

CARDIOLOGY HEPARIN NOMOGRAM

FOR USE IN STEMI, NSTEMI, PCI (cath), AFIB, Mechanical valves

	Initial bolus 60 units/kg (units)	Infusion rate 12 units/kg/hour (units/hr)	Pump setting (units/kg/hr)	Additional bolus 30 units/kg (units)	Additional bolus 60 units/kg (units)
40	2400	480	12	1200	2400
45	2700	540	12	1350	2700
50	3000	600	12	1500	3000
55	3300	660	12	1650	3300
60	3600	720	12	1800	3600
65	3900	780	12	1950	3900
70	4000	840	12	2100	4200
75	4000	900	12	2250	4500
80	4000	960	12	2400	4800
85	4000	1000	12*	2550	5100
90	4000	1000	12*	2700	5400
95	4000	1000	12*	2850	5700
100	4000	1000	12*	3000	6000
105	4000	1000	12*	3150	6300
110	4000	1000	12*	3300	6600
115	4000	1000	12*	3450	6900
120	4000	1000	12*	3600	7200
125	4000	1000	12*	3750	7500
130	4000	1000	12*	3900	7800
135	4000	1000	12*	4050	8100
140	4000	1000	12*	4200	8400
145	4000	1000	12*	4350	8700
150	4000	1000	12*	4500	9000

*Have nurse use "order specific weight" in Epic, program pump with 83 kg if patient weighs > 83 kg

Initial infusion:

12 units/kg/hour (pharmacist to notify RN if order specific weight differs from actual)

Max initial dose: 1000 units/hour (patients greater than 83 kg)

- Initial infusion AND subsequent infusion rate changes will be capped at 83kg
- Actual weight in Kg will be used for all subsequent boluses (no capping for subsequent boluses)

aPTT (seconds)	Bolus	Rate of infusion (capped at 83kg)	Check aPTT in hours
Less than or equal to 49	60 units/kg	Increase by 3 units/kg/hour	6 hours
50 to 67	30 units/kg	Increase by 1 unit/kg/hour	6 hours
68 to 104	--	No change	When 2 consecutive readings within therapeutic range, check aPTT daily
105 to 110	--	Decrease by 1 unit/kg/hour	6 hours
111 to 199	--	Hold infusion for 1 hour Decrease by 2 units/kg/hour	6 hours
Above 199		CALL MD Hold infusion for 2 hours Decrease by 4 units/kg/hr*	When restarting infusion*

* If follow-up aPTT < 111 seconds, continue with new decreased rate and recheck aPTT 6 hours after restarting infusion.

* If follow-up aPTT > 111 seconds, Notify MD, recheck aPTT every 2 hours; and restart infusion at decreased rate when aPTT is < 111 seconds.

VTE HEPARIN NOMOGRAM
FOR USE IN DVT, PE, ACUTE LIMB ISCHEMIA (ALI)

	Initial bolus 80 units/kg (units)	Infusion rate 18 units/kg/hour (units/hr)	Pump setting (units/kg/hr)	Additional bolus 40 units/kg (units)	Additional bolus 80 units/kg (units)
40	3200	720	18	1600	3200
45	3600	810	18	1800	3600
50	4000	900	18	2000	4000
55	4400	990	18	2200	4400
60	4800	1080	18	2400	4800
65	5200	1170	18	2600	5200
70	5600	1260	18	2800	5600
75	6000	1350	18	3000	6000
80	6400	1440	18	3200	6400
85	6800	1530	18	3400	6800
90	7200	1620	18	3600	7200
95	7600	1710	18	3800	7600
100	8000	1800	18	4000	8000
105	8400	1890	18	4200	8400
110	8800	1980	18	4400	8800
115	9200	2070	18	4600	9200
120	9600	2160	18	4800	9600
125	10000	2250	18*	5000	10000
130	10000	2250	18*	5000	10000
135	10000	2250	18*	5000	10000
140	10000	2250	18*	5000	10000
145	10000	2250	18*	5000	10000
150	10000	2250	18*	5000	10000

*Have nurse use "order specific weight" in Epic, program pump with 125 kg if patient weighs > 125 kg

Initial infusion:

18 units/kg/hour (pharmacist to notify RN if order specific weight differs from actual)

Max initial dose: 2250 units/hour (patients greater than 125 kg)

aPTT (seconds)	Bolus	Rate of infusion	Check aPTT in hours
Less than or equal to 49	80 units/kg	Increase by 4 units/kg/hour	6 hours
50 to 67	40 units/kg	Increase by 2 unit/kg/hour	6 hours
68 to 104	--	No change	When 2 consecutive readings within therapeutic range, check aPTT daily
105 to 110	--	Decrease by 2 unit/kg/hour	6 hours
111 to 199	--	Hold infusion for 1 hour Decrease by 3 units/kg/hour	6 hours
Above 199		CALL MD Hold infusion for 2 hours Decrease by 4 units/kg/hr*	When restarting infusion*

*If follow-up aPTT < 111 seconds, continue with new decreased rate and recheck aPTT 6 hours after restarting infusion.

*If follow-up aPTT > 111 seconds, Notify MD, recheck aPTT every 2 hours; and restart infusion at decreased rate when aPTT is < 111 seconds.

IMPELLA HEPARIN NOMOGRAM

FOR USE WITH IMPELLA DEVICE ONLY

Heparin 25 units/ml (12,500 units in 500 mL) of dextrose 5% will be used for Impella device as a purge solution only. No titrations are needed as the device self regulates the drip rate. Goal aPTT of 45-55 seconds and should be checked every 6 hours.

NOTE: addition of **systemic titratable** heparin to Impella purge solution should only apply in the following clinical situations:

1. Impella purge solution is unable to ACHIEVE aPTT between 45-55 seconds. Start at 500 units/hour. Check aPTT in 2 hours. Adjust using nomogram below:

aPTT (seconds)	Rate of infusion	Check aPTT in hours
Less than or equal to 44	Increase by 100 units/hour	2 hours
45 to 55	No change	6 hours
56 to 80	Decrease by 100 units/hour	2 hours
Greater than 80	Hold for 1 hour, then decrease rate by 100 units/hour	2 hours

2. Patient requires systemic anticoagulation for one of the disease states discussed with the "cardiology" or "DVT/PE" nomograms above. Start weight based nomogram at 5 units/kg/hour and adjust per specific disease state nomogram to achieve therapeutic anticoagulation with goal aPTT of 68-104 seconds. Contact clinical on call if further clarification is needed.

ISCHEMIC STROKE HEPARIN NOMOGRAM

FOR USE IN ISCHEMIC STROKE WITH ICA OR LV MOBILE
THROMBUS, ARTERY DISSECTION, ICH WITH PAD, CENTRAL
VENOUS THROMBUS OR IN PATIENTS AT HIGH RISK FOR
BLEEDING FOR NEED FOR ANTICOAGULATION

	Infusion rate 12 units/kg/hour (units/hr)	Pump setting (units/kg/hr)
40	480	12
45	540	12
50	600	12
55	660	12
60	720	12
65	780	12
70	840	12
75	900	12
80	960	12
85	996	12*
90	996	12*
95	996	12*
100	996	12*
105	996	12*
110	996	12*
115	996	12*
120	996	12*
125	996	12*
130	996	12*
135	996	12*
140	996	12*
145	996	12*
150	996	12*

*Have nurse use "order specific weight" in Epic, program pump with 83 kg if patient weighs > 83 kg

Initial infusion:

12 units/kg/hour (pharmacist to notify RN if order specific weight differs from actual)

Max initial dose: 996 units/hour (patients greater than 83 kg)

- Initial infusion AND subsequent infusion rate changes will be capped at 83kg

aPTT (seconds)	Rate of infusion (capped at 83kg)	Check aPTT in hours
Less than or equal to 40	Increase by 2 units/kg/hour	6 hours
41 to 49	Increase by 1 unit/kg/hour	6 hours
50 to 70	No change	When 2 consecutive readings within therapeutic range, check aPTT daily
71 to 80	Decrease by 1 unit/kg/hour	6 hours
81 to 89	Hold infusion for 1 hour Decrease by 2 units/kg/hour	6 hours
Above 90**	CALL MD and stop infusion Recheck pTT then follow protocol based off new pTT	2 hours

For Pharmacy Notes:

*If asked for a recommendation or giving guidance; **would recommend holding infusion for 1 hour and decrease rate by 3 units/kg/hr.** Recheck pTT in 2 hours and then follow protocol based off of new pTT.

**If pTT is greatly elevated (pTT >120) would recommend holding for 2 hours and decreasing rate by 4 units/kg/hr. Recheck pTT in 2 hours and then follow protocol based off of new pTT.

This Protocol Review and Revision information

Last Date Revised: 10/2022

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