



**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

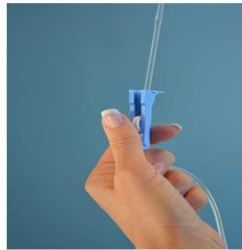
Orders are
Documented

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

AcceptCancel

Reference

1. Drug Monograph2. Pediatric Info3. Patient Education

Links:

Dose:

0.5-30mcg/min

0.5 mcg/min1 mcg/min2 mcg/min3 mcg/min0.5-30 mcg/min

Administer Dose:

0.5-30 mcg/min

Nurse to titrate?

YesNo

Comments

Initial Dose:

0.5 mcg/min1 mcg/min2 mcg/min3 mcg/min4 mcg/min8 mcg/min

See Comments

Titration Increment:

0.5 mcg/min1 mcg/min2 mcg/min

See Comments

Titration Interval:

2 minutes5 minutes10 minutes

See Comments

Goal Systolic Blood Pressure:

90-110 mmHggreater than 90 mmHg

See Comments

Goal Mean Arterial Pressure:

greater than 65 mmHg60-70 mmHg65-80 mmHg

See CommentsNA

Goal Cerebral Perfusion Pressure:

Greater than 70

See CommentsNA

Rate:

0.9-56.3mL/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:

Intravenous

Frequency:

CONTINUOUS

OnceContinuous



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

1 Dose: 0-30 mcg/min

Route: Intravenous

1 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.

1 Hemodynamic goal: SBP MAP CPP Other -->

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

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

Indications:

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? ☒ Yes ☐ No

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: 1-20 mcg/min 1-10 mcg/min **1-20 mcg/min** 1 mcg/min 2 mcg/min 4 mcg/min

Concentration: 20 mcg/mL **20 mcg/mL** 40 mcg/mL
3-60 mL/hr 1.5-30 mL/hr

Rate: 3-60 mL/hr ⓘ

Route: Intravenous **Intravenous**

Frequency: CONTINUOUS **Continuous**

Starting: 6/30/2022 ⓘ Today Tomorrow For: Hours Days

At: 1230 ⓘ

Nurse to titrate? **Yes** No

Goal Parameter: Systolic Blood Pressure **Mean Arterial Pressure** Cerebral Perfusion Pressure Cardiac Index

ⓘ Goal Mean Arterial Pressure: Greater than 65 mmHg See Comments

Initial Dose: **4 mcg/min** 8 mcg/min See Comments «Comments»

Initial Titration Increment (Subsequent Adjustments to Titration Increment Allowed Up To This Value): **1 mcg/min** See Comments

Minimum Titration Interval: **1 minute** See Comments

Admin Instructions: ⓘ Notify MD if HR > 120

Note to Pharmacy: ⓘ Add Note to Pharmacy

Medications

☒ EPINEPHrine 20 mcg/mL
Calc. dose: 5,000 mcg ⓘ

QS Base (Selection Required)

☒ sodium chloride 0.9 % 245 mL

ⓘ 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 \neq 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

My Note [Tag](#) [Details](#)

Type: Service:

Date of Service:

☐ Cosign Required

★ B [B](#) [I](#) [L](#) [+](#) [Insert SmartText](#) [↩](#) [→](#) [↺](#) [↻](#) [👤](#) [📎](#)

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

