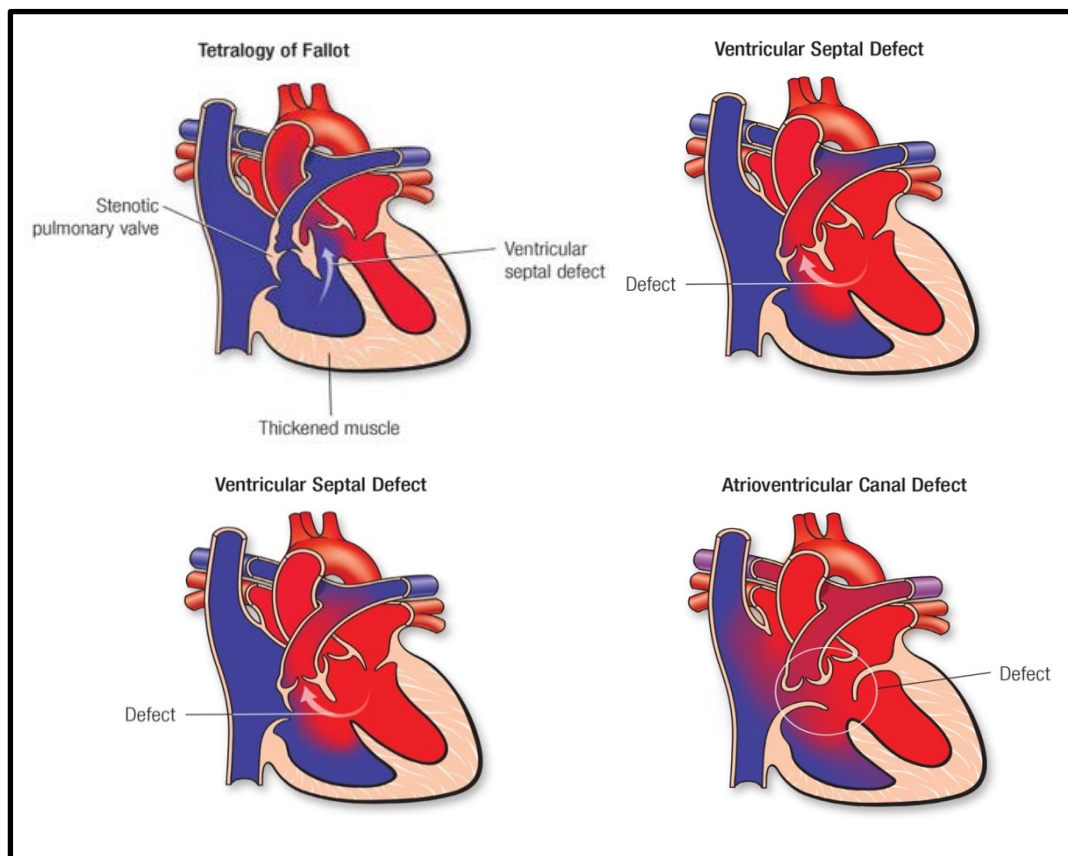


Biventricular Cardiac Clinical Pathway for Six weeks to One year

Expected length of stay 5 days



Inclusion Criteria	Exclusion Criteria
<ul style="list-style-type: none"> • Less than 6 weeks -1 year of age • Isolated VSD's (inlet, outlet, muscular) • AVSD • Tetralogy of Fallot with preservation of pulmonary valve • AV canal • VSD/AR • Simple pulmonary valvotomy 	<ul style="list-style-type: none"> • Infants less than 6 weeks • TGA +/- VSD • Arch obstruction • Single Ventricle Physiology • Tetralogy of Fallot requiring a transannular patch

Pathway Instructions	
Pathway	If the child meets the inclusion criteria please document 'Commenced on Biventricular Clinical Pathway' in clinical notes.
Clinical/Care Decisions	Document if the decision was made not to follow the recommended action/ intervention. Example regular 6 hourly paracetamol not administered because
Clinical Management	Follow the recommended clinical management when the child deviates from the clinical pathway.

Pre-operative Care
Ward 23B

Date:

	Pre-Op Care	AM	PM	Clinical/Care decisions
Preadmission screening	<ul style="list-style-type: none"> Overseas patients <ul style="list-style-type: none"> MRSA + MSSA screening (nasal and groin swab), MRO screening (rectal/faeces swab) Patients transferred from other hospitals <ul style="list-style-type: none"> MRSA + MSSA screening 			
Medication management	<ul style="list-style-type: none"> Withhold ACE inhibitors and diuretics once NBM Antiarrhythmic and beta blocker should be given unless specified by anaesthetist Aspirin discontinued 2-5 days prior to surgery Pre-medication charted 			
Pre-operative preparation	<ul style="list-style-type: none"> Shower and chlorhexidine wipe the night prior to surgery and morning of surgery If consent not completed done by 5pm Clinical Charge Nurse to follow up Ages and Stages assessment Head circumference/length 			
Nutrition	<ul style="list-style-type: none"> Establish NBM times Offer moderate amounts of clear up to 1-hour pre-op as per anaesthesia fasting guideline If NBM for more than 4 hours check with anaesthetist in regards to starting IV fluids 			
Clinical management	<ul style="list-style-type: none"> Contact surgical Fellow/Registrar to review patient if the patient has any of the following: <ul style="list-style-type: none"> Temp > 37.5 Signs of chest infection Infected skin lesions Vomiting /diarrhoea for the last 24 hours Infectious contact. i.e. chicken pox, measles 			Recommence pathway once theatre date confirmed Yes / No

Day of Surgery

PICU Post-Operative Day 0

Date:

	PICU Post-Op Day 0	AM	PM	Clinical/Care decisions
EXACT protocol	<ul style="list-style-type: none"> EXACT as per 2 or 6 hour protocol Administer supplemental O2 to maintain SpO2 >93-98% Identify patients suitable for early chest drain removal protocol on 20:00 ward round CLAB and Glamorgan score 			Extubated as per EXACT Yes / No
Pain management	<ul style="list-style-type: none"> Follow PICU unintubated 0-12 months sedation and analgesia algorithm 6 hrly paracetamol 8 hrly ibuprofen unless contraindicated - can be administered on an empty stomach unless Administer ondansetron for post-op nausea and vomiting 			Regular 6 hrly paracetamol administered Yes / No Regular 8 hrly ibuprofen administered Yes / No
Fluid management	<ul style="list-style-type: none"> Discontinue IV maintenance fluids post extubation Accurate fluid balance 			
Nutrition	<ul style="list-style-type: none"> Once patient is extubated and stable, encourage breast/oral feeding as tolerated No fluid restriction required 			
Post-operative antibiotics	<ul style="list-style-type: none"> Cephazolin - 2 doses post-operative 			
Family/whānau support	<ul style="list-style-type: none"> Orientate family/whānau to PICU 			
Clinical management	<ul style="list-style-type: none"> Diversion from the EXACT protocol: Patient breaches the pathway and recommences the pathway post-extubation 			Pathway recommended post-extubation Yes / No

**Post-Operative Day 1
PICU**

Date:

	PICU Post-Op Day 1	AM	PM	Clinical/Care decisions
Interventions	<ul style="list-style-type: none"> ○ Wean O2 to maintain SpO2 >93-98% ○ Remove chest drains at 06:00 if patient meets early chest drain removal criteria or post-surgical ward round ○ Post ward round remove <ul style="list-style-type: none"> - Central line - Arterial Line - Foley catheter ○ Ensure 1x functioning IV cannula remains in-situ ○ Complete CLAB and Glamorgan bundle of care 			Invasive lines removed Yes / No
Medication	<ul style="list-style-type: none"> ○ Commence twice daily IV frusemide and potassium-sparing diuretic ○ Discuss medication management during surgical ward round <ul style="list-style-type: none"> - Antiarrhythmics - Sildenafil 			
Pain management	<ul style="list-style-type: none"> ○ Follow PICU un-intubated greater than 12 months sedation and analgesia algorithm ○ 6 hrly paracetamol ○ 8 hrly ibuprofen unless contraindicated ○ Administer a dose of oral morphine post discontinuing morphine infusion ○ Administer ondansetron for post-op nausea and vomiting 			Regular paracetamol given Yes / No Regular ibuprofen give Yes / No PRN oral morphine given after stopping morphine infusion Yes / No
Mobilisation	<ul style="list-style-type: none"> ○ Mobilise up sitting on caregiver prior to chest drain removal 			
Nutrition	<ul style="list-style-type: none"> ○ No fluid restriction required ○ Encourage breast/oral feeding ○ Remove NG tube if child is tolerating oral medication 			
Diagnostic tests	<ul style="list-style-type: none"> ○ Chest x-ray post drain removal ○ Post-operative ECG prior to surgical ward round 			

PICU discharge documentation and patient handover	<ul style="list-style-type: none"> ○ Discharge documentation completed including PEWS score, pain team and PaR team referral if required. ○ PICU medical staff to call 23b admission phone to handover to Registrar/NP prior to transfer 			
Clinical management	<ul style="list-style-type: none"> ○ Failure to discharge from PICU due to change in clinical status ○ Patient resumes pathway on day 1 post-op once clinical status stable and patient is ready for transfer to 23b 			Clinical status stable and ready for transfer to 23B day____ post-op

Post-operative Ward 23B IOA admission
Day 1 continued

Date:

	Day 1 Post-Op Ward 23B	AM	PM	Clinical/Care decisions
Interventions	<ul style="list-style-type: none"> ○ Wean O2 to maintain SpO2 >93-98% Medical admission, review diagnostics ○ Continuous monitoring for 24hrs post IOA admission 			
Fluid management	<ul style="list-style-type: none"> ○ Review twice daily frusemide and potassium sparing diuretic ○ Consider transitioning to oral diuretics ○ Accurate fluid balance 			
Pain management	<ul style="list-style-type: none"> ○ 6 hrly paracetamol ○ 8 hrly ibuprofen unless contraindicated ○ Morphine PRN or Tramadol PRN ○ Administer ondansetron for post-op nausea and vomiting 			Regular paracetamol given Yes / No Regular ibuprofen given Yes / No
Mobilisation	<ul style="list-style-type: none"> ○ Mobilise sitting on caregiver for all enteral feeding 			
Nutrition	<ul style="list-style-type: none"> ○ Encourage normal daily intake as tolerated ○ Encourage breast/oral feeding ○ Remove nasogastric tube if child is tolerating medication and feeding orally 			
Daily needs bundle of care	<ul style="list-style-type: none"> ○ Glamorgan bundle of care ○ Hygiene needs/oral care 			
Family/whānau support	<ul style="list-style-type: none"> ○ Support family/whānau to participate in child's care 			
Clinical management	<ul style="list-style-type: none"> ○ Failure to discharge from PICU due to ward capacity ○ Patient continues on pathway in PHDU and can bypass the IOA if post-op day 1 goals have been achieved 			

Post-Operative Ward 23B

Day 2

Date:

	Day 2 Post Op	AM	PM	Clinical/Care decisions
Interventions	<ul style="list-style-type: none"> Discontinue telemetry if patient meets the below criteria <ul style="list-style-type: none"> Alert Electrolytes within normal levels Sinus rhythm within the last 24 hours Child is clinically stable and progressing as expected Continue pulse oximetry monitoring for another 24 hours Transfer out of IOA, if child is clinically stable and progressing as expected If sternotomy dressing is dry, remove dressing clean wound and apply glue Check diagnostic tests are completed for removal of pacing wires on day 3 post-op Commence lactulose once daily if BNO 			Was telemetry discontinued day 2 post-op Yes / No
Fluid management	<ul style="list-style-type: none"> Transition to oral diuretics twice daily or daily if: <ul style="list-style-type: none"> Absorbing feeds No evidence of CHF Weight is tracking back towards pre-op weight No clinical signs of dehydration Daily weight Accurate fluid balance 			Transitioned to oral diuretics by day 2 post-op Yes / No
Pain management	<ul style="list-style-type: none"> 6 hrly paracetamol 8 hrly ibuprofen unless contraindicated Oral Morphine PRN Ondansetron for nausea and vomiting 			Transitioned to oral PRN morphine Yes / No
Mobilisation	<ul style="list-style-type: none"> Mobilise up onto parents lap for enteral feeding Mobilise out of bed and encourage normal developmental play 			
Nutrition	<ul style="list-style-type: none"> Encourage breast/oral feeding Free fluids and normal home diet as tolerated 			Achieved home diet by day 2 post op Yes / No
Diagnostic tests	<ul style="list-style-type: none"> Check FBC, U & E's 			
Daily needs bundle of care	<ul style="list-style-type: none"> Bath or shower/oral hygiene Glamorgan bundle of care 			
Infection surveillance	<ul style="list-style-type: none"> Pyrexia of < 38.5 within 48 hours can commonly be associated with a SIRS response Ensure patient is hydrated and manage with paracetamol 			

	Day 2 Post Op	AM	PM	Clinical/Care decisions
Clinical management	<p>Arrhythmias Recommendation action</p> <ul style="list-style-type: none"> ○ Consult with Cardiologist ○ Delay pacing wire removal ○ Continue ECG monitoring ○ Check electrolytes <p>Oxygen requirement from day 3 post op Recommended action</p> <ul style="list-style-type: none"> ○ Clinical examination ○ Review last chest x-ray ○ Consider fluid overload <p>Temperature > 38.5°C > 48 hrs post op Recommended action</p> <ul style="list-style-type: none"> ○ Clinical examination ○ FBC and urine (blood cultures and chest x-ray not routinely required) 			

Post-Operative Day 3
Or discharge if child meets discharge criteria

Date:

	Day 3 Post Op	AM	PM	Clinical/Care decisions
Interventions	<ul style="list-style-type: none"> Remove pacing wires as per pacing wire removal guideline Monitor for 2 hours post pacing wire removal, remove PIV 4 hours post pacing wire removal if the child is clinically stable Remove dressings on drain sites if dressings are dry 			Pacing wires removed on day 3 post-op Yes / No
Fluid management	<ul style="list-style-type: none"> Continue with oral diuretics twice daily or daily Daily weight 			Transition to oral diuretics Yes / No
Pain management	<ul style="list-style-type: none"> 6 hrly paracetamol PRN ibuprofen unless contraindicated Oral Morphine PRN 			Transitioned to oral morphine Yes / No
Mobilisation	<ul style="list-style-type: none"> Encourage as much mobilisation as possible Encourage as much mobilisation as possible/support family to mobilise the child independently 			
Nutrition	<ul style="list-style-type: none"> Encourage breast/oral feeding Encourage home diet as age appropriate If oral intake is less than 70ml/kg/day discuss with medical team 			
Diagnostic tests	<ul style="list-style-type: none"> Echocardiogram prior to discharge Consider repeating CXR if abnormalities are present on post-op CXR, consider PA and lateral views 			
Infection surveillance	<ul style="list-style-type: none"> Pyrexia of < 38.5 within 48 hours post-op can commonly be associated with a SIRS response Ensure patient is hydrated and manage with paracetamol 			
Daily needs bundle of care	<ul style="list-style-type: none"> Hygiene needs/shower/Bath/teeth Glamorgan bundle of care 			
Discharge education	<ul style="list-style-type: none"> Commence 23B discharge check list completed Medication /Wound care and suture removal education 			Discharged by day 3 post-op Yes / No

	Day 3 Post Op	AM	PM	Clinical/Care decisions
Clinical management	<p>Arrhythmias Recommended action</p> <ul style="list-style-type: none"> ○ Consult with Cardiologist ○ Delay pacing wire removal ○ Continue ECG monitoring ○ Check electrolytes <p>Oxygen requirement from day 3 post op Recommended action</p> <ul style="list-style-type: none"> ○ Clinical examination ○ Review last chest x-ray ○ Consider fluid overload <p>Temperature > 38.5°C > 48 hrs post op Recommended action</p> <ul style="list-style-type: none"> ○ Clinical examination ○ FBC and urine (blood cultures and chest x-ray not routinely required) 			

Day 4 –Discharge

Goals: Family/whānau is confident caring for child on discharge
Child meets the discharge criteria
Discharge referrals completed

Discharge criteria	<ul style="list-style-type: none"> ○ Ward 23b discharge check list completed ○ Review medication prior to discharge ○ Wound review and removal of sutures by the GP on day 7-10 post op ○ If the wound has interrupted sutures, removal of sutures is organised by the surgical team at 14 days 	Discharged by day 4 post-op Yes / No
Discharge referrals	<ul style="list-style-type: none"> ○ Home care nursing referral ○ Neurodevelopment referral (see neurodevelopment follow up of cardiac patients guideline) ○ Routine check by GP within the first week of discharge 	

Post Discharge Management

Discharge management	<ul style="list-style-type: none"> ○ Refer to SMO follow up guidelines
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