HEPARIN

Newborn use only

Alert	High risk med	ication in	n A PINCH M	edicines list u	nder New South Wa	ales Clinical Excellence Commission.
	Also known as unfractionated heparin (UFH). Not equivalent to low molecular weight heparin (LMWH).					
	Use in consultation with haematologist for treatment of thrombosis.					
	Many concentrations of heparin are available. Accidental overdose can occur when multiple					
	concentrations are kept in the unit.					
	In neonatal settings: recommend to store the following preparations only: heparinised saline 50 units/5					
	mL and hepar	in sodiun	m injection a	mpoule 1000	units/1 mL.	
	DBL Heparin s	odium in	njection in vi	als is not reco	mmended in neon	ates as it contains benzyl alcohol.
	However, DBL Heparin sodium injection in <i>ampoules</i> does not contain benzyl alcohol.					
Indication	Primary or sec	Primary or secondary antithrombotic prophylaxis.				
	Maintenance	of arteria	al and centra	al venous cath	eter patency.	
Action	Heparin binds	Heparin binds to antithrombin III (ATIII), potentiating ATIII's activity by at least 1000-fold. ATIII				
	predominantly inactivates factor Xa and thrombin (other proteases/clotting factors to lesser degree),					
	which in turn inhibits conversion of fibrinogen to fibrin. Also possesses anti-complementary activity,					
	inhibiting both	inhibiting both the classic and alternative pathways.				
Drug type	Anticoagulant	t				
Trade name	Heparin Sodiu	um Injecti	tion (Pfizer),	DBL Heparin S	odium Injection BP	
Presentation	Antithrombot	tic proph	nylaxis			
	Pfize	r Heparir	n Sodium Inj	ection Ampou	le: 5000 units/5 mL	
	DBL I	Heparin S	Sodium Injec	tion BP Ampo	ule: 1000 units/1 m	۱L
	DBL I	Heparin S	Sodium BP V	ials – Not to b	e used in neonates	as it contains benzyl alcohol.
	Maintenance	of cathe	eter patency			
	Нера	arinised s	saline injectio	on: 50 units/5	mL	
	Also	available	e in premixed	d infusion bage	5.	
Dose	Antithrombot	tic proph	nylaxis ^{1,2,3}			
	Load	ing dose:	e: 75 (50-100)) units/kg ovei	⁻ 30 minutes.	
	Initia	al mainter	enance dose:	30 (20-40) un	its/kg/hour as cont	inuous IV infusion.
	Adjustment of Heparin dose					
	Adju	stment o	of Heparin d	ose		
	Adju Anti	stment o -Xa is pre	of Heparin d eferred to as	ose sess the effec	t of heparin and gui	de dosing (Table 1).
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HEPARIN

Newborn use only

		60-85	0	0	No change	Next day or as per haematologist advice		
	1	86-95	0	0	-10	6 h		
		96-120	0	30	-10	6 h		
	-	>120	0	60	-10	6 h		
	-	Obtain blood for	ΔPTT 6 hours	after adminis	tration of loading (dose and 6 hours after every change		
		When APTT valu	es are theran	eutic blood co	ount and APTT daily	y or as per the advice of		
		haematologist	es ure therup			or as per the davice of		
		APTT [.] Activ	ated partial th	rombonlastin	time			
				in officio pico pico cini				
	Va	Vascular catheter natency. 1,2,5-7,18-21						
	a)	a) Maintenance of patency of peripheral arterial catheters: 0.5 units/mL of IV fluid						
	b)	Maintenance of	patency of ce	ntral vascular	catheters: 0.5 unit	s/kg/hour		
Dose adjustment	The	erapeutic hypothe	ermia – No inf	ormation.		· · · ·		
	ECI	ECMO – Refer to local ECMO protocols for anticoagulation.						
	Rei	nal impairment –	Dose adjustm	ent may be re	quired in severe re	nal impairment. Discuss with		
	hae	ematologist.						
	He	patic impairment	– No dose adj	justment is rea	quired. ⁸			
Maximum dose								
Total cumulative								
dose								
Route	IV							
Preparation	An	tithrombotic pro	phylaxis					
	The	e concentrations	varying from 1	.00 to 500 uni	ts/mL can be used [·]	for loading doses and concentrations of		
	10	to 500 units/mL o	an be used fo	r continuous I	V infusion.			
	Va	scular catheter pa	atency					
	То	To prepare 0.5 unit/mL solution, withdraw 5 mL 0.9% sodium chloride from a 100 mL bag, then add 5 mL						
	of !	of 50 units/5 mL (50 units) to make 50 units in 100 mL bag.						
Administration	Sys	stemic antithrom	botic therapy					
	Ad	minister IV loadin	g dose over 3	0 minutes.				
	Ad	Administer maintenance dose as a continuous IV infusion and titrate dose by anti-Xa (or APTT if anti-Xa is						
	not	t available).						
	Va	Vascular catheter patency						
	Arterial lines: Continuous IV infusion of 0.5 units/mL at 0.5-1 mL/hour.							
Monitoring	Anumrombolic prophylaxis Six hours after initiating therapy, measure anti Va (or ADTT if anti Va is not available), then adjust does to							
	Six nours after initiating therapy, measure anti-Xa (or APTT of 60 to 85 coconds). Defer to tobles 1 and							
	2 in the dosing section							
	Platelet count before the commencement and then weekly							
	Assess for signs of bleeding and thrombosis.							
	Vascular catheter patency							
	Sta	indard observatio	ns for intravas	scular cathete	rs.			
Contraindications	Kno	own hypersensitiv	ity to heparin	, uncontrolled	bleeding.			
	Int	raventricular hae	morrhage, gas	trointestinal h	naemorrhage, throi	mbocytopenia < 50 x 10 ⁹ /L, severe		
	hypertension,							
	Eye	e, brain or spinal o	cord surgery- S	Surgeons to gi	ve clearance regard	ding when to start heparin. ⁷		
Precautions	Ble	eding disorders –	Discuss with	haematologist	t.			
	Sto	ore heparinised sa	line ampoules	s separately fr	om other heparin p	products and sodium chloride 0.9%		
	am	poules to reduce	the risk of sel	ection errors				
Drug interactions	Par	racetamol, non-st	eroid anti-infl	ammatory dru	ıgs, alprostadil, thr	ombolytic agents, vitamin A may		
	inc	rease the risk of b	oleeding.					
Adverse reactions	Ha	emorrhage and h	aematoma for	mation.				
	He	parin-induced thr	ombocytopen	ia (HIT).				
	Ost	teoporosis.						
	Che	olestatic liver read	ction and elev	ation of transa	aminases.			

	Hyperaldosteronism can occur after prolonged administration. ⁸				
	Treatment of Heparin-Induced Bleeding: (1) cease heparin and (2) if immediate reversal is required, administer protamine sulfate. The required dose of protamine sulfate is based on the amount of UFH received in the previous 2 hours as follows: ¹				
	Time Since Last Heparin Dose	Protamine dose per 100 units of heparin received in the last 2 hours			
	<30 min	1 mg			
	30-60 min	0.5-0.75 mg			
	60-120 min	0.375-0.5 mg			
	>120 min	0.25-0.375 mg			
	Maximum dose of 50 mg. Infusion rate of a 10 mg/mL solution should not exceed 5 mg/min.				
	Hypersensitivity reactions to protamine sulfate may occur in patients with known hypersensitivity				
	reactions to fish or those previously exposed to protamine therapy or protamine-containing insulin. For				
	more information, refer to Protamine formulary.				
Compatibility	Fluids: Glucose 5%, Sodium chloride 0.9%. ⁹				
	Y-site: Aciclovir, ampicillin, atropine, aztreonam, caffeine citrate, calcium chloride, calcium gluconate,				
	cetazolin, cetotaxime, clindamycin, dexamethasone, dexmedetomidine, digoxin, dopamine, ephedrine				
	levetiracetam, linezolid, magnesium sulfate, meropenem, metronidazole, midazolam hydrochloride				
	morphine sulfate, naloxone hydrochloride, noradrenaline, pancuronium bromide, paracetamol.				
	piperacillin/tazobactam, phenobarbital sodium, pipercillin-tazobactam, potassium chloride, rocuronium				
	bromide, suxamethonium, vecuronium, zidovudine.				
Incompatibility	Fluids: Fat emulsion				
	Y-site: Benzylpenicillin, ciprofloxacin, cisatracurium, dobutamine, erythromycin, gentamicin, ketamine,				
	tobramycin				
Stability					
Storage	Ampoule and vial: Store below 25°C.				
	Bag: Store below 30°C.				
Excipients	Pfizer ampoule: Water for injection				
	DBL ampoule: Hydrochloric acid, sodium hydroxide.				
	DBL vial: Benzyl alcohol. Do not give products that contain benzyl alcohol to neonates.				
Special comments	Heparinised saline: Hydrochloric acid, sodium chloride, sodium hydroxide.				
Fvidence	Refer to full version				
Practice points	Refer to full version	Defer to full version			
References	Refer to full version.				
References					

VERSION/NUMBER	DATE
Original	14/01/2021
REVIEW	14/01/2026

Authors Contribution

Original author/s	Nilkant Phad, Srinivas Bolisetty, Juliana Teo
Evidence Review	Tim Schindler
Expert review	Juliana Teo
Nursing Review	Eszter Jozsa, Kirsty Minter, Samantha Hassall
Pharmacy Review	Wendy Huynh, Carmen Burman
ANMF Group contributors	Bhavesh Mehta, Karel Allegaert, Thomas Young, John Sinn, Jessica Mehegan,
	Michelle Jenkins, Helen Huynh
Final editing and review of the original	Thao Tran, Srinivas Bolisetty
Electronic version	Cindy Chen, Ian Callander

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Facilitator