

ICU – Order Continuous Renal Replacement Therapy (CRRT) (for Medical Officers)



This Quick Reference Guide will explain how to:

Document Continuous Renal Replacement Therapy (CRRT) for ICU Medical Officers, specifically:

- Order CRRT
- Modify an existing CRRT Flow Settings Order (if required during the course of CRRT)
- Discontinue CRRT order set (if CRRT is ceased or no longer required)

A. Order CRRT

1. Click on **Medical Officer View** from the Table of Contents on the left side.

Medical Officer View

2. Click on **ICU Quick Orders** mPage.

ICU Quick Orders

3. Click on either the ICU CRRT Citrate Order Set **OR** the ICU CRRT Hemosol Order Set, depending on which modality of CRRT you intend to order.



4. Click on the **shopping cart** icon.



5. Click **Modify Details** to open the order set.

Modify Details

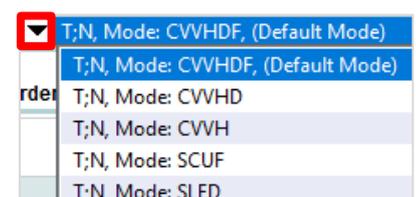


Handy Hint – Click on the Evidence Link icon to bring up the CRRT Guideline

Within the CRRT order set, you can click on the evidence link icon which brings you to a direct download of the ICU CRRT guideline via the PROMPT website.



6. **Review the orders within the order set.** Some are pre-ticked by default, others are not ticked. **Please ensure appropriate orders are selected.** Firstly, review the **CRRT Mode**. This is prepopulated as CVVHDF by default. To select other modes, click on the **dropdown arrow**.



7. **For Citrate CRRT**

- a. **CRRT Citrate Flow Settings** – These are standard settings as per ICU CRRT guideline. If you would like to change any of these settings as directed by the intensivist, **right-click on this order** and **click Modify**.



You can then alter the fields below accordingly.

Details for CRRT Citrate Flow Settings

Details | Order Comments | Offset Details | Diagnoses

Requested start date and time: **/**/**** AEST

Special instructions: Citrate Dose: 2.2 mmol/L Blood Flow

Target Blood Pump Speed (mL/min): 150 mL/min

PBP Flow Rate (mL/hr): *calculated by Prisma/Prismaflex*

Dialysate Flow Rate (mL/hr): *must equal PBP Flow Rate*

Replacement Flow Rate (mL/hr): 200 mL/hr

- b. **CRRT Treatment Fluids and CRRT Priming** – The ticked orders in this section will **not** form a part of the patient’s Fluid Balance or appear on the Medication Chart (MAR Summary).

CRRT Treatment Fluids		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> CRRT Pre-Pump Fluid	T;N, Treatment Fluid: Prismocitrate 18/0, 5,000 mL, CONTINUOUS
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> CRRT Pre-Pump Fluid	T;N, Treatment Fluid: Prismocitrate 18/0, 5,000 mL, with KCL 10 mmol (additive) CONTINUOUS Replace K+ as per WH guideline.
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> CRRT Pre-Pump Fluid	T;N, Treatment Fluid: Prismocitrate 18/0, 5,000 mL, with KCL 20 mmol (additive) CONTINUOUS Replace K+ as per WH guideline.
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> CRRT Dialysate Fluid	T;N, Treatment Fluid: PrismOcal B22, 5,000 mL, CONTINUOUS
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> CRRT Dialysate Fluid	T;N, Treatment Fluid: PrismOcal B22, 5,000 mL, with KCL 10 mmol (additive) CONTINUOUS Replace K+ as per WH guidelines. PrismOcal B22 already contains 20 mmol of KCL in 5L (i.e. 4 mmol/L Potassium).
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> CRRT Replacement Fluid	T;N, Treatment Fluid: Hemosol, 5,000 mL, CONTINUOUS
Priming		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> CRRT Priming Anticoagulant	T;N, Heparin 5,000 units (additive) in 0.9% sodium chloride, 1000 mL, PRN Heparin for Circuit Priming (unless contraindicated e.g. HITTS)
<input type="checkbox"/>	<input checked="" type="checkbox"/> CRRT Priming Fluid	T;N, 0.9% sodium chloride, 1000 mL, PRN Saline for Circuit Priming.

- c. **Medications** - The ticked orders in this section **will** form part of the Fluid Balance and Medication Chart.

MEDICATIONS		
CRRT Calcium Infusion		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> calcium chloride 10% infusion 5 g in Neat Diluent 50 mL CONTINUOUS (CRIT CARE)	50 mL, IV Infusion, Rate: TITRATE, Indication: ***FOR CRRT CITRATE ONLY***, Deliver via dedicated CVC lumen Commence and titrate dose as per WH guideline. Monitor patient’s ionised calcium levels as per WH guideline.
Vascath Port Lock		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> heparin	5000 units/5 mL, Intraluminal, Ampoule, See Instructions, PRN for other: see indication, Indication: heparin lock of Vascath Post-CRRT, administer heparin dose (volume) as labelled on Vascath lumen. Do not use if HITTS suspected or adverse dru..
Calcium Bolus		
If ionised calcium < 0.9 mmol/L, consider calcium gluconate bolus and refer to WH CRRT guideline.		
<input type="checkbox"/>	<input checked="" type="checkbox"/> calcium gluconate infusion 2.2 mmol in Sodium Chloride 0.9% 100 mL BAG BY BAG (CRIT CARE)	100 mL, IV Infusion, Rate: 200 mL/hr, 1 bag(s) Refer to WH procedure.

8. **For Hemosol CRRT**

- a. **CRRT Flow Settings – You must tick only one Flow Settings order**, depending on whether you wish to commence Heparin CRRT **OR** No Anticoagulation CRRT.

Mode & Flow Settings	
<input checked="" type="checkbox"/>	CRRT Mode T;N, Mode: CVVHDF, (Default Mode)
Select the appropriate order for flow settings and ensure the values are accurate. For any subsequent changes to flow settings, modify and update the same order as required.	
<input type="checkbox"/>	<input checked="" type="checkbox"/> CRRT Hemosol (Heparin) Flow Settings T;N, Heparin Dose: 300 units/hr, Target Blood Pump Speed: 200 mL/min, PBP Flow Rate: 0 mL/hr, Replacement Flow Rate: 1000 mL/hr, Dialysate Flow Rate: 1000 mL/hr
<input type="checkbox"/>	<input checked="" type="checkbox"/> CRRT Hemosol (No Anticoag) Flow Settings T;N, 0.9% Sodium Chloride in 50 mL Luer Lock Syringe: 0 mL/hr, Target Blood Pump Speed: 200 mL/min, PBP Flow Rate: 0 mL/hr, Replacement Flow Rate: 1000 mL/hr, Dialysate Flow Rate: 1000 mL/hr

- b. **CRRT Circuit Anticoagulation – You must tick either Heparin or No Anticoagulation** depending on whether you wish to commence Heparin CRRT **OR** no Anticoagulation CRRT.

CRRT Circuit Anticoagulation	
<input type="checkbox"/>	<input checked="" type="checkbox"/> CRRT Circuit Anticoagulation T;N, Heparin 7,500 units in 0.9% Sodium Chloride 50 mL (150 units/mL), CONTINUOUS... Titrate as required as per APTT, according to WH guideline. Standard commencement...
<input type="checkbox"/>	<input checked="" type="checkbox"/> CRRT Circuit Anticoagulation T;N, Heparin 5,000 units in 0.9% Sodium Chloride 5 mL, Ampoule, PRN, Indication: heparin BOLUS
CRRT Circuit NO Anticoagulation	
<input type="checkbox"/>	<input checked="" type="checkbox"/> CRRT No Anticoagulation T;N, 0.9% sodium chloride, 50 mL, Rate: 0 mL/hr For Heparin-free CRRT

- c. **CRRT Treatment Fluids and Priming** – Review the desired orders to ensure they are appropriate.

- d. **Pathology** (relevant for Heparin CRRT) – Ticking this APTT order will generate a single order for timed collection 4 hours after the time you place the CRRT Hemosol order set.

9. Once you are done reviewing the individual orders within the order set, click Orders For Signature.

10. Then click Sign and enter your credentials, then click OK.



Important – Documentation of both initial and subsequent Fluid Removal and/or Fluid Balance Aims should always be done in the latest ICU Progress Note.

This allows the nurses to quickly locate the latest fluid removal/balance aims in most recent medical notes. Everything else otherwise lives within the CRRT order set orders.



B. Modify an existing CRRT Flow Settings Order (if required during the course of CRRT)

1. Click on **Orders and Referrals** from the Table of Contents.

Orders and Referrals

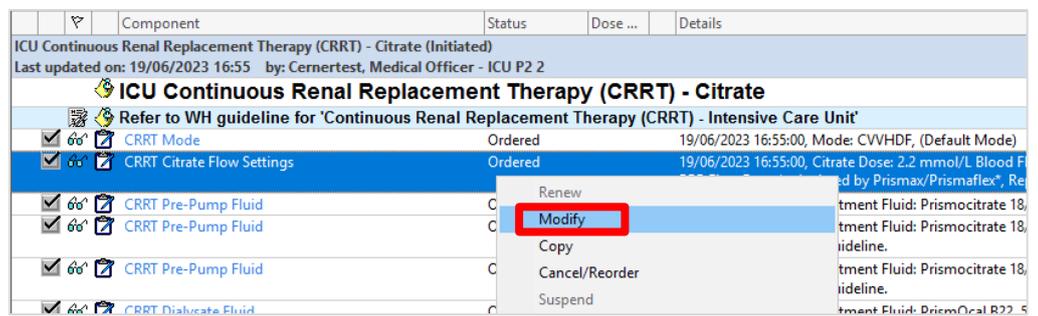
2. On the left hand pane under “View”, click on the active existing CRRT order set that has been ordered.



Note: This applies to both Citrate and Hemosol order sets – the example shown here is from the Citrate order set.

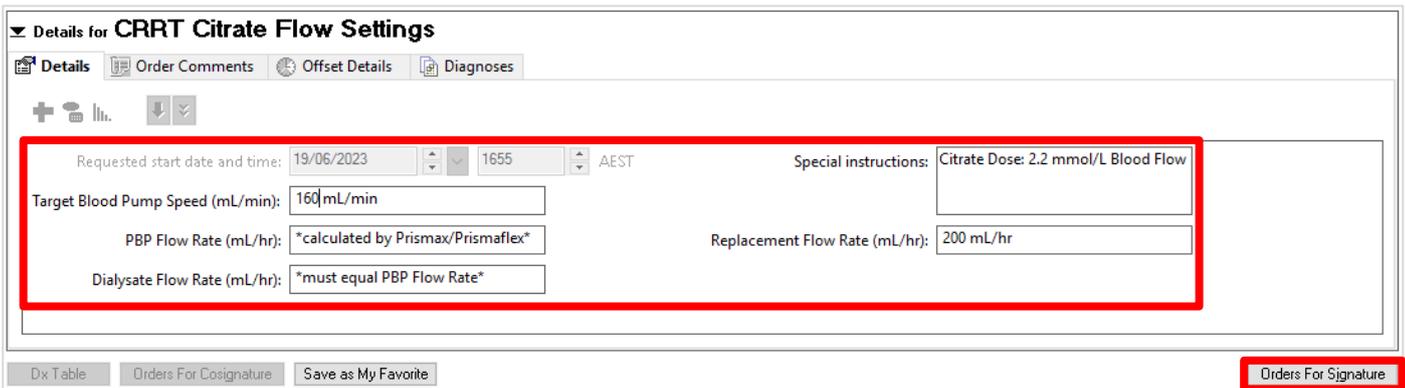
3. On the right-hand side, the individual CRRT orders will appear.

Right-click on the existing CRRT flow settings order and click **Modify**.



Note: **Do not** select the ‘Cancel/Re-order’ option because “Cancelling/Reordering” re-orders a new CRRT flow settings order which will live **outside** the CRRT order set and make it difficult for nurses to locate the new order.

4. Modify the relevant field(s) to desired settings and click on **Orders for Signature**.



5. Review the modified CRRT Flow Settings order once again and click **Sign** to finalise.

Sign

6. Enter your authorising credentials and click **OK** to continue.



Important – Please verbally communicate to the ICU nurse whenever you make any changes to the active flow settings order, so the changes are not missed.

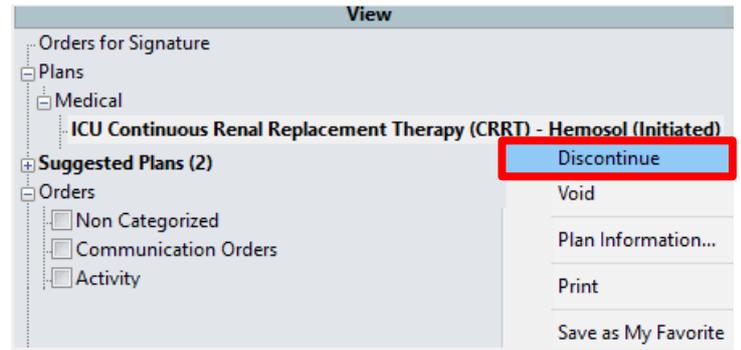
This is because modified orders do not appear visibly modified face-up and nurses do not get alerted on EMR.

C. Discontinue CRRT order set (if CRRT is ceased or no longer required)

- Go to **Orders and Referrals** from the Table of Contents then locate the existing order set under the View pane.



- Right-click** on the order set and select **Discontinue**.



- In this pop-up window, all orders are discontinued by default.

*Note: You can tick the checkbox next to an individual item you wish to **keep** or continue from the order set. Once you are done reviewing these items, click **OK** to continue.*

Keep	Component	Status	Order Details
<input type="checkbox"/>	CRRT Mode	Ordered	19/06/2023 18:10:00, Mode: CVVHDF, (Default Mode)
<input type="checkbox"/>	CRRT Hemosol (Heparin) Flow Settings	Ordered	19/06/2023 18:10:00, Heparin Dose: 300 units/hr, Target Blood Pump Speed: 200 mL/min, PBP Flow Rate: 0 mL/hr, Replacement Flow Rate: 1000 mL/hr, Dialysate Flow Rate: 1000 mL/hr
<input type="checkbox"/>	CRRT Pre-Pump Fluid	Ordered	19/06/2023 18:10:00, Treatment Fluid: 0.9% sodium chloride, 1,000 mL, CONTINUOUS Not required for PrisMax™. If using PBP consider changing bag to Hemosol 5L
<input type="checkbox"/>	CRRT Pre-Pump Fluid	Ordered	19/06/2023 18:10:00, Treatment Fluid: Hemosol, 5,000 mL, CONTINUOUS
<input type="checkbox"/>	CRRT Dialysate Fluid	Ordered	19/06/2023 18:10:00, Treatment Fluid: Hemosol, 5,000 mL, CONTINUOUS
<input type="checkbox"/>	CRRT Dialysate Fluid	Ordered	19/06/2023 18:10:00, Treatment Fluid: Hemosol, 5,000 mL, with KCL 10 mmol (additive), CONTINUOUS Replace K+ as per WH guidelines.
<input type="checkbox"/>	CRRT Dialysate Fluid	Ordered	19/06/2023 18:10:00, Treatment Fluid: Hemosol, 5,000 mL, with KCL 20 mmol (additive), CONTINUOUS Replace K+ as per WH guidelines.
<input type="checkbox"/>	CRRT Replacement Fluid	Ordered	19/06/2023 18:10:00, Treatment Fluid: Hemosol, 5,000 mL, CONTINUOUS
<input type="checkbox"/>	CRRT Replacement Fluid	Ordered	19/06/2023 18:10:00, Treatment Fluid: Hemosol, 5,000 mL, with KCL 10 mmol (additive), CONTINUOUS Replace K+ as per WH guidelines.
<input type="checkbox"/>	CRRT Replacement Fluid	Ordered	19/06/2023 18:10:00, Treatment Fluid: Hemosol, 5,000 mL, with KCL 20 mmol (additive), CONTINUOUS Replace K+ as per WH guidelines.
<input type="checkbox"/>	CRRT Circuit Anticoagulation	Ordered	19/06/2023 18:10:00, Heparin 7,500 units in 0.9% Sodium Chloride 50 mL (150 units/mL), CONTINUOUS, RATE: Titrate Titrate as required as per APTT, according to WH guideline. Standard commencement rate of 300 Units/hour (2 mL/hour).
<input type="checkbox"/>	CRRT Circuit Anticoagulation	Ordered	19/06/2023 18:10:00, Heparin 5,000 units in 0.9% Sodium Chloride 5 mL, Ampoule, PRN, Indication: heparin BOLUS
<input type="checkbox"/>	CRRT Priming Anticoagulant	Ordered	19/06/2023 18:10:00, Heparin 5,000 units (additive) in 0.9% sodium chloride 1,000 mL, PRN Heparin for Circuit Priming (unless contraindicated e.g. HITTS)
<input type="checkbox"/>	heparin	Ordered	5000 units/5 mL, Intraluminal, Ampoule, See Instructions, PRN for other: see indication, Indication: heparin lock of Vascath, First dose 19/06/2023 18:10:00 Post-CRRT, administer heparin dose (volume) as labelled on Vascath lumen. Do not use if HITTS suspected or adverse drug reaction documented.
<input type="checkbox"/>	Activated Partial Thromboplastin Time (APTT)	Ordered (Dispatched)	Timed Collection, 19/06/2023 22:10:00, Spec Type: Blood, Anticoagulant: Heparin, Clin Call Back: FH ICU 83456093



4. The orders you wish to discontinue will appear crossed out.

The blue cross circle symbol means there is a mandatory field that needs to be completed.

In this case it's the **Discontinue Reason**.

- a. To enter the Discontinue Reason for all orders at one go, first highlight all items by clicking the first order with your mouse, holding "Shift" key on your keyboard then clicking the last order on the screen.
- b. To select individual orders, hold the "Ctrl" key to select them one by one.

ICU Continuous Renal Replacement Therapy (CRRT) - Hemosol (Discontinued Pending)
Last updated on: 19/06/2023 18:11 by: Cernertest, Medical Officer - ICU P2 2

Refer to WH guideline 'Continuous Renal Replacement Therapy (CRRT) - Intensive Care Unit'

<input type="checkbox"/>			CRRT Mode	Discontinue	19/06/2023 18:30 AEST
<input type="checkbox"/>			CRRT Hemosol (Heparin) Flow Settings	Discontinue	19/06/2023 18:30 AEST
<input type="checkbox"/>			CRRT Pre-Pump Fluid	Discontinue	19/06/2023 18:30 AEST
<input type="checkbox"/>			CRRT Pre-Pump Fluid	Discontinue	19/06/2023 18:30 AEST
<input type="checkbox"/>			CRRT Dialysate Fluid	Discontinue	19/06/2023 18:30 AEST
<input type="checkbox"/>			CRRT Dialysate Fluid	Discontinue	19/06/2023 18:30 AEST
<input type="checkbox"/>			CRRT Dialysate Fluid	Discontinue	19/06/2023 18:30 AEST
<input type="checkbox"/>			CRRT Replacement Fluid	Discontinue	19/06/2023 18:30 AEST
<input type="checkbox"/>			CRRT Replacement Fluid	Discontinue	19/06/2023 18:30 AEST
<input type="checkbox"/>			CRRT Replacement Fluid	Discontinue	19/06/2023 18:30 AEST
<input type="checkbox"/>			CRRT Circuit Anticoagulation	Discontinue	19/06/2023 18:30 AEST
<input type="checkbox"/>			CRRT Circuit Anticoagulation	Discontinue	19/06/2023 18:30 AEST
<input type="checkbox"/>			CRRT Priming Anticoagulant	Discontinue	19/06/2023 18:30 AEST
<input type="checkbox"/>			heparin	Discontinue	19/06/2023 18:30 AEST

5. Select the appropriate **Discontinue Reason** and click **Orders for Signature**.

	<ul style="list-style-type: none"> No Longer Necessary Patient On Leave Patient Transferred / Discharged Reconciliation of Meds Transfer to different MAR/Chart Other 	
Discontinue Reason:	No Longer Necessary	
		Orders For Signature

6. Review the orders you are about to discontinue, click **Sign**.

Sign

7. Enter your credentials and click **OK**.

8. Click **Refresh** at the top right corner of the screen and the order set will now indicate it has been **discontinued**.

View

- Orders for Signature
 - Plans
 - Medical
 - ICU Continuous Renal Replacement Therapy (CRRT) - Hemosol **Discontinued**