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<u>ney words</u> :					

Administration, medication policy, orders, MAR, management of high alert medications, independent double check, standard medication administration time

<u>Developed</u>	Duete esignal Duesties 9	Owner:	Program Director,
<u>by</u> :	Professional Practice &	(Title)	Professional Practice,
(Title)	Pharmacy		Education and Risk

#### **POLICY:**

All medications with an order from an authorized prescriber will be administered to patients by a regulated healthcare provider in accordance with regulatory standards, legislation, and Mackenzie Health policies and procedures.

Established accountabilities when engaging in medication practices, such as administration, dispensing, storage, inventory management, and disposal will be maintained by each Regulated Healthcare Professional in accordance with their respective regulatory college practice standards.



#### **DEFINITION(S):**

**Automated Dispensing Unit (ADU):** Computerized medication storage cabinets that allow medications to be stored and dispensed near the point of care, while controlling and tracking drug distribution through integration with pharmacy systems and the hospital information system (HIS).

**Barcode Medication Administration (BCMA):** uses barcodes to prevent human errors in the distribution, prescription, and administration of medications. The goal is to make sure that patients are receiving the correct medication at the correct time by electronically validating and documenting medications.

**Designated Med Prep Area:** a defined space in a patient care unit where medications are prepared such as a workstation on wheels or a medication room. In some established workflows, med prep area may be designated at the patient's bedside.

**Independent Double Check (IDC):** IDC is a safety measure initiated by the ISMP to verify drug and dosage for high risk medications prior to administration, to detect errors and reduce risk of preventable adverse drug event.

**Institute for Safe Medication Practices (ISMP):** a non-profit organization whose goal is the education of the healthcare community and consumers about safe medication use and error preventions.

**Mixing/Preparation:** preparing the medication indicated on the eMAR from two or more components (i.e. saline solution + medication)

**Override-Pull:** a medication that is taken out of the automated dispensing unit (ADU) on override when there is no order in Epic or the order has not been verified by pharmacy.

**Override Warning:** a pop up message from the eMAR that indicates a potential safety concern related to medication administration (such as wrong patient, product not scanned, etc.)

**Prescriber:** an authorized physician, nurse practitioner, midwife, or dentist with medication ordering privileges

**PRN Medications (As needed medications):** A medication order with a schedule of PRN is administered as needed.

**Regulated Health Care Professional (RHCP):** Health professionals governed by regulatory College under the Regulated Health Professions Act



**Scheduled/Routine Medications**: A medication order with a schedule is administered at defined times and is given routinely. The medication order continues to appear on the MAR until the stop date is reached or the order is discontinued.

**Standard Medication Administration Times (SMAT):** These are specific routine medication administration times, that are used in patient care areas at Mackenzie Health.

**STAT Priority:** A medication ordered with a priority of "STAT" is automatically generated with a start date of "today" and the start time as "now".

**TALLman Lettering:** A system developed by ISMP of applying upper-case lettering to sections of Look-Alike/Sound-Alike drug names to emphasize the differentiation, with the purpose of minimizing preventable adverse drug events. Example: dimenhyDRINATE; diphenhydrAMINE

#### **PROCEDURE:**

# MEDICATION ORDERS & ELECTRONIC MEDICATION ADMINISTRATION RECORD (eMAR)

- Medication orders are entered by a prescriber using computerized order entry and appear in the patient's electronic medication administration record (eMAR).
- The RHCP reviews the eMAR prior to retrieving medication. The eMAR will be the source of truth for medications administered to patients.
- New medication orders are verified by a pharmacist or auto-verified prior to administration. The order will be verified retrospectively by a pharmacist if an overridepull is used to dispense medication. The verified order will be linked in the eMAR to the override-pull by the administering provider.
- Medication orders will not have a stop date unless otherwise specified by the prescriber.
   Exceptions are listed in <u>Appendix A.</u>

#### **DISPENSING, DELIVERY, TRANSFER & DISCHARGE**

- Medications should be retrieved immediately prior to administration and not left in unsecure locations (i.e. patient bedside, pocket, pneumatic tube or nursing station).
- Pharmacy will provide medications and dispense locations will be indicated in the eMAR as per <u>Appendix B</u>.

A scheduled medication exchange occurs every 24 hours, <u>Appendices C</u>, <u>D</u>, <u>E</u> outline the specifics of medication distribution for each site at Mackenzie Health.

PRN medications that are not stocked in an ADU will only be dispensed when requested from pharmacy as per the medication distribution requirements at each site.

Bulk medications will be dispensed at the start of an order and then only when requested from pharmacy if replenishment is required.

If medications are ordered for a newly admitted/transferred patient, the nurse must print a patient name label and update the identifier (label) on the patient's designated medication drawer/bin until the next medication exchange.

Patient medications will be transferred with the patient, if transferring to another unit.

At discharge, patient specific medications will be removed from the designated patient medication bin and placed in the locked medication return bin. Remove any patient identifiers from the patient specific medication drawer/bin.

#### **MEDICATION ADMINISTRATION TIMES**

A scheduled administration time will be created in the eMAR for each medication order entered by a prescriber.

Medications will be administered within one hour, before or after, the scheduled administration time. Medication administration attempted outside of this window will require documentation of a rationale for administration outside of the scheduled administration time. This may be achieved by rescheduling of a single dose on the eMAR.

If a scheduled or PRN medication is not available, send MAR message to Pharmacy.

#### **STAT Medications:**

STAT medications will be administered as soon as possible and within 30 minutes of the order. The RHCP will retrieve the medication from the unit's ADU, if available.

- If the STAT medication is not available in the ADU, it will be dispensed by pharmacy within 15 minutes.
- If pharmacy is closed, retrieve the medication in accordance with the after-hours
  procedure. In most areas this means retrieving the medication from the nearest ADU
  using a hospital wide summary or the partner hospital shared stock list at the
  Reactivation Care Centre. If the medication is not available in any ADU, contact the
  overnight pharmacist for direction.

#### **Standard Medication Administration Time (SMAT)**

The SMAT (<u>Appendix F</u>) will be followed for all medications ordered unless special administration times are specified by the prescriber order or pharmacist. SMAT times are automatically programmed and reflected in the eMAR with each new medication order.



#### **Special Administration Times:**

Certain medications may require special administration times due to one-time medication orders, pharmacologic or clinical properties. Whenever possible, special administration times will be built into the ordering module for these medication types and reflected in the eMAR.

#### **First Dose Timing**

Unless order is for special administration time, the eMAR will schedule the first dose of a medication to be given "immediately" or at the next SMAT time based on the dosing interval.

- If the next SMAT dosing interval is **more than** half the dosing interval away from the order time, the first dose of medication will be scheduled as "immediately".
- If the next SMAT dosing interval is less than half the dosing interval away from the order time, the first dose of medication will be scheduled at the next SMAT.

#### INDEPENDENT DOUBLE CHECKS (IDC) & HIGH-ALERT MEDICATIONS

IDC is a safety measure to verify drug and dosage for high risk medications prior to administration, to reduce risk of preventable adverse drug event.

An independent double check (IDC) is required prior to administration of all pediatric and neonatal medications (Refer to <u>Appendix G</u>), and all high-alert medications as per the *Management of High Alert Medications* policy (refer to Appendix A of that policy).

#### **Procedure for Independent Double Check**

Before preparing the medication the first RHCP will arrange for a second RHCP to perform the independent double check (IDC).

The second RHCP should review each component of the work process *separately* and without input or influence from the first RHCP. The second RHCP must perform the IDC without any advance knowledge of what findings to expect. The lack of collaboration is intended to eliminate bias created if the two practitioners jointly arrived at an answer.

- 1. Each RHCP will review and verify the medication order and supplies (including, and not limited to right medication, dose/strength, volume, route, and base solution).
- 2. When dosage calculation is required, each RHCP will complete the calculation *independently* (alone and apart) and compare the results for accuracy. Once the dose is confirmed, medication preparation may begin.
- 3. Medication preparation will be completed by the first RHCP in the designated Med Prep area with observation by the second RHCP.
- 4. IDC will be documented on the eMAR by both RHCPs at the designated med prep area.



5. For high-alert intravenous medications, the second RHCP will also verify administration by checking any infusion pump rate/settings upon initiation of a new medication and with each bag change.

Clinical Learners may <u>NOT</u> perform the IDC. Refer to the *Student Placements- Regulated Health Professionals* policy to inform medication administration practices for students.

#### **MEDICATION PREPARATION, ADMINISTRATION, & DOCUMENTATION**

- Medications will be prepared and administered ONE patient at a time.
- Medications should be retrieved immediately prior to administration.
- Medications should not be left in unsecure locations (i.e. patient bedside, pocket, pneumatic tube or nursing station).
- Medications that require mixing/preparation will be prepared in a designated Med-Prep area, relatively free from distractions, immediately prior to administration.
- Multi-dose medications should only be used for one patient at a time.
- Medications will be maintained in their bar-coded package until administration, unless mixing/preparation is required. When available, a printable barcode will be attached to prepared containers (i.e. IV minibag).
- Oral medications that require crushing or thickening due to diet texture requirements:
  - Oral medication will be crushed in the bar-coded package and mixed into applesauce at the patient's bedside.
  - Oral liquid medications should be thickened to the desired texture using oral thickener agent at the patient's bedside.

#### **Barcode Medication Administration (BCMA)**

- BCMA process will be used for administration of all non-emergent, non-intraoperative medications. Refer to Appendix H for BCMA workflows.
- BCMA facilitates documentation in the eMAR.
- Documentation will be in accordance with practice standards (timely, accurate, and complete) as well as the Clinical Documentation policy.
- If a medication is not administered using BCMA, a rationale will be selected by the RHCP in the eMAR. Examples may include: patient refusal, or self-administration of medication by patient.
- Range dose orders and partial doses: the RHCP will document the dose administered in the "dose" field of the electronic medical record.
  - 1. Scan the patient's identification band & confirm patient identity
    - Refer to <u>Patient Identification</u> policy for patient identification and armband replacement processes
  - 2. Scan the barcode on each medication package to be administered to the patient



- Ensure you are scanning the right barcode. Barcodes on a stock box or other storage packaging will not work for the purpose of BCMA.
- 3. Review the medication administration details from the MAR instructions.
  - Administration warnings (i.e. override, missing scan) will be acknowledged by the RHCP
  - A rationale or reason for overriding a warning will be documented if the RHCP overrides
- 4. Administer the medication and click "Accept" to acknowledge and document administration in the electronic medical record

Refer to Elsevier Clinical Skills™ for procedural guidelines, including and not limited to the following.

- Feeding Tube: Medication Administration
- Medication Administration: Continuous and Intermittent Subcutaneous Infusion
- Medication Administration: Ear Drops
- Medication Administration: Eye
- Medication Administration: Injection Preparation from Ampules and Vials CE
- Medication Administration: Intermittent Infusion Methods
- Medication Administration: Intradermal Injection and Allergy Skin Testing
- Medication Administration: Intramuscular Injection
- Medication Administration: Intravenous Bolus
- Medication Administration: Metered-Dose Inhalers
- Medication Administration: Nasal Instillation
- Medication Administration: Nebulized
- Medication Administration: Oral CE
- Medication Administration: Rectal
- Medication Administration: Subcutaneous Injection
- Medication Administration: Topical
- Medication Administration: Vaginal Instillations

Search Elsevier Clinical Skills<sup>™</sup> for additional resources specific to the patient demographic (i.e. pediatric, emergency, oncology, wound anesthesia).

Refer to the <u>Use of Patient's Own Medications</u> and/or <u>Self-Administration of Medications and Complementary Alternative Therapeutics</u> policy for guidance related to medication administration and storage under these special circumstances.

Refer to the Parenteral Medication Information Pages (formerly "IV Pages") for administration instructions for specific medications. Refer to <u>Infusion Pumps for Parenteral Medication and Fluid Administration</u> and <u>Infusion Therapy- Peripheral Venous Access and Subcutaneous Devices</u> policy for guidance related to medications administered by infusion pump.



#### MEDICATION RETURN AND/OR WASTE

- Remainder or unused medication will be wasted or disposed of immediately. Unused medication should not be stored in an unsecure location.
- Any unused portion of medication should be disposed of or wasted into a pharmaceutical waste bin, at the time of medication preparation.
- Discontinued patient-specific medications should be removed from the designated patient medication bin in a timely manner and placed in the pharmacy return bin to avoid accidental administration of a discontinued dose.
- Controlled substances require medication waste to be documented in the ADU with a witness, prior to disposal.
- Medications that are still intact and no longer required should be placed in the locked medication return bin.
- If the intact medication is a narcotic or controlled substance that is no longer required, please return to the ADU as per the *Control, Management and Administration of Narcotic and Controlled Medications* policy.



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Southlake Regional Health Centre (2018). Medication administration and medication hand off – responsibilities of health care professionals. Clinical Policy.



### **APPENDICES**:

## **Appendix A: AUTOMATIC STOP DATES**

Drug	Duration of Therapy
Antibiotics (08:12.00), (not including antituberculosis agents, antiretroviral agents, antimalarial agents, antiprotozoals)	7 days
With the exception of:	
Azithromycin, any dose	5 days
Levofloxacin 750 mg	5 days
Sulfasalazine, any dose	Indefinite
Vancomycin, oral, any dose	14 days
Rifaximin, any dose	Indefinite
Antivirals (Neuraminidase inhibitors) (08:18.28)	
Oseltamivir, any dose	5 days
Antivirals (Nucleosides and nucleotides)	7 days
Urinary Anti-infectives (08:36.00)	7 days
Nitrofurantoin	5 days
Miscellaneous Anti-infectives (08:40.00)	7 days
Antibiotics (Eye, Ear, Nose and Throat Preparations) (52:04.04)	7 days
Anti-infectives (Skin and Mucous Membrane) (84:04.00)	7 days
Ketorolac	4 days
Saccharomyces boulardii	14 days

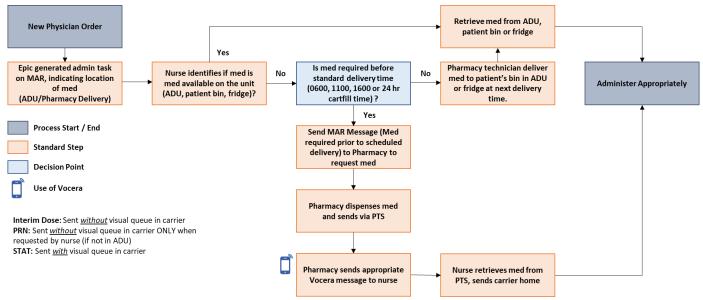
## **Appendix B: MEDICATION DISPENSING LOCATION**

The eMAR will indicate the location from which the medication is being dispensed.

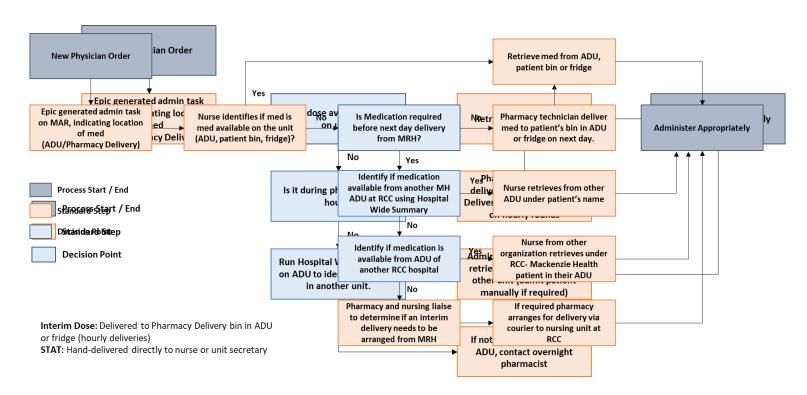
Dispense Location Displayed on MAR	Medication Storage Locations in Patient Care Areas (PCA) at MRH	Medication Storage Locations in Patient Care Areas (PCA) at CVH or RCC	
Pharmacy Delivery	<ul> <li>Pharmacy Drop off bin in ADU or refrigerator</li> <li>Patient-specific WOW drawer</li> </ul>	<ul> <li>Patient-Specific bin in ADU tower or refrigerator</li> <li>Pneumatic tube station (if requested by nurse at CVH only)</li> </ul>	
Name of PCA ADU	ADU pocket on PCA	ADU pocket on PCA	
Pharmacy to Load in ADU	New narcotic medication to be loaded in the ADU by pharmacy	New narcotic medication to be loaded in the ADU by pharmacy	



#### Appendix C: Medication Distribution Workflow at Cortellucci Vaughan Hospital



## Appendix D: Medication Distribution Workflow at Mackenzie Richmond Hill Hospital







## Appendix F: STANDARD MEDICATION ADMINISTRATION TIME (SMAT)

Ordered as:	Defined as:	Interpret as:
daily qam, q24h q24h SCH	Every morning	0900h
bid and q12h	Twice daily, every twelve hours	0900, 2100 h
bid and qhs	Twice daily and every night at bedtime	0900, 1800, 2200 h
tid	Three times daily	0900, 1400, 2100 h
td ac meals	Three times daily before meals	0730, 1130, 1630
tid ac and qhs	Three times daily before meals and every night at bedtime	0730, 1130, 1630, 2200
Tid and qhs		0900, 1300, 1800, 2200 h
qid	Four times daily	0900, 1300, 1800, 2200 h
ac, tid ac	30 mins before meals	0730,1130,1630 h
cc, tid cc	With meals	0800,1200, 1700 h
pc, tid pc	30 mins after meals	0900,1300,1800 h
bid ac	Twice daily before meals	0730, 1630 h
bid cc	Twice daily with meals	0800, 1700 h
bid pc	Twice daily after meals	0900, 1800 h
bidd	Twice daily for oral diuretics	0900,1800 h
q4h while	Every four hours while awake	0200, 0600, 1000, 1400, 1800, 2200h
awake		(omit 0200 dose if asleep)
q4h, q4h SCH	Every four hours	0200, 0600, 1000, 1400, 1800, 2200 h
q6h, q6h SCH	Every six hours	0600, 1200, 1800, 2400 h
q8h, q8h SCH	Every eight hours	0600, 1400, 2200 h
qpm	Every evening	2000 h
warfarin	1800h	1800 h
hs	At bedtime (one night only)	2200
qhs	Every night at bedtime	2200
qhs <u>prn</u>	Every night at bedtime if necessary	2200
tid on a qid schedule	Three times daily on a four times daily schedule	0600, 1200, 1800 h
Weekly	Every 7 days	Day of the week specified at 0900h or medication specific administration time
Monthly	Every 30 days(the computer system cannot accommodate any other option)	Every 30 days at 0900 or medication specific administration time



#### **CONTINUED FROM PREVIOUS, APPENDIX F**

#### **EXCEPTIONS TO SMAT:**

	Ordered as:	Defined as:	Interpret as:
Antimicrobials by	Once daily	Q24h	as per time of order
parenteral route	bid	Q12h	entry
	tid	Q8h	
	qid	Q6h	
Oral Hypoglycemics	daily qam	Every morning with meals	0800h
(depends on meal	bid, qam and qpm	Twice daily with breakfast	0800h and 1700h
delivery timing on the		and dinner	
unit)	tid	Three times a day with	0800h, 1200h and
		breakfast, lunch and dinner	1700h
Dalteparin or Heparin	daily or bid	see Venous Thromboprophylaxis Policy and	
for VTE prophylaxis		Guidelines	
Digoxin	Daily	Once daily at 1400h	1400h

#### **DIALYSIS SMAT**

Medication administration times will be adjusted for patients receiving hemodialysis (HD) or peritoneal dialysis (PD). Most medication administration times will be adjusted to a time prior to or post dialysis.

- The following medications should be administered during dialysis treatments:
  - Analgesics
  - Antiemetics
  - Antibiotics
  - Phosphate binding medications (only if patient is eating during dialysis)
  - Insulin (only if patient is eating during dialysis)

For hemodialysis patients, medications prescribed with a frequency of "daily" should be adjusted and administered at bedtime, unless it is ordered otherwise.

For peritoneal dialysis patients, medications prescribed once daily should be adjusted and administered in the morning.

Nitroglycerin patches will be removed during hemodialysis. The nephrologist will order a replacement patch for application following dialysis.

If a medication has a frequency of 3 times daily or greater (and it cannot be administered during dialysis) contact the nephrologist or pharmacist for clarification about rescheduling medication.



## Appendix G: INDEPENDENT DOUBLE CHECK EXEMPTION LIST FOR NEONATAL AND PEDIATRIC MEDICATIONS

An independent double check is required for ALL pediatric and neonatal medications which require dose calculations, with the exception of:

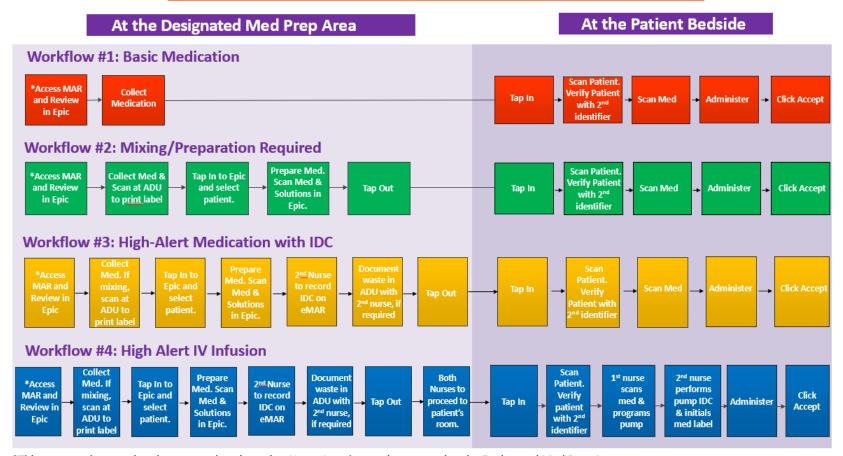
- Oral vitamins and supplements (inclusive of probiotics)
- Oral 24% sucrose
- Oral Nystatin®
- Topical Medications
- Eye/ear drops
- Metered Dose Inhalers
- Bronchodilators in Nebule form
- Suppositories
- Patient-specific unit-dose medications prepared by pharmacy



## **Appendix H: Barcode Medication Administration Workflow**



### **Barcode Medication Administration Workflows**



<sup>\*</sup>This step may be completed at any workstation using Nurse Anywhere, prior to entering the Designated Med Prep Area