



**Pharmacy Society  
of Wisconsin**

**PSW MEDICATION SAFETY COLLABORATIVE  
COMPLEX ORDER MANAGEMENT: TITRATIONS**

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# Successful Implementation of Complex Orders for TJC Standards Compliance



**MM .04.01.01**

Medication orders are clear



**MM.05.01.01**

Pharmacist review of medication orders



**MM.06.01.01**

Medications are safely administered



**PC.02.01.03**

Providers orders are followed



**RC.01.01.01**

Orders are Documented

**Clear and Accurate Orders**



# CHALLENGING MEDICATION ORDERS

## I.V. TITRATIONS



# MM.04.01.01 – MEDICATION ORDERS CLEAR AND ACCURATE

- EP2 “ ...written policy that defines the following:
  - For medication titration orders, required elements include:
    - Medication name / route
    - Initial rate of infusion (dose/unit of time)
    - Incremental units to which the rate or dose can be increased or decreased
    - How often the rate or dose can be changed
    - Maximum rate or dose of infusion
    - Objective clinical measures to be used to guide changes



# MM.04.01.01

## STRATEGIES FOR COMPLIANCE: ORDER SET REVIEW

Vasoactive	Sedatives, Analgesics, Paralytics
Diltiazem	Cisatracurium
Dopamine	Dexmedetomidine
Epinephrine	Fentanyl
Esmolol	Hydromorphone
Labetalol	Lorazepam
Nicardipine	Midazolam
Nitroglycerin	Morphine
Nitroprusside	Propofol
Norepinephrine	Vecuronium
Phenylephrine	



# EVALUATE DEFAULT SETTINGS

Don't forget the kinetics of these agents. For example,

- ▶ Norepinephrine pharmacokinetics
  - ▶ “very rapid acting”
  - ▶ Is an every 5 minutes titration interval too long?
  - ▶ Vasopressor activity duration : 1-2 minutes
  - ▶ Time to peak serum levels: 5 minutes
- ▶ Evaluate default settings:
  - ▶ titrate every 1 minute vs 5 minutes vs 20 minutes ?



# SAMPLE CPOE TITRATION ORDER

norepinephrine bitartrate 8 mg in 0.9 % sodium chloride 250 mL infusion ✓ Accept ✗ Cancel

Reference **1. Drug Monograph** 2. Pediatric Info 3. Patient Education

Links:

Dose:  mcg/min

Administer Dose:

Nurse to titrate?  Yes  No

Initial Dose:

Titration Increment:

Titration Interval:

Goal Systolic Blood Pressure:

Goal Mean Arterial Pressure:

Goal Cerebral Perfusion Pressure:

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Rate:  mL/hr  
0.5-30 mcg/min  
= 30-1,800 mcg/hr × 250 mL/8,000 mcg  
= 0.9-56.3 mL/hr (rounded to the nearest 0.1 mL/hr from 0.9375-56.25 mL/hr)

Route:

Frequency:



# DOSING PARAMETERS TOO RESTRICTIVE?

## MAR? ADMIN. INSTRUCTIONS?

### WHAT IS YOUR ORGANIZATION'S APPROACH?

norepinephrine (LEVOPHED) 8 mg/250 mL D5W (32 mcg/mL) IV (PREMIX) ✓ Accept ✗ Cancel

Report: No Creatinine Clearance results found.

Reference Links: • Titration Policy • Extravasation Protocol • Lexicomp

Dose: 0-30 mcg/min

Route: Intravenous

Frequency: Continuous

Starting: 6/24/2022 Today Tomorrow For: Doses Hours Days

At: 0910

First Dose: Today 0910 Last Dose: Until Discontinued

ⓘ There are no scheduled times based on the current order parameters.

Hemodynamic goal: SBP MAP CPP Other -->

Maintain hemodynamic goal GREATER than: SBP > 90 SBP > 100 MAP > 65 Other -->

Maintain hemodynamic goal LESS than: SBP < 180 SBP < 140 Other -->

Indications:

Indications (Free Text):

Admin Instructions: Insert SmartText 100%

Initial infusion rate: 8 mcg/min  
Titrate by 5 mcg/min every 2 min  
Maximum infusion rate: No Max but consider adding another agent if using 30 mcg/min or greater



# CONSULTATIVE

## CONSIDER THE USE OF RANGE ORDERS STARTING DOSE, INCREMENTAL AND /OR INTERVAL DOSING

norepinephrine (LEVOPHED) 8 mg/250 mL NS infusion ✓ Accept ✗ Cancel

Reference 1. Drug Monograph 2. Pediatric Info 3. Patient Education

Links:

Dose:

Administer Dose:  ▼

Nurse to titrate?

Initial Dose:

Titration Increment Upto:

Titration Interval Upto:

Goal Systolic Blood Pressure:

Goal Mean Arterial Pressure:

Goal Cerebral Perfusion Pressure:



# CONSULTATIVE

## ANOTHER APPROACH ON RANGE ORDERS

EPINEPHrine (ADRENALIN) 5,000 mcg in sodium chloride 0.9 % 250 mL infusion ✓ Accept ✗ Cancel

Order Instructions: [Look alike sound alike EPINEPHrine ePHEDrine](#)

Reference Links: [Drug Monograph](#) [Pediatric Info](#) [Patient Education](#)

Dose:  mcg/min

Concentration:      
 3-60 mL/hr 1.5-30 mL/hr

Rate:  ⓘ

Route:

Frequency:

Starting:    For:

At:  ⓘ

Nurse to titrate?

Goal Parameter:

⚠ Goal Mean Arterial Pressure:

Initial Dose:

Initial Titration Increment (Subsequent Adjustments to Titration Increment Allowed Up To This Value):

Minimum Titration Interval:

Admin Instructions: [Notify MD if HR > 120](#)

Note to Pharmacy: [Add Note to Pharmacy](#)

**Medications**

EPINEPHrine     
 Calc. dose:  ⓘ

QS Base (Selection Required)

sodium chloride 0.9 %

⚠ Next Required Link Order ✓ Accept ✗ Cancel

Vasoactive	Minimum titration interval (onset of effect)
Norepinephrine	1 min
Epinephrine	1 min
Dopamine	5 min
Phenylephrine	5 min
Vasopressin	15 min
Dobutamine	10 min
Milrinone	15 min
Nitroglycerin	5 min
Nitroprusside	5 min
Nicardipine	5 min
Labetalol	10 min
Diltiazem	30 min



# MANAGING INFUSION WHEN PAUSING TITRATED MEDICATIONS

- ▶ Pause ≠ Discontinuing the infusion



- ▶ An infusion should be discontinued from the MAR only in the following situations:
  - ▶ Order provided by a physician
  - ▶ Order provided by another authorized provider
  - ▶ Based on criteria defined in the organization's policy



# MANAGING INFUSIONS WHEN PAUSING TITRATED MEDICATIONS

- Acceptable to intermittently pause the infusion of a titrated medication if the patient no longer meets criteria for the infusion based on assessed physiologic parameters:
- If the infusion needs to be restarted based on assessed physiologic parameters
  - Physician order must be present specifying how to restart or
  - Organizational policy defining on how to restart:
    - Restart at last infusion rate?
    - Restarting at the rate listed in the order for the start?
    - Receiving a new order from the provider?



# DOCUMENTING TITRATED MEDICATIONS: URGENT / EMERGENT SITUATIONS

- **RC.02.01.01 EP2** – clarifying that **block charting** is an acceptable form of documentation in urgent situations
  - Note 1. *When rapid titration of a medication is necessary, the organization defines in policy the urgent / emergent situations in which block charting would be an acceptable form of documentation*
- **“Block Charting”** : Documentation method that can be used when rapid titration of medication is necessary in specific urgent/emergent situations defined in organizational policy
  - Single **block charting** episode does not extend beyond four hours
  - If continued beyond four hours, a new charting “block” period must be started



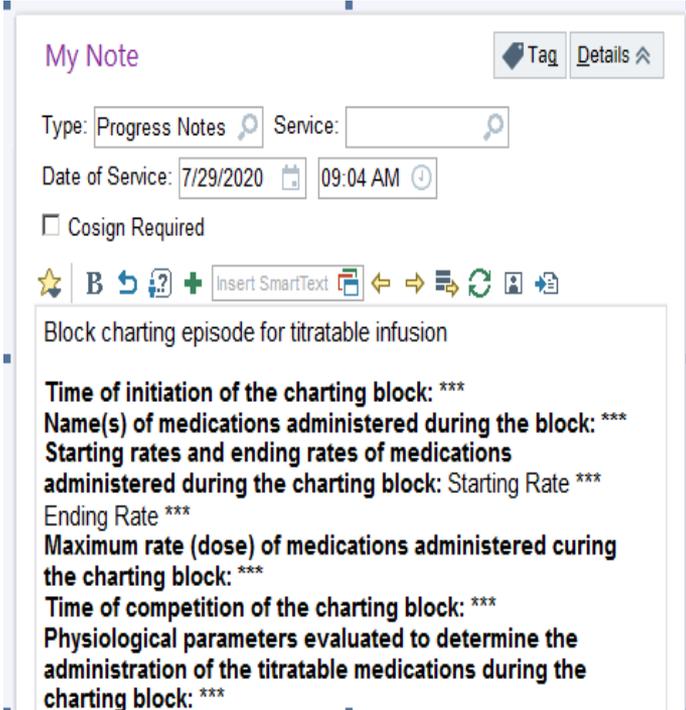
# MINIMUM ELEMENTS DOCUMENTED FOR EACH “BLOCK CHARTING” EPISODE

- Time of initiation of the charting block
- Name(s) of the medications administered during the block
- Starting rates and ending rates of medications administered during the charting block
- Maximum rate (dose) of medications administered during the charting block
- Time of completion of the charting block
- Physiological parameters evaluated to determine the administration of titratable medications during the charting block



# WHERE DO I DOCUMENT ELEMENTS OF BLOCK CHARTING?

- Organization defined
  - Medication Administration Record (MAR)?
  - Progress Notes?
  - Other Electronic Health Record (EHR) options



The screenshot shows a web-based form titled "My Note". At the top right, there are buttons for "Tag" and "Details". Below the title, there are input fields for "Type" (set to "Progress Notes"), "Service", "Date of Service" (set to "7/29/2020"), and "Time" (set to "09:04 AM"). A checkbox for "Cosign Required" is present and unchecked. A rich text editor toolbar is visible, containing icons for bold, italic, link, insert, undo, redo, and other text formatting options. The main text area contains the following text:

Block charting episode for titratable infusion

**Time of initiation of the charting block: \*\*\***  
**Name(s) of medications administered during the block: \*\*\***  
**Starting rates and ending rates of medications administered during the charting block: Starting Rate \*\*\***  
**Ending Rate \*\*\***  
**Maximum rate (dose) of medications administered during the charting block: \*\*\***  
**Time of completion of the charting block: \*\*\***  
**Physiological parameters evaluated to determine the administration of the titratable medications during the charting block: \*\*\***



# TITRATIONS IN CRITICAL CARE / PROCEDURAL SETTINGS:

- Critical care/procedural settings only
- Titrated vasoactive (including isotropes) meds, titrated pain infusion and titrated sedative agents
- The nurse may select between the ordered agents based on the patient's condition and unique physiologic response if all of the following criteria are met:
  - An order exists for the medication that is written in accordance with organizational policy **and** it is not prohibited by state law **and**
  - It is allowed by hospital policy **or** the medication order **and**
  - Competency, as defined by the organization, is complete and documented **and**
  - The nurse must stay within the defined parameters of the order.



# THANK YOU FOR PARTICIPATING TODAY



Email follow-up questions to: [djanczak@mhemail.org](mailto:djanczak@mhemail.org)

