Clinical Guideline

WATCh – POST CARDIAC ARREST MANAGEMENT

SETTING	Wales and West Acute Transport for Children (WATCh)
FOR STAFF	WATCh Team, South West and Wales District General Hospital medical and nursing teams.
PATIENTS	All children presenting in cardiac arrest with a return of spontaneous circulation (ROSC)

Guidance

Children who have had a confirmed in or out of hospital cardiac arrest requiring chest compressions and / or defibrillation, and who regain ROSC, should be referred to WATCh for transfer to a tertiary PICU. This guideline provides a systematic approach to stabilisation in an aim to reduce the risk of cardiac arrest syndrome. It is important to confirm if a child has a wishes document / ceiling of care prior to invasive therapies.

GLOSSARY

ROSC	Return of Spontaneous Circulation	**ETT**	Endotracheal tube
HSV	Herpes simplex virus	**kPa**	Kilopascal
OHCA	Out of Hospital Cardiac Arrest	**NGT**	Nasogastric tube
FBC	Full blood count	**IO**	Intraosseous
U&E	Urea and electrolytes	**IV**	Intravenous
LFT	Liver function test	**CXR**	Chest x-ray
CRP	C-reactive protein	**USSC**	Ultrasound scan
Mg	Magnesium	**PEEP**	Positive end expiratory pressure

RELATED DOCUMENTS AND PAGES	Post-cardiac arrest management in children (2022) Clinical Guideline, UHBW.
AUTHORISING BODY	WATCh Governance Group
SAFETY	Call the WATCh team for advice and support
QUERIES AND CONTACT	0300 0300 789

Document Change Control

Date of Version	Version Number	Lead for Revisions	Type of Revision	Description of Revision
Nov 2022	1.00	WATCh Clinical Guidelines Group		

Post Cardiac Arrest Management

Possible Causes

Identify and treat reversible causes (4Hs & 4Ts)

Consider Sudden Unexpected Death in Infants investigations.

4Hs & 4Ts

Hypoxia	Tension pneumothorax
Hypovolaemia,	Cardiac tamponade
Hypo/hyperkalaemia and metabolic derangements,	Toxicity
Hypothermia	Thromboembolic events.

Respiratory

Immediately post ROSC:
Intubate with a cuffed endotracheal tube
Continuous waveform capnography
Target saturations – 94-97%
Ventilate to normocarbia (ETCO2 4.5-5.5kPa)
Blood gas
Insert NGT to decompress stomach

Within 60 minutes post ROSC:
CXR – Confirm ETT position
Point of Care Ultrasound lungs (if clinically indicated and expertise available)
Minimum PEEP 5, target tidal volume 5-7 mL/kg if possible but prioritise normocarbia over lung protection

Cardiovascular

Immediately post ROSC:
Secure IO / IV Access
Continuous ECG monitoring, QRS volume on
Cycle blood pressure every 2 mins and aim to achieve systolic BP targets with:
FLUID: 10 mL/kg isotonic fluid titrated to response
INOTROPE: Adrenaline infusion (0.05 – 0.3 micrograms/kg/min) – seek advice from WATCh if unable to reach BP targets

Within 60 minutes post ROSC:
Blood gas, Blood Cultures, FBC, U&Es, Clotting Screen, LFTs, CRP, Mg, Ammonia
12 Lead ECG (WATCh to liaise with cardiology)
Point of Care Ultrasound Heart (if expertise available)
Arterial Line and Central Line if possible
Remove IO once adequate IV access (ensure limb labelled)
Monitor urine output
Correct metabolic abnormalities

Systolic BP Targets

Term Neonate	>65
Infant (<1 year)	>70
1-4 years	>75
5-10 years	>80
11-15 years	>90
16+ years	>100

Neurology

Immediately post ROSC:
Check glucose and correct hypoglycaemia with 2 mL/kg 10% glucose
Continue maintenance fluids containing 10% glucose to maintain glucose between 4-10 mmol/L

Within 60 minutes post ROSC:
Sedate and muscle relax with Morphine, Midazolam Rocuronium (as per WATCh drug sheet)
Neuroprotect (30 degrees head up and midline)
CT brain / Cranial USS if indicated
Monitor and treat seizures
30-60 minute neuro observations

Sepsis and Targeted Temperature Management

Within 60 minutes post ROSC:
Give broad spectrum antibiotics (+ aciclovir if <1 month or concerns about HSV)

Avoid fever (<37.5 degrees), monitor temperature with invasive monitoring.

Family / Safeguarding

Family – take a detailed history including birth history where relevant, any recent travel and history of event.

In cases of OHCA consider requirement for a joint agency response