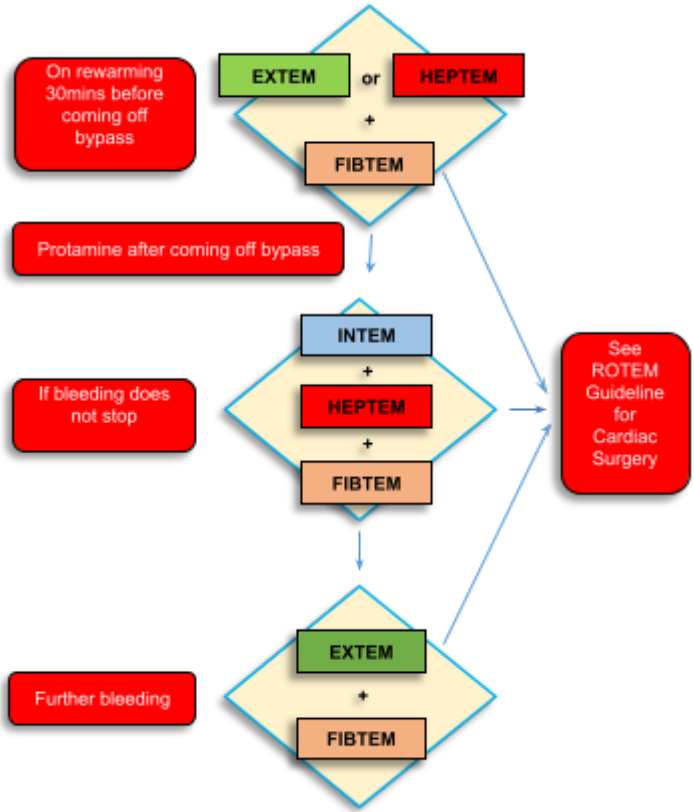
ROTEM ALGORITHM



ROTEM GUIDELINE FOR CARDIAC SURGERY

Bold – treat

Italics – treat if bleeding/high risk of bleeding

1. When to treat CT

CT in INTEM/HEPTEM > 300 sec	**or**	**CT in INTEM/APTEM > 100 sec**
CT in INTEM/HEPTEM 240 - 300 sec	*or*	*CT in INTEM/APTEM 80-100 sec*
CT in INTEM/HEPTEM <240 - 300 sec (No treatment required)	or	CT in INTEM/APTEM < 80 sec (No treatment required)

Causes of prolonged CT

Test	**Diagnosis**	**Management**
INTEM/HEPTEM ratio >1.0	Residual heparin	Protamine
FIBTEM A10 < 5 mm	Low fibrinogen	Cryoprecipitate
All other prolonged CT	Low coagulation	FFP 10-15 ml/kg

2. Clot Firmness & Management ( )

CLOT FIRMNESS		**A10 in EXTEM/INTEM/HEPTEM/FIBTEM**		
		<22 mm	22-38 mm	≥ 39 mm
A10 IN FIBTEM	<5 mm	**Low platelet Low fibrinogen (Cryoprecipitate + Platelet)**	**Low fibrinogen (Cryoprecipitate)**	*Low fibrinogen (Cryoprecipitate)*
	5-7 mm	**Low platelet Low fibrinogen (Cryoprecipitate + Platelet)**	*Low platelet Low fibrinogen*	Clot firmness appears satisfactory. If bleeding consider

			(Cryoprecipitate + Platelet)	i) Raising fibrinogen >= 10 mm ii) If on aspirin consider platelets
	≥ 8 mm	**Low platelet (Platelet)**	*Low platelet (Platelet)*	

3. Clot lysis

Test	Diagnosis	Management
Lysis within 20 minutes	**Fulminant lysis**	**Tranexemic acid**
Lysis between 20-40 minutes	*Early lysis*	*Tranexemic acid*
Lysis > 40 minutes	Clot retraction	No treatment required

1. Tanaka KA, Bolliger D, Vadlamudi R, Nimmo A. Rotational thromboelastometry (ROTEM)-based coagulation management in cardiac surgery and major trauma. J Cardiothorac Vasc Anesth. 2012 Dec;26(6):1083-93

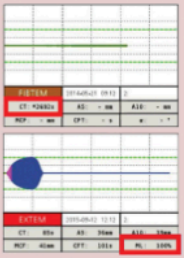
PAEDIATRIC ROTEM Transfusion Algorithm

GOLD COAST HOSPITAL AND HEALTH SERVICE

Physiological Targets: Temp >36°C pH >7.2 iCa >1 mmol/L Hb > 70g/L

STEP 1: HYPERFIBRINOLYSIS

1



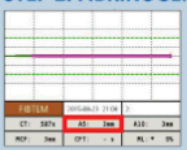
FIBTEM CT > 300 sec
AND
EXTEM A5 ≤ 35 mm
→ TXA 15 mg /kg + 50 mg/Kg FIB CONC

OR

ML% ≥ 5%
→ TXA 15 mg/kg (max 1g)

STEP 2: FIBRINOGEN

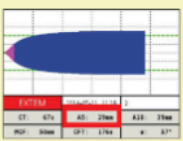
2



FIBTEM A5 ≤ 10 mm
→ FIB CONC 50 mg/kg
OR
CRYO 5 mL/kg

STEP 3: PLATELETS

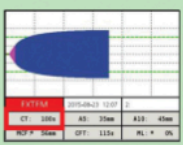
3



FIBTEM A5 > 10 mm
AND
EXTEM A5 ≤ 35 mm
→ PLATELETS 10–15 mL/kg

STEP 4: FACTORS

4



FIBTEM A5 > 10 mm
AND
EXTEM CT ≥ 90 s
→ FFP 15 mL/kg
OR
PCC 10 IU/Kg

ALWAYS repeat ROTEM tests 10 min after treatment

Version PRO1547v3

A5 based algorithm

DIAGNOSIS		A5 in EXTEM		
		≤ 10 mm	11-27 mm	≥ 28 mm
A5 in FIBTEM	≤ 3 mm	Low fibrinogen Low platelets	Low fibrinogen (platelets)	Low fibrinogen
	4-6 mm	Low platelets Low fibrinogen	Low platelets Low fibrinogen	Clot firmness appears ok
	≥ 7 mm	Low platelets	Low platelets	

NEW PROTOCOL BASED ON A5 NOT A10

TREATMENT		A5 in EXTEM		
		≤ 10 mm	11-27 mm	≥ 28 mm
A5 in FIBTEM	≤ 3 mm	8 units FFP (or 4 FFP + 2 pools/10 units cryoprecipitate) + 2 bags platelets	8 units FFP (or 4 FFP + 2 pools/10 units cryoprecipitate) + 1 bag platelets	4 units FFP
	4-6 mm	4 units FFP + 2 bags platelets	4 units FFP + 1 bag platelets	Fibrinogen concentration and platelet count satisfactory*
	≥ 7 mm	2 bags platelets	1 bag platelets	

George, S., Wake, E., Sweeny, A., Campbell, D. and Winearls, J. (2022), Rotational thromboelastometry in children presenting to an Australian major trauma centre: A retrospective cohort study. Emergency Medicine Australasia, 34: 590-598. https://doi.org/10.1111/1742-6723.13939