

HEPARIN CONTINUOUS INFUSION

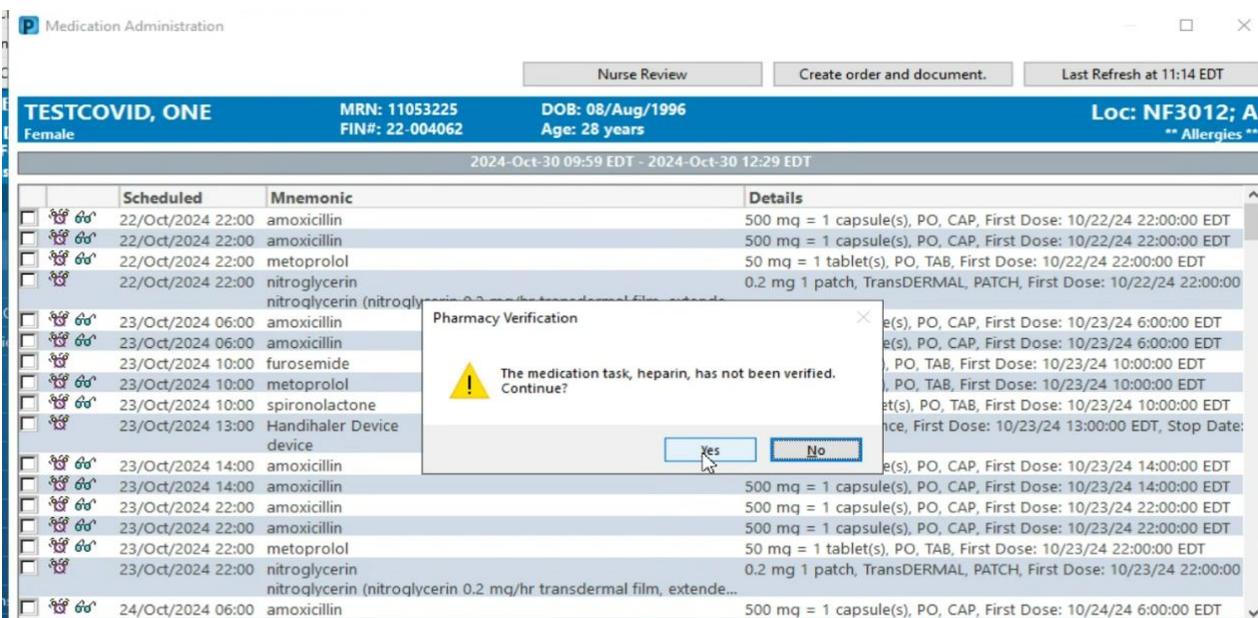
NOTE: A heparin continuous infusion will now have two documentation components, including both the electronic MAR within the domain as well as the paper Anticoagulation Record used in current state. The sequence of documentation for initiation of the infusion, loading dose, dose adjustments, and a bolus dose are outlined below.

The medication administration steps on the infusion pump will remain the same:

Loading Dose (when prescribed) → Continuous Infusion → Bolus Dose (when indicated)

DOCUMENTING THE INITIATION OF A HEPARIN CONTINUOUS INFUSION

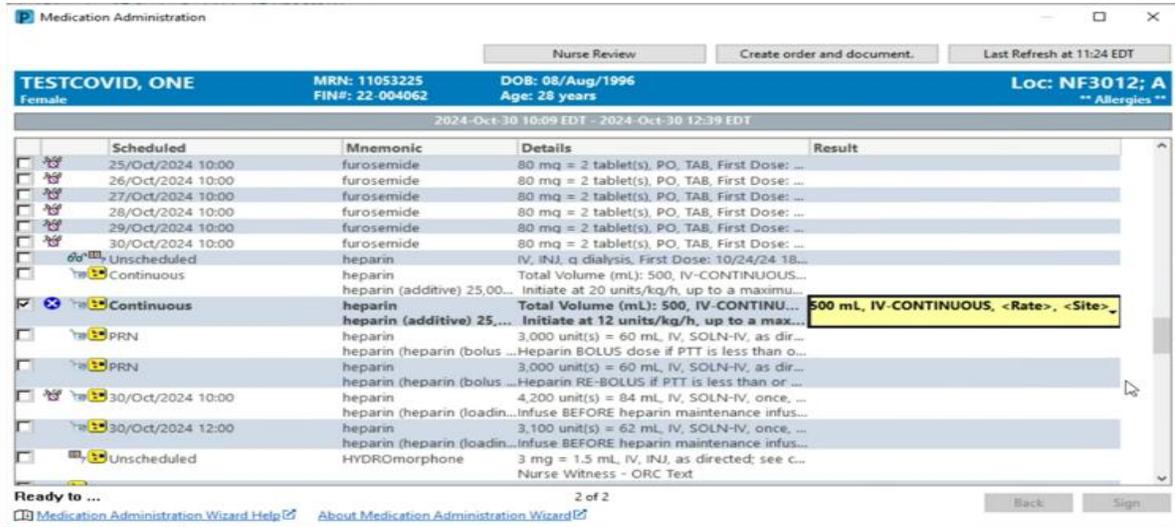
1. A heparin powerplan/subphase must be ordered for the patient in the HIS.
2. Once in the patient profile, navigate to the Medication Administration Wizard (MAW) icon. Medication Administration
3. Once the MAW opens, a prompt will appear to scan the patient ID band.
4. Once the patient's ID band is scanned and two patient identifiers are verified, scan the barcode on the heparin bag that matches the ordered concentration.
 - a. If the medication order has not been verified by pharmacy, a prompt will appear (as below). Select yes to continue to document the medication administration.



The screenshot shows the Medication Administration Wizard (MAW) interface for patient TESTCOVID, ONE. The patient's MRN is 11053225, DOB is 08/Aug/1996, and Age is 28 years. The location is NF3012; A. The interface displays a list of scheduled medications with columns for Scheduled, Mnemonic, and Details. A 'Pharmacy Verification' dialog box is open, displaying a warning icon and the message: 'The medication task, heparin, has not been verified. Continue?'. The dialog box has 'Yes' and 'No' buttons.

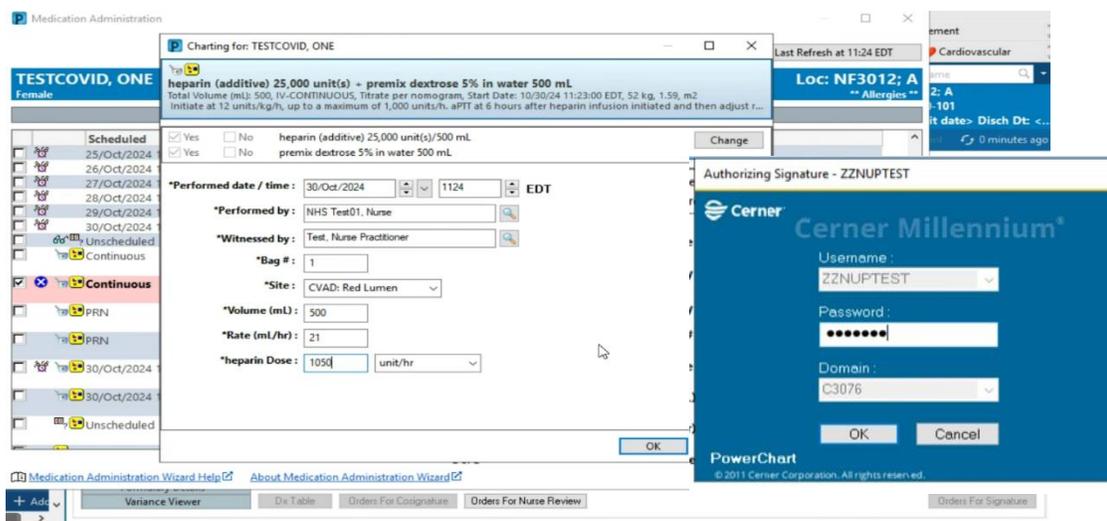
Scheduled	Mnemonic	Details
22/Oct/2024 22:00	amoxicillin	500 mg = 1 capsule(s), PO, CAP, First Dose: 10/22/24 22:00:00 EDT
22/Oct/2024 22:00	amoxicillin	500 mg = 1 capsule(s), PO, CAP, First Dose: 10/22/24 22:00:00 EDT
22/Oct/2024 22:00	metoprolol	50 mg = 1 tablet(s), PO, TAB, First Dose: 10/22/24 22:00:00 EDT
22/Oct/2024 22:00	nitroglycerin	0.2 mg 1 patch, TransDERMAL, PATCH, First Dose: 10/22/24 22:00:00
23/Oct/2024 06:00	amoxicillin	500 mg = 1 capsule(s), PO, CAP, First Dose: 10/23/24 6:00:00 EDT
23/Oct/2024 06:00	amoxicillin	500 mg = 1 capsule(s), PO, CAP, First Dose: 10/23/24 6:00:00 EDT
23/Oct/2024 10:00	furosemide	40 mg = 1 tablet(s), PO, TAB, First Dose: 10/23/24 10:00:00 EDT
23/Oct/2024 10:00	metoprolol	50 mg = 1 tablet(s), PO, TAB, First Dose: 10/23/24 10:00:00 EDT
23/Oct/2024 10:00	spironolactone	125 mg = 1 tablet(s), PO, TAB, First Dose: 10/23/24 10:00:00 EDT
23/Oct/2024 13:00	Handihaler Device device	100 mg = 1 inhaler(s), PO, CAP, First Dose: 10/23/24 13:00:00 EDT, Stop Date:
23/Oct/2024 14:00	amoxicillin	500 mg = 1 capsule(s), PO, CAP, First Dose: 10/23/24 14:00:00 EDT
23/Oct/2024 14:00	amoxicillin	500 mg = 1 capsule(s), PO, CAP, First Dose: 10/23/24 14:00:00 EDT
23/Oct/2024 22:00	amoxicillin	500 mg = 1 capsule(s), PO, CAP, First Dose: 10/23/24 22:00:00 EDT
23/Oct/2024 22:00	amoxicillin	500 mg = 1 capsule(s), PO, CAP, First Dose: 10/23/24 22:00:00 EDT
23/Oct/2024 22:00	metoprolol	50 mg = 1 tablet(s), PO, TAB, First Dose: 10/23/24 22:00:00 EDT
23/Oct/2024 22:00	nitroglycerin	0.2 mg 1 patch, TransDERMAL, PATCH, First Dose: 10/23/24 22:00:00
23/Oct/2024 22:00	nitroglycerin (nitroglycerin 0.2 mg/hr transdermal film, extende...	0.2 mg 1 patch, TransDERMAL, PATCH, First Dose: 10/23/24 22:00:00
24/Oct/2024 06:00	amoxicillin	500 mg = 1 capsule(s), PO, CAP, First Dose: 10/24/24 6:00:00 EDT

- Once the pharmacy verification prompt has been acknowledged, the heparin CONTINUOUS INFUSION check box will be selected and the infusion line bolded.



Scheduled	Mnemonic	Details	Result
25/Oct/2024 10:00	furosemide	80 mg = 2 tablet(s), PO, TAB, First Dose: ...	
26/Oct/2024 10:00	furosemide	80 mg = 2 tablet(s), PO, TAB, First Dose: ...	
27/Oct/2024 10:00	furosemide	80 mg = 2 tablet(s), PO, TAB, First Dose: ...	
28/Oct/2024 10:00	furosemide	80 mg = 2 tablet(s), PO, TAB, First Dose: ...	
29/Oct/2024 10:00	furosemide	80 mg = 2 tablet(s), PO, TAB, First Dose: ...	
30/Oct/2024 10:00	furosemide	80 mg = 2 tablet(s), PO, TAB, First Dose: ...	
Continuous	heparin	IV, INJ, q dialysis, First Dose: 10/24/24 18...	
Continuous	heparin	Total Volume (mL): 500, IV-CONTINUOUS...	500 mL, IV-CONTINUOUS, <Rate>, <Site>
Continuous	heparin (additive) 25,000	Initiate at 20 units/kg/h, up to a maximum...	
PRN	heparin	3,000 unit(s) = 60 mL, IV, SOLN-IV, as dir...	
PRN	heparin (heparin (bolus ...	Heparin BOLUS dose if PTT is less than o...	
PRN	heparin	3,000 unit(s) = 60 mL, IV, SOLN-IV, as dir...	
PRN	heparin (heparin (bolus ...	Heparin RE-BOLUS if PTT is less than or ...	
30/Oct/2024 10:00	heparin	4,200 unit(s) = 84 mL, IV, SOLN-IV, once, ...	
30/Oct/2024 12:00	heparin (heparin (loadin...	Infuse BEFORE heparin maintenance infus...	
30/Oct/2024 12:00	heparin	3,100 unit(s) = 62 mL, IV, SOLN-IV, once, ...	
30/Oct/2024 12:00	heparin (heparin (loadin...	Infuse BEFORE heparin maintenance infus...	
Unscheduled	HYDROMORPHONE	3 mg = 1.5 mL, IV, INJ, as directed; see c...	
Unscheduled	Nurse Witness - ORC Text		

- The yellow box in the 'Result' column indicates there are mandatory fields requiring completion before you can sign for the infusion and document it as initiated on the MAR.
- Double click on the yellow box (above) to open the administration screen. The required fields will populate in yellow.
 - Once each field is entered, the yellow will be removed from the field and the 'Ok' button on the bottom right can be selected.
 - Ensure to enter the ordered infusion dose in the 'heparin dose' field in units/hr. The rate field will populate when the dose is entered. DO NOT enter the dose in the rate field.
 - A nurse witness will be required to complete this screen as per NH IDC policy.



Medication Administration

TESTCOVID, ONE
Female

heparin (additive) 25,000 unit(s) - premix dextrose 5% in water 500 mL
Total Volume (mL): 500, IV-CONTINUOUS, Titrate per nomogram, Start Date: 10/30/24 11:23:00 EDT, 52 kg, 1.59, m2
Initiate at 12 units/kg/h, up to a maximum of 1,000 units/h, aPTT at 6 hours after heparin infusion initiated and then adjust r...

Yes No heparin (additive) 25,000 unit(s)/500 mL
 Yes No premix dextrose 5% in water 500 mL

*Performed date / time: 30/Oct/2024 1124 EDT

*Performed by: NHS Test01, Nurse

*Witnessed by: Test, Nurse Practitioner

*Bag #: 1

*Site: CVAD: Red Lumen

*Volume (mL): 500

*Rate (mL/hr): 21

*heparin Dose: 1050 unit/hr

Authorizing Signature - ZZNUPTST

Cerner Millennium

Username: ZZNUPTST

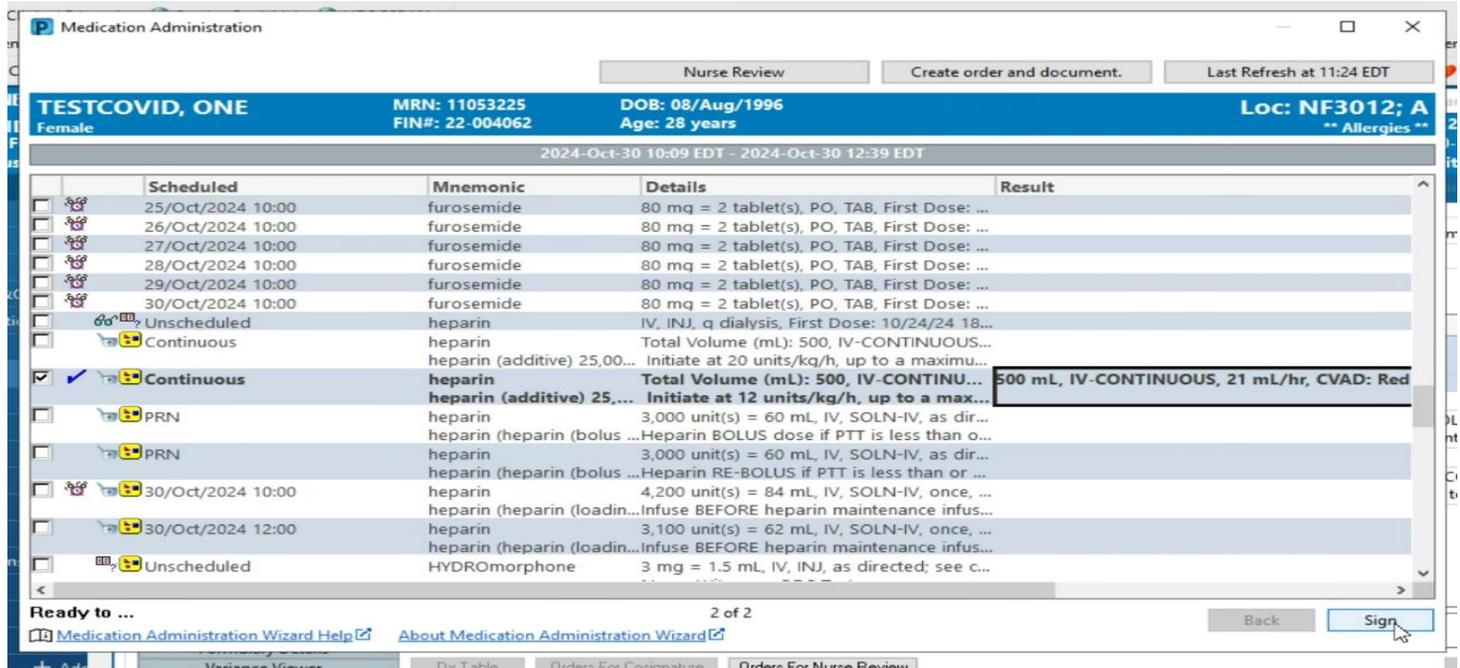
Password: [REDACTED]

Domain: C3076

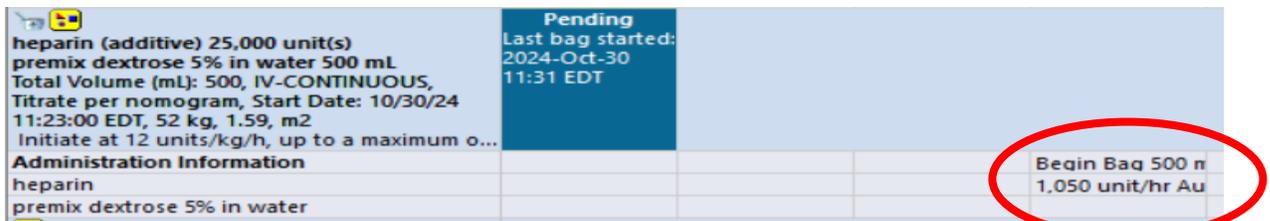
OK Cancel

PowerChart

8. Once all fields are complete and confirmed with 'OK', the yellow will disappear from the information in the 'Results' field and the heparin infusion can be signed off by pressing 'Sign'. This will begin the infusion on the patient MAR.

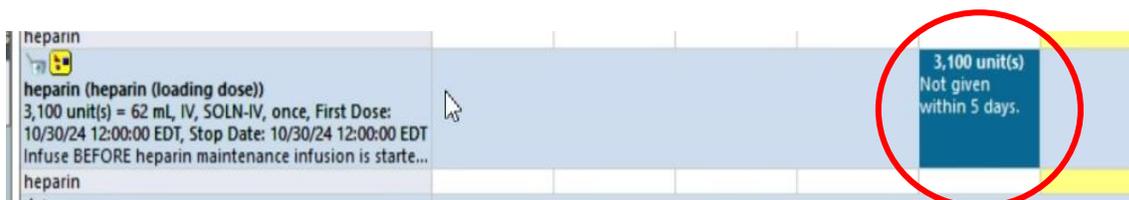


9. Once the medication is signed, a 'Begin Bag' will appear on the MAR with the continuous infusion dose populated in units/hr.



DOCUMENTING A LOADING DOSE

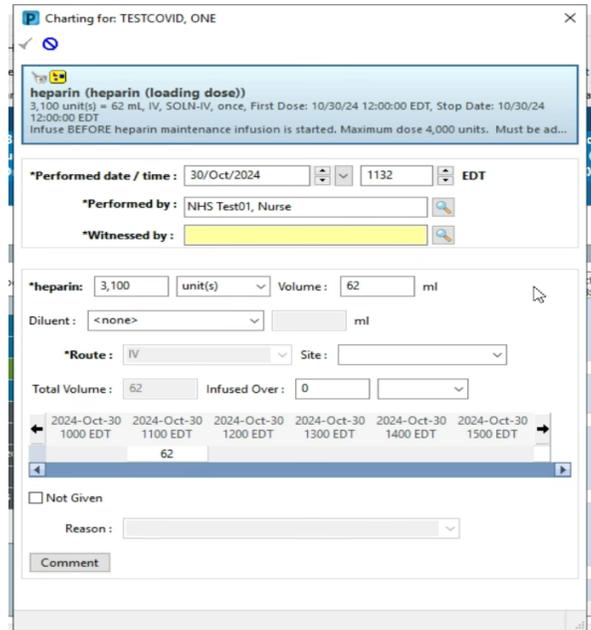
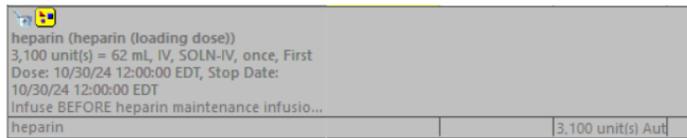
10. If a loading dose has been ordered, locate the order on the MAR; it will show 'loading dose' on the entry.
 - a. Double click on the MAR task circled below



11. A pop up window will appear (see right).
 - a. Confirm the ordered loading dose has populated correctly.
 - b. For accuracy, change the 'performed date/time' to the correct administration time as per pump programming (this would be prior to the continuous infusion time).

12. A nurse witness is required as indicated by the yellow box. The nurse who completed the independent double check at time of administration will be required to enter their credentials before the medication can be signed off on the MAR.

NOTE: Once the loading dose has been signed on the MAR, it will turn grey and move to the bottom of the MAR under 'Discontinued Scheduled' as this is a one time order and should not be documented on any further (below).

DOCUMENTING ON ANTICOAGULATION RECORD

Comprehensive iView documentation is not currently available in the domain. The electronic MAR is required to be completed to accurately document the infusion within the HIS, however, the complete infusion history is not easily retrievable from one source. There will be elements of the paper record that are duplicated from the eMAR, however, it is important to complete all fields on the Anticoagulant Record, regardless of what is already in the eMAR.

Anticoagulant Record

* Heparin is a high-alert medication requiring an independent double check

Type of Anticoagulation Therapy:

Heparin Standard Dose Heparin Low Dose Oral Anticoagulation - Medication: _____

Indication for anticoagulant therapy: _____

Target INR Range: _____ to _____

Target aPTT Range: 50 - 75 seconds

Contact Physician If:

- INR less than _____ or greater than _____
- aPTT greater than 110 seconds
- Therapeutic range for aPTT not reached with 24 hours of therapy

Date (dd/mm/yyyy)	Time (hhmm)	Current heparin Dose (units/h)	Current Oral Dose (mg)	INR Result	PTT Result	New heparin Dose (units/h)	New Oral Dose (mg)	Bolus Heparin Dose (units)	Intervention	Nurse Signature
										/
										/
										/

DOCUMENTING A DOSE CHANGE

13. If a heparin dose change is required based on the nomogram (below) located in the orders section and/or comments in the heparin continuous infusion MAR entry, the following steps will be completed.

aPTT (seconds)	Additional Bolus Dose (units)	Hold Infusion (minutes)	heparin Dose Change (units/h)	Repeat aPTT
Less than or equal to 40	3,000	0	Increase by 200 units/h	4 hours
41 – 49	0	0	Increase by 100 units/h	4 hours
50 – 75	0	0	No change	Next a.m.
76 – 85	0	0	Decrease by 100 units/h	Next a.m.
86 – 100	0	0	Decrease by 150 units/h	Next a.m.

a. Double click on the MAR task circled below

Continuous Infusions	
heparin (additive) 25,000 unit(s) premix dextrose 5% in water 500 mL Total Volume (mL): 500, IV-CONTINUOUS, Titrate per nomogram, Start Date: 11/04/24 16:40:00 EST, 48 kg Initiate at 20 units/kg/h, up to a maximum o... Administration Information heparin premix dextrose 5% in water	Pending Last bag started: 2024-Nov-04 16:42 EST
	Begin Bag 500 mL 20 unit/kg/hr Au

b. A pop up window will appear (see right).

c. Select the 'Rate Change' option

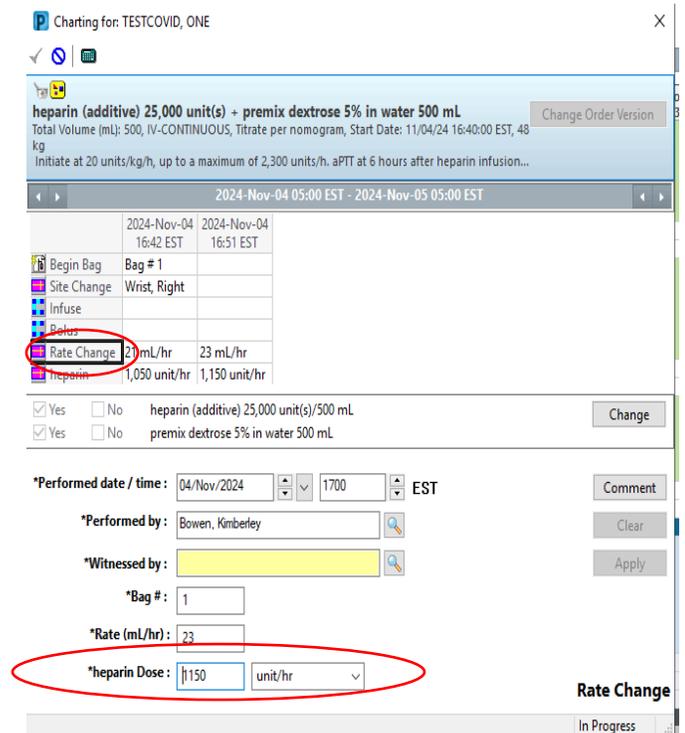
d. Enter the new heparin dose (units/hr) in the 'heparin dose' field.

Note: The new rate (mL/hr) will populate once the new heparin dose (units/hr) is entered.

e. A nurse witness is required as indicated by the yellow box. The nurse who completed the independent double check at time of administration will be required to enter their credentials before the medication can be signed off on the MAR.

f. Once the Nurse Witness fields have been completed, press the ✓ to complete the MAR entry for the heparin dose change.

g. Document the heparin dose change on the Anticoagulant Record.



Charting for TESTCOVID, ONE

heparin (additive) 25,000 unit(s) + premix dextrose 5% in water 500 mL
 Total Volume (mL): 500, IV-CONTINUOUS, Titrate per nomogram, Start Date: 11/04/24 16:40:00 EST, 48 kg
 Initiate at 20 units/kg/h, up to a maximum of 2,300 units/h. aPTT at 6 hours after heparin infusion...

	2024-Nov-04 16:42 EST	2024-Nov-04 16:51 EST
Begin Bag	Bag # 1	
Site Change	Wrist, Right	
Infuse		
Bolus		
Rate Change	23 mL/hr	23 mL/hr
heparin	1,050 unit/hr	1,150 unit/hr

Yes No heparin (additive) 25,000 unit(s)/500 mL
 Yes No premix dextrose 5% in water 500 mL

*Performed date / time: 04/Nov/2024 1700 EST
 *Performed by: Bowen, Kimberley
 *Witnessed by: [Yellow box]
 *Bag #: 1
 *Rate (mL/hr): 23
 *Heparin Dose: 1150 unit/hr

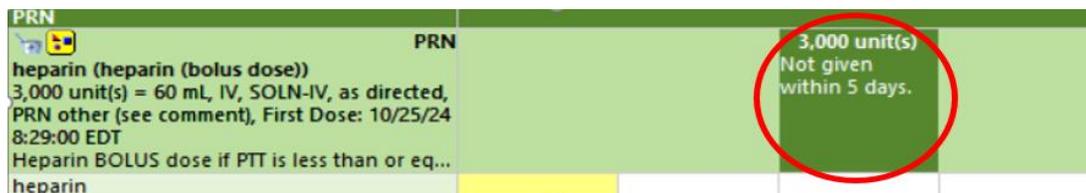
Rate Change
In Progress

DOCUMENTING A HEPARIN BOLUS

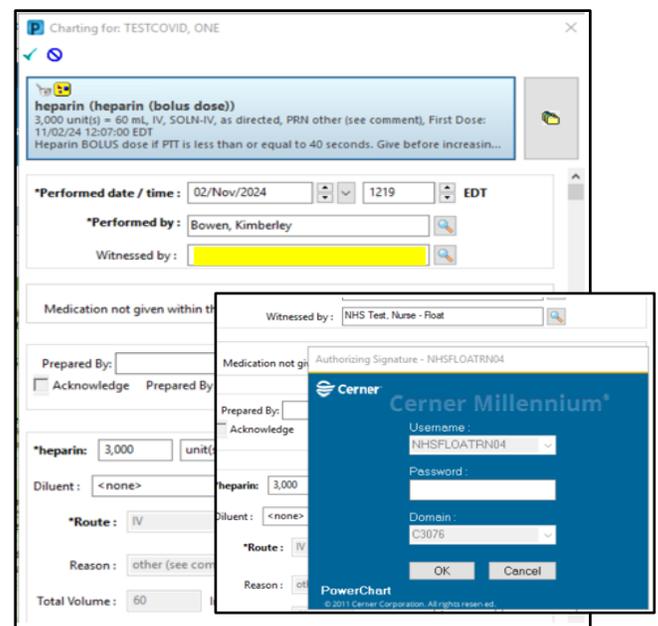
14. If a heparin bolus dose is required based on the adjustment nomogram (below) located in the orders section and/or order comments in the PRN heparin bolus MAR entry, the following steps will be completed.

aPTT (seconds)	Additional Bolus Dose (units)	Hold Infusion (minutes)	heparin Dose Change (units/h)	Repeat aPTT
Less than or equal to 40	3,000	0	Increase by 200 units/h	4 hours
41 – 49	0	0	Increase by 100 units/h	4 hours
50 – 75	0	0	No change	Next a.m.
76 – 85	0	0	Decrease by 100 units/h	Next a.m.
86 – 100	0	0	Decrease by 150 units/h	Next a.m.

a. Double click on the MAR task circled below in the PRN heparin bolus order on the MAR



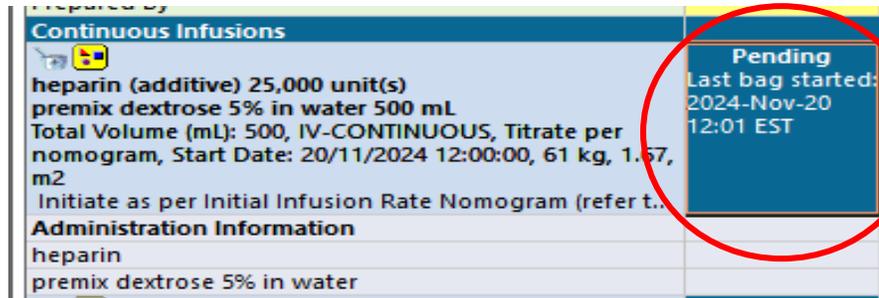
- A pop up window will appear (see right). Confirm the ordered bolus dose has populated correctly.
- A nurse witness is required as indicated by the yellow box. The nurse who completed the independent double check at time of administration will be required to enter their credentials before the medication can be signed off on the MAR.
- Once the Nurse Witness fields have been completed, press the ✓ to complete the MAR entry for the heparin bolus.
- Document the heparin bolus on the Anticoagulant Record.



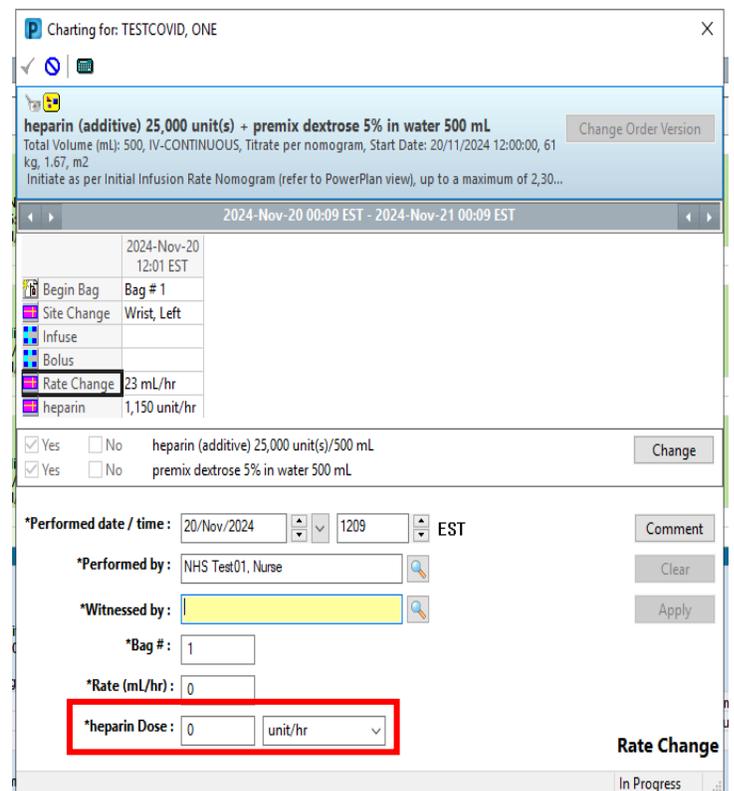
DOCUMENTING A HOLD INFUSION

15. If a heparin infusion is required to be on hold based on the adjustment nomogram, the following steps will be completed.

- a. Double click on the MAR task circled below in the heparin continuous infusion order on the MAR



- b. A pop up window will appear (see right). Change the heparin dose to 0 (zero) unit/hr
- c. A nurse witness is required as indicated by the yellow box. The nurse who completed the independent double check at time of administration will be required to enter their credentials before the medication can be signed off on the MAR.
- d. Once the Nurse Witness fields have been completed, press the ✓ to complete the MAR entry for the heparin bolus.
- e. Document on the Anticoagulant Record that the infusion was placed on hold.

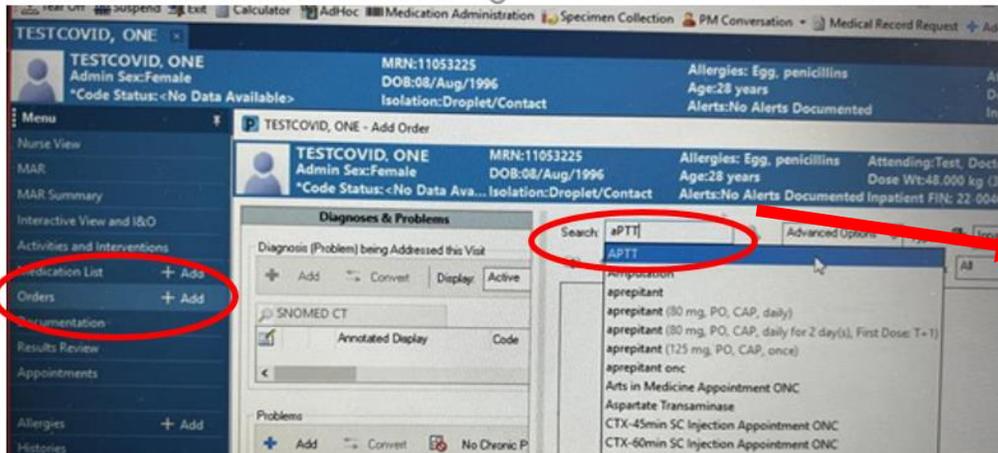


REORDERING the aPTT

Once the aPTT has been reviewed, the nurse is required to enter the next aPTT as indicated on the heparin adjustment nomogram.

To complete this, the nurse must navigate to 'Orders' within PowerChart, Click 'Add' and search "aPTT".

Once selected, the nurse will enter the ordering Prescriber's name and choose the option of 'Written' in the Communication Type selection box, then select OK.



The screenshot shows the PowerChart interface for a patient named TESTCOVID, ONE. The 'Orders' menu is highlighted with a red circle, and the 'Add' button is also circled. A search for 'aPTT' is shown in the search bar, with 'aPTT' selected from the results. An arrow points from the search results to a separate window titled 'Ordering Physician'.

Ordering Physician

*Physician name
Tam, Benjamin Ho-Lai, FRCPC

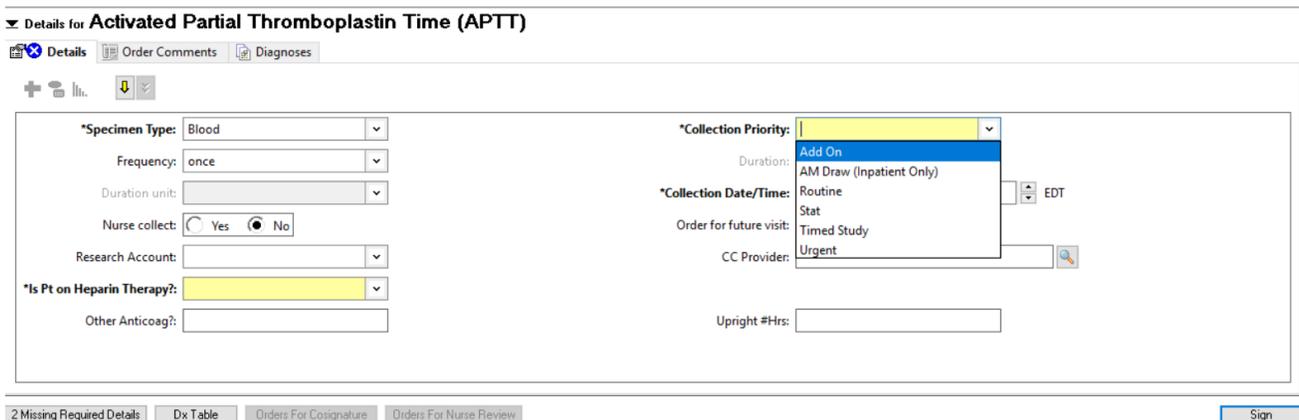
*Order Date/Time
02/Nov/2024 1245 EDT

*Communication type

- Phone with Read Back (Cosign)
- Verbal with Read Back (Cosign)
- Written**
- Clinical Intervention
- Initiate Plan
- Downtime Back Entry
- Medical Directive
- IPAC Isolation Order

OK Cancel

Once the order is selected, the fields below must be completed based on required draw time.



The screenshot shows the 'Details for Activated Partial Thromboplastin Time (APTT)' form. The form includes the following fields:

- *Specimen Type: Blood
- Frequency: once
- Duration unit: [dropdown]
- Nurse collect: Yes No
- Research Account: [dropdown]
- *Is Pt on Heparin Therapy?: [dropdown]
- Other Anticoag?: [text box]
- *Collection Priority: [dropdown]
- Duration: [text box]
- *Collection Date/Time: [dropdown]
- Order for future visit: [dropdown]
- CC Provider: [text box]
- Upright #Hrs: [text box]

At the bottom of the form, there are buttons for '2 Missing Required Details', 'Dx Table', 'Orders For Cosignature', 'Orders For Nurse Review', and a 'Sign' button.