Approved by Quality & Patient Care Committee
4 February 2016

EMERGENCY EQUIPMENT - CHECKING AND MAINTENANCE

This LOP is developed to guide clinical practice at the Royal Hospital for Women. Individual patient circumstances may mean that practice diverges from this LOP.

1. AIM

- Emergency equipment is maintained in a functional state and is ready to use in an emergency situation. Checking of the equipment occurs each day that the unit is open..

2. PATIENT

- Nil

3. STAFF

- Registered Nurses and Midwives

4. EQUIPMENT

The Zoll M Series Locations:
Operating Theatre, Acute Care Centre.

The Zoll AED PRO Locations:
Oxford ward, Macquarie ward, Gynaecology outpatients, Delivery Suite, and Front Desk.

- Adult Cardiac Arrest Equipment Checklist
  Emergency trolley contents, including portable oxygen and suction, and ZOLL AED PRO or ZOLL M SERIES Wall oxygen and suction
- Neonatal Resuscitation Equipment Checklist:
  Emergency trolley contents, include resuscitators, portable oxygen and suction in all maternity areas. Neopuff Infant Resuscitators in Newborn Care Centre, Antenatal, Delivery Suite and Birth Centre.

5. CLINICAL PRACTICE

Oxygen Equipment

- Check that an oxygen flow meter and regulator are attached to the oxygen cylinder.
- Ensure that an oxygen key is attached to the cylinder.
- Using the oxygen key, open the valve to check that the oxygen cylinder is greater than half full and not leaking. If not, the cylinder must be replaced immediately with a full cylinder. When replacing the oxygen cylinder, first remove the Twin-O-Vac unit to ensure that a proper seal is achieved.
- Check oxygen flow by turning the flow meter on. Use a 15 Litre Flow Meter.
- Check that there is at least 1m of oxygen tubing attached to the oxygen flowmeter.

Neopuff

- Check that a gas supply line (green) is connected from the gas flow meter to the Neopuff.
- Check that a clean patient circuit (corrugated) is connected to the Neopuff.
- Check that clean masks are on top of the resuscitation bed for use (Size 0/1 Silicone mask for term infants and Size 00 for preterm infants <2.5 kg.
- Check that the maximum pressure relief valve is set at factory setting of 40cm H_2O. If not, flip the cover of maximum pressure relief valve aside and turn the maximum pressure relief knob until 40 cm H_2O is reached.
- Check the pressure settings are at PIP of 25cm H_2O and PEEP of 5cm H_2O for term infants and change setting to PIP of 20cm H_2O and PEEP of 5cm H_2O for preterm infants.

LOCAL OPERATING PROCEDURE

CLINICAL POLICIES, PROCEDURES & GUIDELINES

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EMERGENCY EQUIPMENT - CHECKING AND MAINTENANCE cont'd

Suction Equipment

- Ensure the collection canister is correctly secured to the unit head.
- Check that there is 1m of suction tubing attached to the suction outlet.
- Turn suction on and place fingertip over the end of the suction tubing to check that there is adequate suction pressure. Pressure generated should be sufficient to adhere the fingertip to the tubing. Only low suction is required for neonatal resuscitation and should be less than 100mmHg.
- Ensure suction catheters Sizes 8, 10 and 12 are available for neonatal use.
- Check that when you have completed the above, turn off the flow meter, and close the valve using the black key to prevent oxygen leakage. Turn the flow meter back on to expel remaining oxygen and then turn off.

Wall Oxygen and Suction

- Check oxygen flow by turning the flow meter on.
- Check the suction to ensure that there is adequate suction pressure. Place fingertip over the end of the suction tubing. Pressure generated should be sufficient to adhere the fingertip to the tubing. Only low suction is required for neonatal resuscitation and should be less than 100mmHg.
- Check that all connections to the collection canisters are correctly assembled.
- Check that each outlet has adequate oxygen and suction tubing for use in an emergency, and appropriate suction catheters, yanker suckers and oxygen masks are available if required in an emergency.

Resuscitator BVM (bag-valve-mask) units (Adult and Neonatal)

- Check that the outer plastic bag on the BVM is sealed. This product is discarded after use.
- Check that there is green tubing connected to the wall oxygen flow meter and to gas blenders in Newborn Care Centre ready for use.

Automated External Defibrillators

ZOLL AED PRO

- Check that there is a green tick visible on the device. This indicates that the battery is ready. The ZOLL AED PRO has a three year lithium battery.
- Troubleshoot according to the table below.

Battery Condition	Indications	Correction
Low energy detected during power-on self-test.	Message: CHANGE BATTERY	Replace battery pack.
Low energy or other self-test failure while the unit is powered off (standby).	Ready indicator shows a red "X". Unit beeps once every minute for 30 minutes.	Replace battery pack. Check or replace preconnected electrodes. If the red "X" remains, contact ZOLL Technical Service.
Low energy detected while the unit is powered on.	Message: CHANGE BATTERY	Replace battery pack as soon as possible.
Dead battery	Ready indicator shows a red "X".	Replace battery pack. If the red "X" remains, contact ZOLL Technical Service.

EMERGENCY EQUIPMENT - CHECKING AND MAINTENANCE cont'd

ZOLL M SERIES

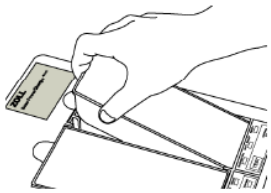
- Turn off mains power
- Check all leads for tangles
- Check paper
- Remove multifunction cable from defib pads
- Attach connector into black test connector
- Turn switch to **DEFIB**
- Press and hold **Summary** button, until erase summary shows up in bottom left hand corner of screen.
- Press erase summary
- Reduce energy to **30 Joules**
- Press Charge and wait until indicator light appears
- press shock button
- Check and sign printout
- Connect defib pads to cable
- Turn back on at mains power
- Turn machine off

Test the ZOLL M SERIES Battery

- Change the battery on the first day of each month.
- Check that the battery charger is working per the following diagram

To test a battery:

1. Check to see that the ZOLL Base PowerCharger 4x4 is connected to live AC mains. The **POWER** indicator light should be lit.
2. Insert a battery into any compartment. Make sure the battery is fully seated (a click can be heard).



3. Press the **TEST** button for the appropriate compartment. The **TESTING** indicator light will illuminate for the duration of the test cycle.

4. If the battery passes the test, the **BATT. READY** light will illuminate while the **TESTING** light remains lit. The battery is now recharged, ready for use, and capable of powering an M Series equipped with Pace/Defibrillation and Pulse Oximetry (SpO_2) for approximately 1.5 hours in Monitor mode.
5. If a battery fails the test, the **FAULT** light will illuminate while the **TESTING** light remains lit.

EMERGENCY EQUIPMENT - CHECKING AND MAINTENANCE cont'd

Intubation equipment (Adult and Neonatal)

- **Check laryngoscope**. Turn laryngoscope on by either raising blade and locking into position, or twisting the grey base of non-adjustable laryngoscopes. The globe should illuminate.
- Ensure the globe is screwed in tightly to the laryngoscope blade. Laryngoscopes and blades with green markings are fiber-optic, and do not require globes.

Drugs and fluids

- Check the expiry dates of all fluids and drugs. Drugs can be safely used until the end of the month of expiry, and replacements should be obtained before the expiry date.

6. DOCUMENTATION

- Adult Cardiac Arrest Equipment Checklist
- Neonatal Resuscitation Trolley Checklist

7. EDUCATIONAL NOTES

VARIANCE MANAGEMENT

- Where equipment is identified as not being functional, the appropriate department is contacted to arrange immediate repair and replacement. Where immediate repairs cannot be attended, replacement equipment is provided to ensure that emergency equipment is available and ready for use in an emergency situation. Nursing/Midwifery Unit Managers must be notified immediately.

GENERAL GUIDELINES

- Check the emergency trolley equipment according to the Adult Cardiac Arrest Equipment Checklist/Neonatal Resuscitation Equipment Checklist. Equipment which is missing, not functional or expired must be replaced or repaired immediately. Wall oxygen and suction should be checked to ensure that it is functional. Where problems are identified with oxygen and suction equipment they must be reported and rectified as soon as possible.
- The oxygen cylinder from the emergency trolley should never be removed from the trolley for routine patient transport. The oxygen key should never be removed from the emergency trolley.

Location of replacement expired or used items:

- **Acute Care Centre:**
  Endotracheal tubes
  Disposable Pocket masks

- **For Neonates in:-**
  - ***NCC***
    Endotracheal tubes
    Intubating Stylets
    Saturation probes for oximeter
  - **Delivery Suite**
    Saturation probes for oximeter
    Resuscitare tubing
    Bacterial Filters
  - **Operating Theatre**
    Endotracheal tubes
    Intubating Stylets

EMERGENCY EQUIPMENT - CHECKING AND MAINTENANCE cont'd

- **O_2 Cylinders**
  Replacement cylinders can be obtained from Porter Station on extension 26784 between 0800-1600 hours or Page 44000 after hours.
- **Defibrillators**
  If problems are experienced with AEDs or manual defibrillators contact biomedical engineering during business hours. After hours, notify the After Hours Nurse Manager. Each ward is responsible for ordering their supply of AED pads.
- **Defibrillation PADS AED PRO**
  For spare and replacement pads, the ward who is responsible for the AED is required to order more from I-procurement.
  Zoll Medical, 84248700, Code 8900080001.
- **Medications**
  Medications can be used safely until the end of the month however replacements should be sought before this date. Medications can be replaced by Pharmacy within hours or Emergency Drug Cupboard after hours.

- **Fluids**
  Fluids can be replaced by ward stock. If the ward does not stock the required fluids replacement may be sought from the Acute Care Centre or Operating Theatres.

8. RELATED POLICIES / PROCEDURES / CLINICAL PRACTICE LOP

- Neonatal resuscitation guidelines at delivery
- Adult clinical emergency response system (CERS) and escalation
- Maternal collapse
- PACE Management of Deteriorating Adult Patient
- CPR Equipment SESLHDPR/440

9. RISK RATING

- Medium

10. NATIONAL STANDARD

- RR – Recognising and Responding to Acute Deterioration

11. REFERENCES

- SESIAHS.Minimum Standards for an Emergency Response System for Cardiorespiratory Arrests in Healthcare Facilities in South Eastern Sydney Area Health.
- Physio-Control. (1987). Lifepak 7 operating and service manual.
  Medtronic Physio-Control. (2000). Lifepak 500 Automated External Defibrillator Operating Instructions (International). Redmond, Washington: Medtronic Physio-Control
- 'Checking and Maintaining Emergency Equipment' Prince of Wales Hospital policy.
  Royal Hospital for Women Clinical Policies and Procedures, 16th May 2005. Neonatal Resuscitation Guidelines

REVISION & APPROVAL HISTORY

Reviewed and endorsed Maternity Services LOPs group November 2015
Approved Quality Council 16/10/06
Endorsed Neonatal Clinical Committee 11/7/06
Endorsed Nursing & Midwifery Clinical Practice Group 20/10/05

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