Memorandum

MOUNT CARMEL

To: MCHS Medical Staff
MCHS Resident Physicians
MCHS Advanced Practice Providers

From: Richard Streck, MD, MBA
Executive VP & Chief Clinical Operations Officer
Mount Carmel Health System

Date: February 26, 2019
Subject: Please Read: Important Medication Safety Information

Mount Carmel continues to strengthen our medication administration program. In order to provide high-quality, safe care to every patient at Mount Carmel, we have embarked on an extensive review of our current policies and processes.

Included below are four documents for your review:

- **Pyxis Override Changes**
  - MCHS Emergency and Override Drug List
  - Effective 1 p.m. Monday, January 28, we changed nursing override procedures for Pyxis (automated pharmacy dispensing) machines. The changes limit the number and doses of specific medications available for emergency override by nurses. Medical staff leadership assisted in refining the emergency medication list. Linked above, please find the revised Pyxis emergency medication override list.

- **High-Risk CNS Medications**
  - High-Risk CNS Medications
  - Effective immediately, Mount Carmel inpatient pharmacists will be utilizing the attached guidelines when verifying and approving orders for high-risk CNS IV push medications and dosages. These guidelines have been reviewed and approved by Pharmacy and Therapeutics Committee leadership. The changes establish maximum limits for single and cumulative doses of specified high-risk CNS medications.

- **Information on Terminal Ventilator Withdrawal**
  - Terminal Ventilator Withdrawal Key Points
  - Palliative Ventilator Withdrawal Policy
  - The Key Points document highlights critical information for providers. The Palliative Ventilator Withdrawal policy provides guidance for the provision of comfort measures for a patient for whom continuing mechanical ventilation has been determined to be clinically inappropriate or unwanted by the patient. (The Palliative Ventilator Withdrawal policy will be updated to the Terminal Ventilator Withdrawal policy in the near future.) We are providing this information to help achieve consistency around treatment of patients being terminally weaned from a ventilator.

Please review these four documents. All of our providers are expected to be familiar with this information. Please feel free to contact us with any questions or concerns.

Thank you for your continued commitment to safe patient care.

Mount Carmel Emergency Situation & Override Drug List

EMERGENCY CATEGORY	EMERGENT SITUATIONS FOR INPATIENT PYXIS	DRUG	PATIENT POPULATION Med/Surg = 1, ICU = 2, Mother/Infant/ L&D = 3
Antidotes, rescue, and reversal agents	Anaphylaxis; respiratory emergencies; allergic reactions	DiphenhydrAMINE 50 mg/1 mL inj	1, 2, 3
Antidotes, rescue, and reversal agents	Magnesium sulfate toxicity	Calcium gluconate 1000 mg/10 mL inj	3
Antidotes, rescue, and reversal agents	Bupivacaine or ropivacaine toxicity	Fat Emulsion 20% infusion, 250mL	1, 2, 3
Antidotes, rescue, and reversal agents	Reversal of rocuronium only - if unable to intubate a patient following paralytic administration	4 x Sugammadex 500mg/5 mL inj	2
Antidotes, rescue, and reversal agents	Reversal of opiates	Naloxone 0.4mg/1 mL inj	1, 2, 3
Emergent supportive care	Acute psychotic disorder	OLANZapine 10 mg inj, powder vial	1, 2
Emergent supportive care	Severe agitation	**LORazepam Seizure/Agitation Kit** LORazepam 2 mg/1 ml inj x 2 vials	1, 2, 3
Emergent supportive care	Chest pain	Nitroglycerin 0.4 mg SL tabs (#25), Nitroglycerin 50 mg/250 mL infusion	1, 2
Emergent supportive care	Fluid bolus, Blood administration, patency of an IV, required concurrent compatible infusion	IV solutions (plain)	1, 2, 3
Emergent supportive care	Plasma volume expansion for open heart post-op patient	Albumin 5%, 12.5 Gm/250 mL infusion	2
Emergent supportive care	Emergent procedure	Morphine 5 mg/10 mL vial (PF)	Neonatal ICU only
Emergent supportive care	Emergent procedure	FentaNYL 250 mcg/5 mL inj x 1	2
Emergent supportive care	Seizures	**LORazepam Seizure/Agitation Kit** LORazepam 2 mg/ml inj x 2	1, 2, 3
		PHENobarbital 65 mg/1 mL inj x 1	Neonatal ICU only
Life Sustaining	Blood pressure control in medical emergencies (AMI, ACS, stroke, sepsis, intubation, etc)	DOPamine 400mg/250 mL infusion EPINEPHrine 1 mg/10 mL syringe NiCARdipine 20 mg/200 mL infusion Nitroglycerin 50 mg/250 mL infusion Norepinephrine 4 mg/250 mL infusion Phenylephrine 1000 mcg/10 ml syringe	1, 2, 3
Life Sustaining	Blood pressure control for emergent hypertensive pregnant patient	HydrALAZINE 20 mg/1 mL inj	3
		Labetalol 20 mg/4 mL syringe	3
Life Sustaining	Management of acute/emergent acidosis	Sodium bicarbonate 50 mEq/50 mL syringe	1, 2, 3
Life Sustaining	Emergent intubation	**RSI:Rapid Sequence Intubation Kit (ICU and MCNA)** 1 x Propofol 200 mg/20 mL inj 1 x Ketamine 200 mg/20 mL inj 2 x Succinylcholine 200 mg/10 mL inj 2 x Rocuronium 50 mg/5 mL inj 2 x Etomidate 20 mg/10 mL inj 3 x Midazolam 2 mg/2 mL inj	2 MCNA
		Intubation Kit (Med/Surg units and L&D) 1 x Etomidate 40 mg/20mL inj 2 x Midazolam 2mg/2mL inj	1,3

EMERGENCY CATEGORY	EMERGENT SITUATIONS FOR INPATIENT PYXIS	DRUG	PATIENT POPULATION Med/Surg = 1, ICU = 2, Mother/Infant/ L&D = 3
Life Sustaining	Symptomatic critical hypoglycemia	Dextrose 50% 25gm/50mL inj syringe	1, 2, 3
Life Sustaining	Lung surfactant (RDS)	Poractant Alfa (Curosurf®) 80mg/mL inj 1.5 mL and 3 mL vials	3
Life Sustaining	Post-partum hemorrhage; Severe Uterine Bleeding	**OB Emergency Hemorrhage Kit (L&D)** 1 x Carboprost 250 mcg/1 mL inj 1 x Methylergonovine 0.2 mg/1 mL, inj 5 x Misoprostol 200 mcg tabs, 3 x Oxytocin 10 units/1 mL inj	3
		Tranexamic Acid 1 Gm/10 ml inj	3
Life Sustaining	Preeclampsia	Magnesium Sulfate 2 Gm/50 ml IVPB Magnesium Sulfate 4 Gm/100 mL IVPB Magnesium sulfate 6 Gm/150 mL IVPB	3
Life Sustaining	Symptomatic Cardiac arrhythmias (i.e. bradycardia, PSVT, rapid ventricular response)	Adenosine 6 mg/2 mL inj Atropine 1 mg/1 mL vial DilTIAZem 25 mg/5 mL (bolus) Inj vial	1, 2, 3
Life Sustaining	Prevention of labor	Terbutaline 1 mg/1 mL inj	3

High Risk CNS IV Push Medications and Doses **(note: for Procedural/Moderate Sedation dosing – refer to Procedural/Moderate Sedation IV guidelines)**

Doses prescribed outside of the usual dosage range will be questioned and appropriate documentation will be entered into the EMR.

Doses prescribed above the Maximum Limit will be rejected by the pharmacist. The pharmacist will offer alternate suggestions to achieve the desired patient outcome.

If the pharmacist and physician agree that a higher single or cumulative dose above the maximum dose is warranted, the pharmacist will escalate to the Medical Director, VPMA, or CCO for approval and document accordingly.

If the prescriber wants a higher single or cumulative dose above the maximum but the pharmacist has a safety concern with the request, the concern may be escalated but the pharmacist will not approve the medication order if they continue to have a safety concern.

Drug	Monitoring When Given IV Push	Usual Adult IV Push Dose	Single Dose IV Push Max Limit & Cumulative Dose Max	Administration	Onset of Action	Peak Time	Duration of Action	Usual Concentration	Adverse Effect from Administering Too Rapidly	Comments
Analgesia										
Fentanyl	Vital signs (BP, HR, RR) & oxygen saturation	25-100 mcg	**Single Dose IV Push Hard Limit: 150 mcg** **Cumulative Dose Max: 250 mcg within 60 min (split into intermittent doses)**	Slowly over 1 to 2 minutes. Given under constant RN supervision	2-3 mins	5-10 mins	30-60 mins	50mcg/mL	Muscle rigidity may occur with rapid IV administration, hypotension, respiratory depression	Muscle rigidity may cause decrease in pulmonary compliance and/or apnea, laryngospasm & bronchoconstriction
Hydromorphone (Dilaudid)	Vital signs (BP, HR, RR) & oxygen saturation	0.5 – 2mg	**Single Dose IV Push Hard Limit: 2 mg** **Cumulative Dose Max: 8 mg within 60 min (split into intermittent doses)**	Slowly over 2-3 minutes not to exceed 1mg/min Given under constant RN supervision	5 mins	10-20 mins	3-4 hours	1mg/mL or 2mg/mL	Hypotension, respiratory depression	**Contraindications:** Acute or severe asthma, severe respiratory depression if no resuscitative equipment available, severe CNS depression, obstetrical analgesia, pregnancy (prolonged use or high doses at term); GI obstruction, including paralytic ileus (known or suspected)

Drug	Monitoring When Given IV Push	Usual Adult IV Push Dose	Single Dose IV Push Max Limit & Cumulative Dose Max	Administration	Onset of Action	Peak Time	Duration of Action	Usual Concentration	Adverse Effect from Administering Too Rapidly	Comments
Analgesia (continued)										
Morphine	Vital signs (BP, HR, RR) & oxygen saturation	1-10mg	**Single Dose IV Push Hard Limit: 15mg** **Cumulative Dose Max: 50mg within 60 min (split into intermittent doses)**	Slowly over 2 mins Given under constant RN supervision	5 mins	20min	3-5 hours	2mg/mL or 4mg/mL	Hypotension, respiratory depression	**Contraindications:** Acute or severe asthma, severe respiratory depression if no resuscitative equipment available, concurrent use of MAOIs or use within the last 14 days; GI obstruction, including paralytic ileus (known or suspected)
Sedatives / Anxiolytics										
Etomidate	Vital signs (BP, HR, RR)	**Rapid Sequence Intubation:** 0.15-0.3mg/kg (rounding to 20mg may be appropriate)	**Single Dose IV Push Hard Limit: 0.3mg/kg or 40mg**	Slowly over 30-60 seconds Under direct supervision of LIP	30-60 seconds	1 min	2-5 mins	2mg/mL		Use lower dosage range for elderly. Medication For RSI Only. Does not provide analgesia.
Diazepam (Valium) **when product is available*	Vital signs (BP, HR, RR)	**Anxiety/ Skeletal muscle spasms**: 2-10mg	**Single Dose IV Push Hard Limit: 10mg**	Max rate 5mg/min LIP must be present for doses over 10mg	1-5 mins	1 min	20-30 min	10mg/2mL		**Contraindications:** acute narrow angle glaucoma, untreated open angle glaucoma, myasthenia gravis, severe hepatic disease.

Drug	Monitoring When Given IV Push	Usual Adult IV Push Dose	Single Dose IV Push Max Limit & Cumulative Dose Max	Administration	Onset of Action	Peak Time	Duration of Action	Usual Concentration	Adverse Effect from Administering Too Rapidly	Comments
Sedatives / Anxiolytics (continued)										
Ketamine	Vital signs (BP, HR, RR)	**Emergent Intubation**: 2mg/kg, **Sedation/ Analgesia**: 0.1 – 0.5 mg/kg **Refractory Pain/Palliative Care:** 0.3mg/kg	**Single Dose IV Push Hard Limit: 2mg/kg or 300mg**	Slowly over 1 min Given under constant RN supervision	30-40 seconds	Less than 1 min	1-2 hours	10mg/mL	Respiratory depression and enhanced pressor response	**Contraindications:** conditions in which an increase in blood pressure would be hazardous Emergence adverse reactions may be reduced if verbal, tactile, and visual stimulation of the patient is minimized.
Lorazepam (Ativan)	Vital signs (BP, HR, RR)	0.02-0.06mg/kg (approx. 1-4mg)	**Single Dose IV Push Hard Limit: 4mg**	Max of 2mg/min or 0.05 mg/kg over 2-5 mins Given under constant RN supervision	2-10 mins	20-60 mins	6-8 hours	2mg/mL	Dilute with equal parts 0.9% Nacl or D5W, do not shake vigorously. Hypotension, respiratory depression	**Contraindications:** Acute narrow angle glaucoma, severe respiratory insufficiency, sleep apnea
Midazolam (Versed)	Vital signs (BP, HR, RR)	0.01-0.05 mg/kg (approx. 0.5-4mg) Max dose without physician present= 0.035 mg/kg	**Single Dose IV Push Hard Limit: 6mg**	Given over 2-5 mins Bolus dosing under direct supervision of LIP	3-5 mins	3-5 mins	Less than 2 hours (dose dependent)	1mg/mL	Respiratory depression, hypotension, cardiac/ respiratory arrest, arrhythmias	

Drug	Monitoring When Given IV Push	Usual Adult IV Push Dose	Single Dose IV Push Max Limit & Cumulative Dose Max	Administration	Onset of Action	Peak Time	Duration of Action	Usual Concentration	Adverse Effect from Administering Too Rapidly	Comments
Sedatives / Anxiolytics (continued)										
Propofol	Vital signs (BP, HR, RR)	0.5-1.5 mg/kg (RSI dosing may require up to 1.5 mg/kg)	**Single Dose IV Push Hard Limit: 2mg/kg or 300mg**	Give over 3 – 5mins Bolus dosing under direct supervision of physician	30 Secs	Less than 2 mins	3-10 mins	10mg/mL	Hypotension	Do not use in obstetrics. **Contraindicated:** Allergies to eggs/soy Baseline TGs or lipid profile must be repeated Q48hrs

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Reference for usual dosing: MCHS IV Guidelines

MOUNT CARMEL

Terminal Ventilator Withdrawal

The Terminal Ventilator Withdrawal policy (previously called the Palliative Ventilator policy) provides guidance for the provision of comfort measures for a patient for whom continuing mechanical ventilation has been determined to be clinically inappropriate or unwanted by the patient.

Key updates:

- The Terminal Ventilator Withdrawal (TVW) policy must be utilized.
- The practitioner must electronically enter their own Terminal Ventilator Withdrawal Power Plan orders.
- There will be no verbal orders for the Terminal Ventilator Withdrawal Power Plan.
- For medication dosing outside of the TVW Power Plan, the practitioner must obtain approval from a Medical Director or VPMA.
- For use of medications not included on the TVW Power Plan, the practitioner must obtain approval from a VPMA.
- The practitioner or RN cannot administer TVW medications until verified by Pharmacy.
- For a Terminal Ventilator Withdrawal, the nurse will document: time of ventilator withdrawal; medication given; medication stopped; and the practitioner involved.
- Recommended practitioner documentation includes: conversation prior to DNR-CC order with patient/appropriate surrogate decision maker; order for DNR-CC in Power Chart; and comprehensive death note.
- Terminal Ventilator Withdrawal will occur only in an intensive care unit or designated inpatient unit. TVW will not be done in the Emergency Department; patient is required to be transferred to a designated inpatient unit for TVW.
- Pyxis override is not to be used for non-emergent situations, including Terminal Ventilator Withdrawal. It is appropriate in unplanned emergency situations, such as intubation.
- Verbal and telephone orders are to be limited and restricted to emergent situations; clinical situations when it is impractical for orders to be entered into the EMR; and situations when practitioners do not have access to remote computer devices or the patient's chart
- Nurses and pharmacists are expected to voice a concern if they think any situation is unsafe, and to escalate their concern up the Chain of Command as necessary.
- Nurses and pharmacists are always responsible for practicing within their scope.

MOUNT CARMEL
POLICY/PROCEDURE

SUBJECT: PALLIATIVE VENTILATOR WITHDRAWAL

DEPARTMENT OVERSIGHT AND MAINTENANCE: Palliative Care Services

POLICY:
Palliative Ventilator Withdrawal (PVW) is the provision of comfort measures for a seriously ill patient for whom continuing mechanical ventilation has been determined to be clinically inappropriate or unwanted by patient.

RESPONSIBLE PERSONS:
Critical Care Units, Acute Palliative Care Units, Physicians, Advanced Practice Registered Nurse (APRN), Physician Assistant (PA), Palliative Medicine Consult Team, Pharmacy, Chaplaincy, Respiratory Services

PROCEDURE:
Initial Guided Discussion to Establish a Plan

1. Review the clinical picture.
2. Establish that goals/expectations of PVW are unified.
3. Review the plan with the attending physician or critical care physician, other involved physicians, nurses and therapists.
4. Consult with system Ethics Committee as needed.

Follow-Up Discussion to Implement the Plan

1. Clarify the DNR status and the rationale for not re-intubating.
2. Identify treatments to be continued and those treatments to be discontinued.
3. Determine the patient/family decision maker's understanding of what will happen after extubation.
4. Review the palliative management of symptoms likely to occur during PVW
5. Determine when the PVW will occur and if the patient will remain in the ICU or be transferred to the APCU.
    - Allow a minimum of one hour after PVW before transferring to APCU
    - Provide seamless hand-off of care through communication and collaboration between transferring and receiving units
6. Determine who will be present during the PVW.
7. Discontinue medications that require ventilator support, including but not limited to, paralytic agents, Versed, propofol
8. After discontinuation of above medications, confer with pharmacy regarding the length of time needed prior to extubation, to ensure discontinued medications are no longer active.

Immediately Prior to PVW

1. Facilitate private time for patient and family
2. Offer the presence of a spiritual/religious professional

Implementation of Symptom Management Medication Orders

1. Physician, APRN, and/or PA is required to utilize Palliative Ventilator Withdraw (PVW) PowerPlan

SUBJECT: PALLIATIVE VENTILATOR WITHDRAWAL

2. Physician, APRN, and/or PA must electronically enter Power-Plan orders. No PVW orders may be verbally entered by RN.

3. If there is a clinical indication for medication dosing outside of the Power-Plan, or a medication not in the Power-Plan, the physician, APRN and/or PA must obtain approval from the Critical Care Medical Director and document the medication dosing approved and by whom:
    - If Critical Care Medical Director unavailable, obtain approval from Palliative Physician if they are involved.
    - If palliative team is unavailable, or not involved, obtain approval from Vice President of Medical Affairs (VPMA).
    - If a clinical provider does not utilize the Palliative Ventilator Withdrawal Power Plan in patients who are being treated accordingly, nursing staff should first remind the provider of the requirements of the Palliative Ventilator Withdrawal Policy. If the provider continues to decline to use the Power Plan, the campus specific VPMA should be contacted immediately and notified of the situation
4. Physician, APRN, and/or PA or RN may not administer PVW Power-Plan medications until medications reviewed and verified by pharmacy.
5. Discontinue unnecessary monitors such as ventilator alarms, cardiac monitors, blood pressure monitors, and pulse oximetry.
6. Medications for symptom management will be ordered as medically indicated.

7. Ventilator will be discontinued and the endotracheal tube (ETT), if present, will be removed by the physician, APRN, and/or PA, respiratory therapist, or RN.

8. Patient's response to medications in managing dyspnea and anxiety will be reviewed.
9. Post Palliative Ventilator Withdrawal: When death occurs
    - Provide privacy and support for family.
    - Make referrals for bereavement support as appropriate.

Post Palliative Ventilator Withdrawal: If patient resumes respirations

1. Continue to monitor and provide comfort measures.
2. Identify appropriateness for transfer to APCU.

REFERENCE:

Chan, J.D. et.al. (2004). Narcotic and Benzodiazepine Use After Withdrawal of Life Support. Chest, 126(1), 286-293.

Huynh TN, Walling AM, Le TX, et al. Factors associated with palliative withdrawal of mechanical ventilation and time to death after withdrawal. Journal of Palliate Medicine 2013; 16:1368.

Robert R, Le Gouge A, Kentish-Barnes N, et al. Terminal weaning or immediate extubation for withdrawing mechanical ventilation in critically ill patients (the ARREVE observational

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study). Intensive Care Med 2017; 43:1793.

DEVELOPED BY: Palliative Care Services ORIGINAL ISSUE DATE: 3/04

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REPLACES: P/P “

MOUNT CARMEL
POLICY/PROCEDURE

SUBJECT: PALLIATIVE VENTILATOR WITHDRAWAL

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