow/ Afterhours Nurse Manager	• Readjust nurse staffing to ensure nursing care of patient throughout resuscitation & relocation • Provide communication link between resuscitation scene and rest of hospital • Maintain resuscitation nursing team to established number and roles. • Arranges ambulance transfer to Westmead hospital for adult arrests as required. • Designate nursing staff to accompany patient to receiving unit • In absence of Social Work staff performs functions described for Social Worker below. • Ensures documentation is completed and forwarded appropriately. • Ensures maintenance of patient privacy.
Social Worker	• Assist family to a designated area • Counsel & support family throughout resuscitation • Ensure follow-up dependent on outcome of resuscitation
Porter	• Brings oxygen cylinder, extraction equipment & patient trolley from ED to arrest scene • Assists with movement of patient • Assists with transfer of patient to appropriate unit for further management
Security	• Assists with movement of patient • Be available to assist ambulance paramedics to scene • Assists with bystander crowd control

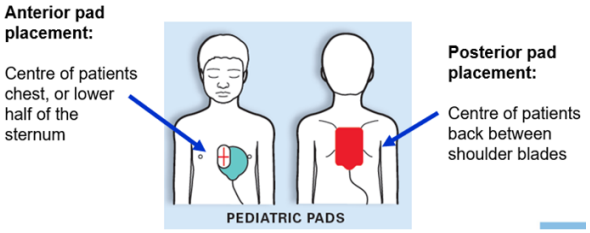
Note: * When ED Consultant/Fellow unavailable (mainly on night shift) the ED cubes registrar will attend instead if able.

8 Appendix 4: Resuscitation Trolley action after an arrest

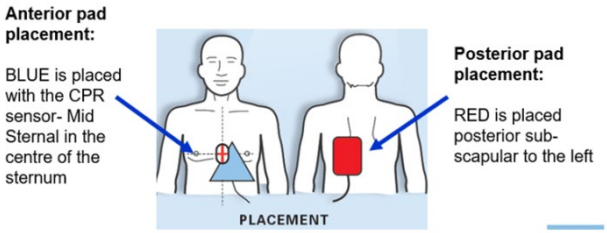


8.1.1 APPENDIX 5: Defibrillation pads using the Zoll Feedback pads

- < 25 kg Paediatric Anterior/Posterior Pads- minimum joule setting 5J



- > 25 kg Adult Anterior/Posterior Pads- minimum joule setting 100J, maximum 200J



Please note if unable to attach pads to patient's skin because of patient's condition (burns, Stephens-Johnson syndrome or skin sloughing) then you will need to use manual external paddles please refer to appendix 6 for Zoll set up and use.

8.1.2 Zoll Defibrillator Set Up

Step 1:
- The Defibrillator Coach Switches on Zoll, turns dial to defibrillation setting and select 4 J/kg

Step 2:
- The Defibrillator coach obtains backboard and appropriate sized pads (<25kg paediatric pads, 25kg and over adult pads) turns to face compressor

Step 4:
- The Defibrillator Coach turns to face compressor
- When instructed the compressor (the person performing cardiac compressions) with assistance (if required) rolls the patient towards themselves, the Defibrillator Coach places the backboard on the bed and the posterior pad on the back of the patient

Step 6
- The Compressor steps onto step and resumes effective with CPR with the Airway Clinician
- The Defibrillator Coach when instructed the compressor removes their hands, the Defibrillator Coach places the anterior pad on the patient's chest

Step 7
- The Compressor resumes effective CPR with the Airway Clinician
- The CPR team provides assistance to the Compressor as needed to ensure CPR is an adequate depth and rate.

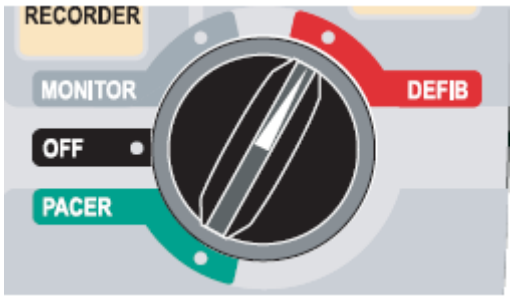
Step 8
- The Resuscitation team prepare to analyse the rhythm using the COACHED approach

8.1.3 Manual Defibrillation with external paddles

Emergency Defibrillation with External Paddles

Warning!
To avoid risk of electrical shock, do not allow electrolyte gel to accumulate on hands or paddle handles.
When defibrillating with paddles, use your thumbs to operate the SHOCK buttons in order to avoid inadvertent operator shock. No portion of the hands should be near the paddle plates.

1. **CHW - For ward areas and emergency department the Zoll External paddles are available from PICU in a kit (Contains Paddles/gel +/-gel patches)**
   SCH – For ward areas and emergency department the Zoll External paddles are available from CICU in a kit (Contains Paddles/gel)
2. **Plug Defib cable into the Apex paddle of external paddle set.**
3. **Select Defib**
   Turn the Mode selector to **DEFIB**. The Unit automatically defaults to 100 Joules or the preconfigured first shock energy selection.



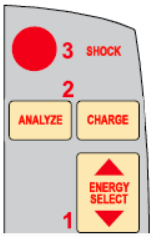
NOTE: Defibrillator PADDLES are selected as the ECG source when the instrument is turned to MONITOR or DEFIB with paddles connected to the Onestep cable.

Energy Select

Look at the display and verify the energy is appropriate. Unless internal handles are connected to the Onestep cable, the default energy selections are:

- 100 joules
- -5 joules (For the Zoll machines in OT/Recovery/Middleton)

You may select a different energy level using the up and down arrow buttons. One pair of up and down buttons are located on the front panel of the unit the other pair is located on the sternum paddle. **4 joules /KG**



OR

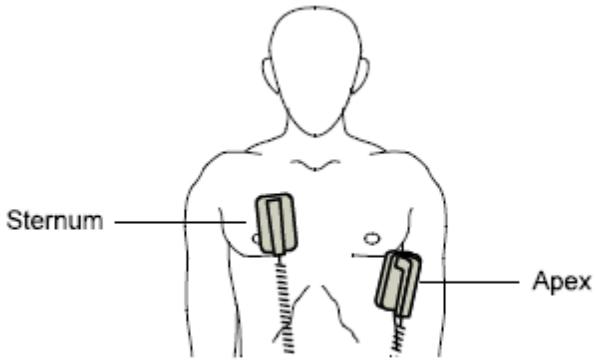
The selected energy level is shown as DEFIB XXXJ SEL. On the display.

Prepare Paddles
If paddles attached to defib press down on the black clips and pull out.
<25kg Paediatric patients, unclip and slide off adult electrode plates
>25kg use adult sized electrode plates
Apply liberal amount of electrolyte gel to the electrode surface of each paddle, and rub the electrodes surfaces together to evenly distribute the applied gel.
(You can substitute electrode gel patches for the gel.)

When ready to defibrillate the patient
Chest compressions must be paused

Apply Paddles to Chest

Apply the paddles firmly to the anterior wall of the chest. Place the sternum paddle to the right of the patient's sternum (patient's right), just below the clavicle.
Place the apex paddle on the chest wall, just below and to the patient's left nipple, along the anterior-axillary line.



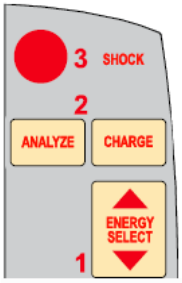
Rub the paddles against the skin to maximise the paddle-to-patient contact.

Warning!
Do not permit gel to accumulate between the paddle electrodes on the chest wall (gel bridge). This could cause burns and reduce the amount of energy delivered to the heart. If using the defibrillator gel pads, make sure the size of the pad is large enough to cover the entire paddle electrode area.

The paddles may be used for ECG monitoring in emergency situations when time does not allow connection of standard ECG monitoring electrodes.
If an ECG cable and ECG electrodes are in use, press the **LEAD** button to select the desired ECG lead.

4. Charge Defibrillator

Ensure everybody is clear and everyone is safe, and oxygen is away.
Press the **CHARGE** button on the front panel or the apex handle



OR

If both **SHOCK** buttons on the paddles are depressed when the **CHARGE** button is activated, the unit does not charge a RELEASE SHOCK BUTTON message appears on the display.
To increase or decrease the selected energy after you have pressed the **CHARGE** button, use the defibrillator **ENERGY SELECT** buttons on either the sternum paddle or the defibrillator front panel.

Caution!
Charging the selected energy while the unit is charging or charged causes the defibrillator to disarm itself. Press the CHARGE button again to charge the unit to the newly selected energy level.

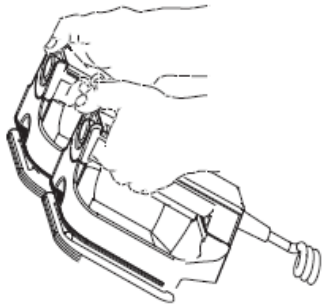
After charging to the selected energy, the charge indicator on the apex paddle lights. A distinctive charge ready tone sounds, and the message DEFIB XXXJ READY is displayed. The defibrillator is now ready to discharge.
If shock no longer required - to disarm press any **ENERGY SELECT** buttons on either the sternum paddle or the defibrillator front panel.

5. Deliver Shock

Warning!
Warn all persons in attendance of the patient to 'STAND CLEAR' prior to the defibrillator discharge.

Do not touch the bed, patient, or any equipment connected to the patient during defibrillation. A severe shock can result. Do not allow exposed portions of the patient's body to come in contact with metal objects, such as bed frame, as unwanted pathways for defibrillation may result.

Apply a force of 10-12 kilograms to each paddle in order to minimise patient impedance and achieve optimal results.
Using your thumbs, simultaneously press and hold both **SHOCK** buttons (one on each paddle) until energy is delivered to the patient.



Caution!
Use only thumbs to depress the SHOCK buttons. Failure to do so could result in the inadvertent depression of the ENERGY SELECT buttons, causing the defibrillator to disarm itself.

Once the energy is delivered, the display simultaneously shows XXXJ DELIVERED and DEFIB XXXJ SEL. After approximately 5 seconds, the XXXJ DELIVERED message disappears, and the DFIB XXXJ SEL. Message remains to indicate the selected energy level.

Note: If the defibrillator is not discharged within 60 seconds after reaching the selected energy level, the unit automatically disarms itself.
During the 10 seconds prior to disarming, the charge ready tone beeps intermittently. The charge ready tone then stops, the charge indicator light goes off, and the monitor message changes to DEFIB XXXJ SEL. Press the **CHARGE** button to recharge the unit.

Once shock delivered person who delivered shock needs to stand back, team need to **restart compressions.**

If using the paediatric paddles < 25kg the person who delivered the shock will need to continue to hold the paddles until ready for the next shock, or until shockable rhythm has resolved. Only charge when paddles in contact with patients chest, not while waiting while compressions continue.
For patients >25Kg the paddles can continue to be held as above or a quick wipe down and clipped into holders until the next shock required.

Following use – Clean the external paddles restock and return kit to PICU