COMMONWEALTH of VIRGINIA

Nelson Smith
Commissioner

DEPARTMENT OF
BEHAVIORAL HEALTH AND DEVELOPMENTAL SERVICES
Post Office Box 1797
Richmond, Virginia 23218-1797

Telephone (804) 786-3921
Fax (804) 371-6638
www.dbhds.virginia.gov

Office of Integrated Health – Health Supports Network

Medication Administration Health & Safety Alert

Introduction

One of the most common causes of death, and the leading cause of preventable injury and harm to individuals is unsafe medication practices and medication errors (34) (22) (1) (20).

Negative outcomes from the use of medications include allergic reactions, side effects, overmedication, and medication errors which are all considered adverse drug events (34) (4) (21).

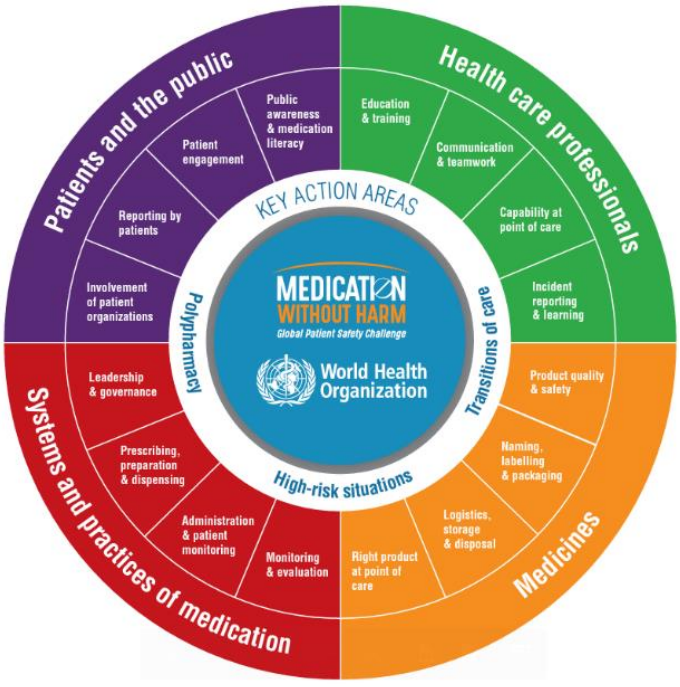
Human error is certain, that being said, all medication administration errors are deemed potentially avoidable. Improving the practice of prescribing, ordering, preparing, packaging, administering, and monitoring can reduce the level of harm which can occur due to adverse drug events (22) (21).

There is risk for mistake at each stage in the medication process, however the majority of errors occur during medication administration. Flawed medication policies, human factors such as fatigue, and stressful working environments impact the administration of medications resulting in serious harm, individual suffering, and death (22) (4) (2) (13).

The National Coordinating Council for Medication Error Reporting and Prevention (NCCMERP) defines a medication error as:

"Any preventable event that may cause or lead to inappropriate medication use or patient harm, while the medication is in the control of the healthcare professional, patient, or consumer" (4).

The World Health Organization began its third Global Patient Safety Challenge in 2017 which is based on medication safety. The aim of the initiative is to reduce patient harm due to unsafe medication practices and medication errors globally (3) (1).



Adverse Drug Events

Adverse drug events are when a person is harmed from medicine which can occur for any number of reasons (21).

Some common types of harm from medicines happen when a person is given a drug, they are allergic to, or a drug from the same drug class which could also cause an allergic reaction (17).

It is especially important to be aware of and to check an individual's allergies every time before giving any medications. An individual's allergy list should be kept up-to-date to reduce harm from allergic reactions. If an individual has a new allergic reaction to a new medication, that medicine should be stopped, that drug should be added to their allergy list, and their primary care physician (PCP) and/or the prescribing physician should be notified immediately (17).

An allergic reaction is different than medication side effects. An allergic reaction can range between mild to life-threatening. A severe allergic reaction involves anaphylaxis which is when an individual's air-way starts to close-up causing them to struggle to breath, they might break-out in an itchy rash and develop blisters on their skin (11).

Anaphylaxis is a medical emergency which requires an emergency response by calling 911 and preparing to start cardiopulmonary resuscitation (CPR) if necessary, until help arrives (11).

Medication side effects can cause mild to moderate discomfort for an individual but are not usually life-threatening. Some examples of medication side effects are stomachache, dry mouth, sleepiness, constipation, nausea, cramping, etc.… Side effects typically go away after the drug has been stopped and or the body adjusts to the medication. If an individual experiences drug side effects their PCP and/or the prescribing physician should be notified for next step instructions (33).

The National Patient Safety Agency (NPSA) found approximately 71% of deadly and or severe injuries have occurred from medications because of:

- Illegible handwriting on prescription.
- Confusing instructions on prescription
- The wrong dose being written.
- The wrong frequency being prescribed.
- The drug name being omitted from the prescription.
- The initial dose of medicine being delayed.
- The wrong quantity being prescribed.
- The drug being intended for another person.
- Poor labelling and or storage.
- Administering expired medications (6).

The above errors can lead to overmedication and medication administration errors. Checking the "Rights of Medication Administration" at least twice prior to giving medicines is a process created by nurses and put into place to reduce medication errors and increase individual's safety. The goal is to give the right drug to the right person, in the right dose, at the right time, in the right route.

When first established over 30 years ago, there were only 5 rights of medication administration. Consequently, over time there has been a need to add additional rights to help avoid errors. Additional "Rights" to considered are the right to refuse, for the right reason, and the right documentation (6).

When one of the rights is found to be wrong then the medication ***should not be given*** until verification is done to clarify exactly what the physician has prescribed for the individual (6).

Risk Factors

Research shows frequent med errors happen when staff are overconfident and careless by failing to double check medication information prior to administering medicines (2) (14).

Interruptions by other staff members, individuals, phone calls, etc., during medication administration have been shown to lead to medication errors involving the wrong person, the wrong drug, the wrong dose, the wrong time, the wrong route and or missing the dose prescribed completely (2) (14).

Longer working hours, double shifts, and lack of breaks due to staffing shortages can result in problems with concentration, fatigue, stress, and sleep deprivation which in-turn increases the risk of adverse drug events and errors (2).

Confusing communications between physicians, the pharmacist, and caregivers can lead to dispensing errors. The use of discontinued abbreviations on prescriptions, and confusing labeling instructions can also lead to increased errors (2) (14).

Look-alike and/or sound-alike medications, along with misinterpretation of drug dosages can lead to increased confusion when administering medications (2).

Agencies and healthcare facilities which do not promote and or value an open culture allowing staff to ask questions, discuss or address medication concerns have been shown to have higher medication errors (2) (13).

Impact on Individuals with Intellectual and Developmental Disabilities (DD)

The DD population typically have some of the most complex medication routines due in part to multiple secondary physical and mental health illnesses.

They may:

- Take numerous scheduled medications.
- Require special administration instructions.

- Require administration routes other than by mouth.
- Take medications more often than once daily.
- Have medication administration at odd times of the day and night (7) (8) (15).

Individuals with DD experience higher rates of hospitalizations due to adverse drug events than their peers in the general population due to the larger amounts of medications they are prescribed. It has been reported to be as high as 84% in some studies (8) (15) (19).

Adverse drug events have the highest chance of occurring for persons in the general population and especially for the individual with DD during periods of transitions of care between the hospital, a rehabilitation center, and home (2) (3).

Transition problems arise due in part to communication barriers such as the individual's ability to understand or comprehend information being given them. Or the healthcare professional misunderstands whom they are allowed to communicate personal health information (PHI) to about the individual in the community (2) (3).

Many individuals with DD are dependent on their family members and caregivers to ensure accurate and current medications are being administered along with following doctors' orders (7) (3).

When experiencing adverse drug events individuals with DD may struggle with communication due to cognitive issues, and or inability to communicate with words. They might not be able to describe how they are feeling such as "I'm dizzy," "I am feeling nauseous," or "my heart is racing." Many nonverbal individuals are completely dependent on their caregivers to not only recognize adverse drug events via observations, but to also report their observations to the prescriber of the medication (7).

Identified obstacles for caregivers when assisting with medication administration might include:

- Poor health histories and/or absent medical records about the individual.
- Lack of communication between the individual, family, caregivers, and healthcare professionals.
- Behaviors associated with administration of medication.
- Caregiver's lack of medication training and knowledge about adverse drug events, or medication side effects.
- Healthcare professionals' who are unfamiliar with overseeing or providing care to individuals with DD resulting in under or over prescribing/treating (7).

Issues individuals with DD might have with being assisted with medication administration:

- Taking five or more medications at one time and/or more than twelve doses of medication daily (polypharmacy).
- Noncompliance, medication refusal.

- Language and or communication difficulties.
- Physical coordination or mobility issues.
- Decreased sight and or deafness.
- Cognitive difficulties, mental confusion, or dementia (5).

Additional Issues Related to Adverse Drug Events and the DD Population

Issues with physicians, pharmacists, and the drugs being prescribed have been connected to increased adverse drug events involving individuals with DD (7) (2).

Issues with a physician might include:

- Difficulty obtaining a copy of the prescription that is complete, accurate, and has sufficient refill quantities.
- Lack of awareness of agency-specific medication management procedures and requirements.
- Not writing discontinue orders when stopping a medication.
- Writing vague instructions on 'as needed' (PRN) prescriptions when specific directions are required for by unlicensed persons to administer medicines.
- Not getting prior authorizations before prescribing high-risk medications.
- Not allowing for generic drug substitutions.
- Not familiar or educated about DD diagnosis, and/or not treating individuals respectfully.
- Not listening to caregivers input or concerns when discussing an individual's medication regime (7).

Issues with the pharmacy might include:

- Difficulty getting additional medications for an individual to take with them on a visit or vacation outside their home.
- Label changes when the physician's instructions for a particular medication have changed but the drug remains the same resulting in incorrect labeling.
- Being less than helpful with renewing or refilling prescriptions (7).

Issues with medications might include:

- Non-adherence due to scheduling conflicts.
- Bad tasting medications.
- Size of capsules or tablets which may make them difficult to swallow.
- Issues with identifying side effects or adverse drug reactions.
- Medication administration policies conflicting with an individual's human rights (7).

Reducing Risk of Harm

Provider agencies who strive to follow the Commonwealth of Virginia Code regarding medications can reduce an individual's risk of harm from adverse drug events. It is important to read the exact sections of the Virginia Code which reference medication management, they are as follows:

"Article 5

Medication Management Services

G. The provider shall implement written policies addressing:

7. The safe administration, handling, storage, and disposal of medications.

8. The use of medication orders.

9. The handling of packaged medications brought by individuals from home or other residences.

10. Employees or contractors who are authorized to administer medication and training required for administration of medication.

11. The use of professional samples; and

12. The window within which medications can be given in relation to the ordered or established time of administration.

H. Medications shall be administered only by persons who are authorized to do so by state law.

I. Medications shall be administered only to the individuals for whom the medications are prescribed and shall be administered as prescribed.

J. The provider shall maintain a daily log of all medicines received and refused by each individual. This log shall identify the employee or contractor who administered the medication, the name of the medication and dosage administered or refused, and the time the medication was administered or refused.

K. If the provider administers medications or supervises self-administration of medication in a service, a current medication order for all medications the individual receives shall be maintained on site.

L. *The provider shall promptly dispose of discontinued drugs, outdated drugs, and drug containers with worn, illegible, or missing labels according to the applicable regulations of the Virginia Board of Pharmacy"* (Virginia Code: 12VAC35-105-770).

Medication administration policies and procedures should attempt to align with the 32-hour Medication Management for Medication Aide Curriculum approved by the Virginia Board of Nursing, the Virginia Department of Social Services, and Chapter 34: the Drug Control Act and Virginia Code.

Having medication administration policies in place helps to ensure consistency and gives next-step instructions when a caregiver is unsure how to proceed (2).

"Medication:

A. The provider shall develop and implement written policies and procedures regarding the delivery and administration of prescription and nonprescription medications used by an individual. At a minimum, these policies will address:

1. Identification of the staff member responsible for routinely communicating to the prescribing physician:

a. The effectiveness of prescribed medications; and

b. Any adverse reactions, or any suspected side effects.

2. Storage of controlled substances.

3. Documentation of medication errors and rug reactions; and

4. *Documentation of any medications prescribed and administered following admission"* (Virginia Code: 12VAC35-46-850).

Medication Administration Record (MAR)

It is important to read the exact sections of the Virginia Code which reference medication management, they are as follows:

Chapter 105, Medication management, Section D., states providers are to maintain a daily log of all medications an individual receives and refuses (27).

"Administration of medication and related provisions:

H. At the time the medication is administered, the facility shall document on a medication administration record (MAR) all medications administered to individuals, including over-the-counter medications and dietary supplements.

The MAR shall include:

- *Name of individual*
- *Date medication was prescribed.*
- *Drug product name.*
- *Strength of the drug.*
- *Dosage.*
- *Diagnosis, condition, or specific reason for administering the drug or supplement.*
- *Route (e.g., by mouth, etc.).*
- *How often medication is to be taken.*
- *Date and time given with initials of direct care staff administering the medication.*
- *Date the medication is discontinued or changed.*
- *Any medication errors, omissions, or refusals.*
- *For "as needed" (PRN) medications.*
  - *Symptoms for which medication was given.*
  - *Exact dosage given.*
  - *Effectiveness*" (Virginia Code, 22VAC40-73-680).

A MAR can be in paper form or may be part of the electronic health record (EHR). Both types of MARs should contain the same information concerning each medication being administered. If a location experiences a power outage and cannot access the EHR they should be prepared to set-up a paper MAR to track medication administration during that period of time.

Each sheet of a paper MAR used to document medication administration requires staff responsible for medication administration to print their name, signature, and initials on it for legible identification purposes. Typically, a section is available on the back of a paper MAR for this information. Alternatively, a master list may be used and kept available to identify staff who are administering medications (30).

It is helpful for caregivers to be knowledgeable about the reason why a medicine is being given and should be listed on the MAR with each medication.

Examples:

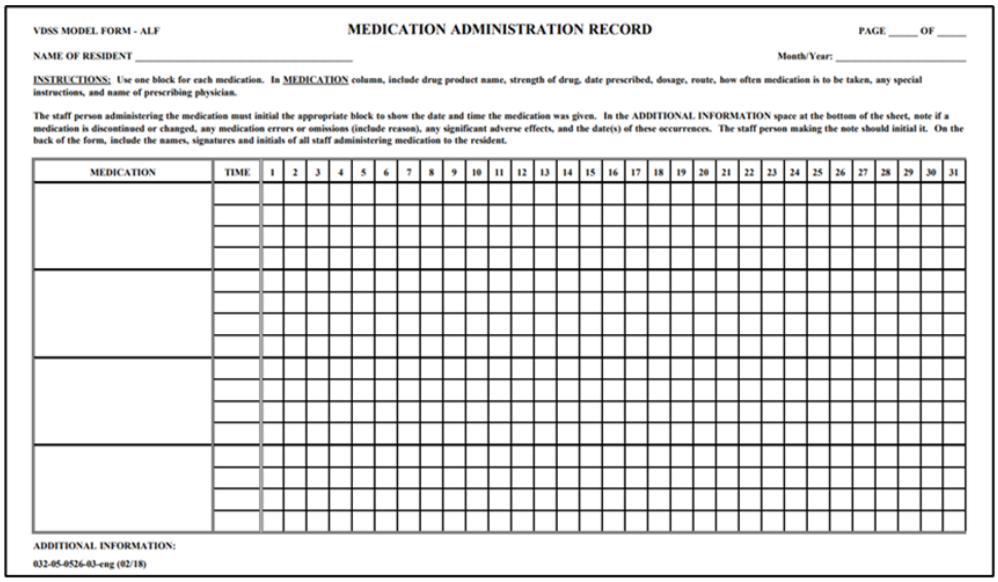
- Lisinopril 0.5mg tablet by mouth (PO) @ 7:30am for hypertension/high blood pressure.
- Gabapentin 300mg capsule by mouth (PO) @ 12:00pm for seizures.
- Lithium carbonate 5ml syrup via g-tube @ 5:00pm for bi-polar disorder.

The person administering medications can indicate if the medicine was taken or refused by the individual on the MAR. All medication refusals are required to be documented to include what action the person administering medications took in response to the refusal (31).

An individual's allergy information is typically listed at the top of the paper MAR and/or centrally located in their EHR for quick review prior to administering medicines.

Other ways to help reduce adverse drug events are to:

- Keep an updated list of medications with an individual at all times to include allergy information.
- Follow all medication instructions.
- Ask questions if there is any doubt about a medication.
- Stay current with lab requirements for medications administration.
- Administer medications as the physician has prescribed/ordered.
- Educate all persons who are responsible for medication administration on adverse drug events, and side effects (10) (21).



VDSS MODEL FORM - ALF

MEDICATION ADMINISTRATION RECORD

PAGE ____ OF ____

NAME OF RESIDENT _____ Month/Year: _____

INSTRUCTIONS: Use one block for each medication. In MEDICATION column, include drug product name, strength of drug, date prescribed, dosage, route, how often medication is to be taken, any special instructions, and name of prescribing physician.

The staff person administering the medication must initial the appropriate block to show the date and time the medication was given. In the ADDITIONAL INFORMATION space at the bottom of the sheet, note if a medication is discontinued or changed, any medication errors or omissions (include reason), any significant adverse effects, and the date(s) of these occurrences. The staff person making the note should initial it. On the back of the form, include the names, signatures and initials of all staff administering medication to the resident.

MEDICATION	TIME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31

ADDITIONAL INFORMATION:

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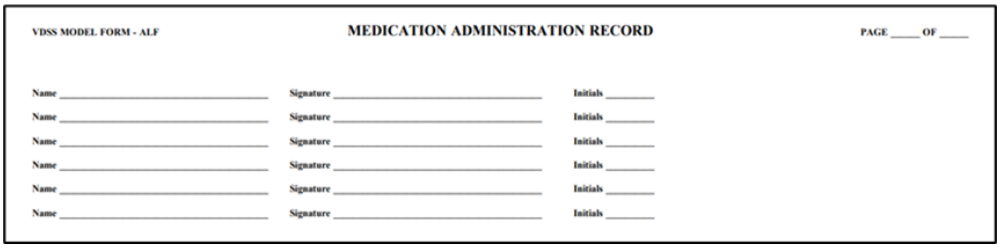

VDSS MODEL FORM - ALF

MEDICATION ADMINISTRATION RECORD

PAGE ____ OF ____

Name _____ Signature _____ Initials _____
Name _____ Signature _____ Initials _____
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Name _____ Signature _____ Initials _____
Name _____ Signature _____ Initials _____

Unlicensed Persons (UP) vs. Registered Medication Aide (RMA)

Chapter 105: Medication Management Services, Section B., states “Medications shall be administered only by persons who are authorized to do so by state law” (27).

The Virginia Board of Nursing (VBON) Regulations, Training Programs for Medication Administration by **Unlicensed Persons** and Immunization Protocol, 18 VAC 90-21-10 et seq., Statutory Authority: §§ 54.1-2400 and Chapter 30 of Title 54.1 of the Code of Virginia, Dated, February 21, 2019 reviews the training requirements for staff to administer medications in a Virginia Department of Behavioral Health and Developmental Services (DBHDS) licensed agency.

Unlicensed Persons (UP) are caregivers who administer medications in settings licensed by the Virginia Department of Behavioral Health and Developmental Services and the Commonwealth of Virginia (Virginia Code 54.1-2400, Chapter 30 of Title 54.1).

In order for a UP to administer medications they must:

1. Successfully complete an approved VBON 32-hours training course.
2. Pass a written and practical examination at the conclusion of the training course which measures minimum competency in medication administration.

In contrast, a Registered Medication Aide (RMA) administers medications that would otherwise be self-administered by residents residing in an assisted living facility licensed by the Department of Social Services (Virginia Code 54.1-2400, Chapter 30 of Title 54.1). In order for an RMA to administer medications they must:

1. Successfully complete and provide the VBON with documentation of a direct care course approved by the Department of Social Services for employment in an assisted living facility or an approved nurse aide education program.
2. Successfully complete an approved VBON 68-hours training program.
3. Successfully complete competency evaluations as well as a written examination with a passing score determined by the VBON.
4. Submit the required application with fee payment to the VBON.
5. Successfully complete the state Registered Medication Aide exam.

Approved Responsibilities for Registered Medication Aide (RMA) and Unlicensed Personnel (UP)		
Medication Administration	Registered Medication Aide (RMA)	Unlicensed Personnel (UP)
IM, IV, PICC medications	No	No
Subcutaneous injections	✓*	✓*
Inhalants	✓	✓
Nasal	✓	✓ (Narcan®)
Nebulizers	✓	✓
Ophthalmic	✓	✓
Oral (includes liquid, sublingual)	✓	✓
Optic	✓	✓
Rectal	✓	✓ (Diazepam)
Topical/transdermal	✓	✓
Vaginal	✓	✓
Via gastrostomy	No	✓**

** Registered Medication Aides and unlicensed personnel who administer medications can only administer subcutaneous insulin, glucagon, or auto-injectable epinephrine (Additional educational modules may be required).*

*** Additional training and skill competency demonstrations for gastrostomy tube medication administration is required by Virginia Code § 54.1-3408.L.*

"Standards of practice, (which apply to both an RMA and UP), *states:*

A. A medication aide shall:

1. *Document and report all medication errors and adverse reactions immediately to the licensed healthcare professional in the facility or to the client's prescriber.*
2. *Give all medications in accordance with the prescriber's orders and instructions for dosage and time administration and document such administration in the client's record.*
3. *Document and report any information giving reason to suspect the abuse, neglect, or exploitation of clients immediately to the licensed healthcare professional in the facility or to the facility administrator.*

B. A medication aide shall not:

1. *Transmit verbal orders to a pharmacy.*
2. *Make an assessment of a client or deviate from the medication regime ordered by the prescriber.*
3. *Mix, dilute, or reconstitute two or more drug products, with the exception of insulin, or glucagon.*
4. *Administer by intramuscular or intravenous routes or medications via a nasogastric or percutaneous endoscopic gastric tube.*
5. *Administer by subcutaneous route, except for insulin medications, glucagon, or auto-injectable epinephrine* " (Virginia Code: 18VAC90-60-110).

RMAs do not need to take the 32-hour medication administration training when employed by a DBHDS licensed agency provider because it is covered within the 68-hour curriculum. They are required to hold an active and unencumbered certification which is registered with the VBON and can be verified via the VBON 'License Look Up'. RMAs should provide a copy of their certificate to the provider agency. RMAs are required to abide by the Virginia Board of Nursing regulations.

When an RMA or UP is employed by a DBHDS licensed provider who would like to administer medications through a gastrostomy tube they both must take and pass the additional training, and successfully demonstrate skilled competencies which are checked by an RN every 6 months. Otherwise, an RMA is not approved under Virginia Code to access a gastrostomy tube in an assisted living facility.

Medication Handling

Best practice indicates a written policy which addresses the handling of medications, how to handle packaged medications brought from other locations, and professional samples reduces risk of adverse drug reactions and medication errors (25).

"Article 5: Medication Management Services.

A. The provider shall implement written polices addressing:

1. *The safe administration, handling, storage, and disposal of medications.*
2. *The use of medication orders.*
3. *The handling of packaged medications brought by individuals from home or other residences.*
4. *Employees or contractors who are authorized to administer medication and training required for administration of medication.*
5. *The use of professional samples; and*
6. *The window within which medications can be given in relation to the ordered or establish time of administration"* (Virginia Code: 12VAC35-105-770).

"Administration of medications and related provisions:

B. Medications shall be removed from the pharmacy container, or the container shall be opened, by a staff person licensed, registered, or acting as a medication aide on the provisional basis as specified in 22VAC40-73-670 and administered to the individual by the same staff person. Medications shall remain in the pharmacy issued container with the prescription label or direction label attached until administered to the individual.

C. Medications shall be administered not earlier than one hour before and not later than one hour after the standard dosing schedule, except those drugs that are ordered for specific times, such as before, after or with meals.

F. Sample medications shall remain in the original packaging, labeled by a physician or other prescriber or pharmacist with the individual's name, the name of the medication, the strength, dosage, and route and frequency of administration, until administered.

G. Over-the-counter medication shall remain in the original container, labeled with the individual's name, or in a pharmacy-issued container, until administered " (Virginia Code: 22VAC40-73-680).

Using the above Virginia State Code as an example of how to handle drugs which have been brought by an individual from home or other residences, suggests the medicine should be in it is original packaging and labeled by the pharmacist or prescribing physician with the individual's name, the name of the medication, the strength, dosage, and route and frequency of administration (30).

Medication Storage

Best practice indicates a written policy addressing medication storage, and storage of controlled substances, which both reduce risk of adverse drug reactions and medication errors (27).

"Medication:

B. The provider shall develop and implement written policies and procedures regarding the delivery and administration of prescription and nonprescription medications used by an individual. At a minimum, these policies will address:

5. Identification of the staff member responsible for routinely communicating to the prescribing physician:

a. The effectiveness of prescribed medications; and

b. Any adverse reactions, or any suspected side effects.

6. Storage of controlled substances.

7. Documentation of medication errors and rug reactions; and

8. *Documentation of any medications prescribed and administered following admission"* (Virginia Code: 12VAC35-46-850).

Medication administration and storage or pharmacy operation.

A. A provider responsible for medication administration and medication storage or pharmacy operations shall comply with:

1. The Drug Control Act (§ 54.1-3400 et seq. of the Code of Virginia).

2. The Virginia Board of Pharmacy regulations.

3. The Virginia Board of Nursing regulations; and

4. Applicable federal laws and regulations relating to controlled substances" (Virginia Code: 12VAC35-105-790).

Medicines should be kept in a dry, cool location. Damage can occur to medicines if they are exposed to excessive heat, air, light, and moisture. A temperature range of 59ºF to 86ºF and a humidity level below 60% is ideal for most medications to be stored. Medications should be kept in their original containers when being stored (12) (9) (33) (29).

If storage instructions are not offered on the information supplied with a medicine, then the pharmacist can answer specific storage instructions questions (9) (33).

The World Health Organization (WHO) recommends medication storage and administration areas be of sufficient size to have space to organize, keep medicines

separate, maintain cleanliness, and dispense medications. Storage containers should be well marked to reduce confusion. When special temperatures are required for certain medications then a temperature record log should be maintained (12).

Virginia Code, 22VAC40-61-300. Medication management, section E. states "The medication shall be kept in a locked compartment or area, not accessible to individuals. The locked compartment or area shall be free from direct sunlight and high temperatures and free from dampness and shall remain darkened when closed. The area in which the medication is prepared shall have sufficient light so labels can be read accurately, and the correct dosage can be clearly determined" (12) (33).

Storage of medications and or medical supplies on the floor should be avoided whenever possible, and if floor storage is required then a pallet in good repair can be used as elevation. Stock should be regularly monitored for expiration, damage, or spoilage then rotated out of use to avoid injury or harm. Any damaged or unusable medical supplies or equipment should be removed from the area then marked as such (12).

All controlled drugs are to be kept in a lockable cabinet, cart, device, or other area, to be stored in a fixed and secured room, cabinet or area remaining locked when not in use per Virginia Code 18VAC110-20-710 which describes requirements for storage and security of controlled substances.

Controlled substances should be kept under a double lock. Meaning the container holding the controlled medications is locked, then that container should be placed inside another locked container or cabinet. A lock on an office door, medication room door, or storage room door is not considered one of these two locks.

A controlled drug inventory sheet should be supplied by the pharmacy when dispensing controlled substances to a facility/agency. The controlled drug inventory sheet is required to be kept for each controlled substance on hand. It should have completed information or a printed label to include the individual's name, medication, dose, route of administration, time to be given along with the date, and a count of the amount or weight of the drug on hand (32).

The staff member taking over responsibility for medications and the staff member who is giving over responsibility for medications are required to do an accounting together of the total number of controlled drug on hand. It should be done whenever a new staff member takes over responsibility for medication administration (32).

Each staff member is required to be present at the time of the count and is to sign-off on the inventory sheet as to the accuracy of the count. If liquids-controlled substances are to be inventoried a small food scale for weight measurements can be beneficial for a more accurate accounting (32).

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CONTROLLED SUBSTANCES (CII) INVENTORY LOG

MISSION: _____
LOCATION: _____

DRUG/STRENGTH/FORM/PACKAGE SIZE	NDC Number

DATE	DISPENSING RPh	PATIENT NAME/DOB or Rx No.	INVOICE # (DEA 222)	QUANTITY RECEIVED	QUANTITY DISPENSED	BALANCE

The inventory sheet should be signed or initialed each time a dose of the controlled drug is administered. The dose should be subtracted from the total amount on hand and initialed as to keep an accurate accounting of the sum total of the controlled drug at all times (32).

Virginia Code, 22VAC40-61-300, Medication management, section E. states “5. Medication shall be refrigerated, if required. When medication is stored in a refrigerator used for food, the medications shall be stored together in a locked container in a clearly defined area. If a refrigerator is used for medication only, it is permissible to store dietary supplements and foods and liquids used for medication administration.’

The WHO recommends 37.4ºF to 41ºF for refrigerated medications, and -4ºF to 41ºF for medications which require freezing (12). A log of accurate temperature records is required under Virginia Code.

Medication Disposal

Best practice indicates a written policy which addresses medication storage, and storage of controlled substances reduces risk of adverse drug reactions and medication errors (27).

Provider agencies shall promptly dispose of discontinued drugs, outdated drugs, and drug containers with worn, illegible, or missing labels according to the applicable regulations of the Virginia Board of Pharmacy (FDA, 2021)."

A safe policy for disposal of unused, discontinued, or expired medicines should first follow any instructions received from a licensed prescriber (e.g., physician, nurse practitioner) in Virginia or a pharmacist. Follow the disposal instructions which might be included on the medication's informational insert is considered best practice (23).

If neither are available, the Food and Drug Administration (FDA) suggests the best and safest way of disposing most types of discontinued, unused, or expired, prescription and over-the-counter (OTC) medications, is to take them to a take back location, site, or program as soon as possible (23).

Prior to dropping off any unused prescription or OTC medications to be destroyed all labels containing personal and private information must be removed from pill bottles or medication package containers (23).

There are two take back options available. A permanent collection site and periodic events.

- **Permanent collection sites:**

  Authorized permanent collection sites can safely and securely gather and dispose of medications including controlled substances. These locations may be in retail stores, hospitals, pharmacy clinics and or law enforcement facilities. Each site offers an on-site medicine drop-off box, or a mail back program option, and or other in-home disposal methods.

  Each permanent collection site is registered with U.S. Drug Enforcement Administration (DEA). To find an authorized drug collection site near you or call the DEA Diversion Control Division Registration Call Center at 1-800-882-9539 for more information about these collection sites (23).

- **Periodic events:**

  Periodically the DEA and or a local law enforcement agency hosts a National Prescription Drug Take Back event. The Drug Take Back Days offers a temporary collection sites which is set-up in the community for safe and secure medication disposal of all prescription and OTC medicines including controlled substances (23).

  Search the U.S. Department of Justice - Drug Enforcement Administration - Drug

Diversion Control Division's year-round pharmaceutical disposal locations to find the next event in your area.

There are some select medications which might have specific instructions to flush down the toilet immediately, only if there are no drug take back options available. Check the complete list of medications on the FDA flush list before putting any medicine down the toilet (23).

Special instructions for flushing medications:

- **Never flush medicine down the toilet without checking the FDA flush list first**.
  - Medications on the flush list are those which are sought-after for abuse potential and those which could result in death from one dose if taken incorrectly such as Fentanyl patches.
  - Medications on the flush list are those which might cause serious consequences if accidentally or intentionally ingested, touched, misuse, or abused by a child, adult, or pet in the community (23).

The FDA and the U.S. Environmental Protection Agency take ecological concerns seriously. Studies have been conducted evaluating the effects of flushing medicines and to date there have not been any long-lasting ecological effects found. The FDA published a paper addressing these concerns which concluded finding minor risk to the eco-system when flushing recommended drugs.

If there are no take back options for medicines, and the drug is not on the FDA flush list, then medications can be disposed of in the household trash by following these instructions from the U.S. Food and Drug Administration. This includes prescription, and OTC drugs such as pills, liquids, drops, patches, and creams.

Follow these steps:

1. Remove the drugs from their original containers and mix them with something undesirable, such as used coffee grounds, dirt, or cat litter. This makes the medicine less appealing to children and pets and unrecognizable to someone who might intentionally go through the trash looking for drugs.
2. Put the mixture in something you can close (a re-sealable zipper storage bag, empty can, or other container) to prevent the drug from leaking or spilling out.
3. Throw the container in the garbage.
4. Scratch out all personal information on the empty medicine packaging to protect your identity and privacy. Throw the packaging away (23) (24).

Inhalers and aerosol products could be dangerous if punctured or thrown into a fire or incinerator. To properly dispose of these products and follow local regulations and laws, contact the local trash and recycling facility for safe waste disposal directions.

Resources

- Approved VBON Medication Administration Curriculum, Guidance Document: 90-62, Revised: November 14, 2017, Medication Administration Training Curriculum Approved by the Board of Nursing for Various Settings - https://www.townhall.virginia.gov/L/GetFile.cfm?File=C:%5CTownHall%5Cdocroot%5CGuidanceDocs%5C223%5CGDoc_DHP_5592_v9.pdf
- Approved VBON training programs, Contact to verify 32-hour training course is offered - https://www.dhp.virginia.gov/Boards/Nursing/EducationPrograms/ProspectiveStudents/MedicationAideTrainingPrograms/
- Commonwealth of Virginia Regulations for Training Programs for Medication Administration by Unlicensed Persons and Immunization Protocol, Virginia Board Of Nursing, Title of Regulations: 18 VAC 90-21-10 et seq., Statutory Authority: §§ 54.1-2400 and Chapter 30 of Title 54.1 of the Code of Virginia - https://www.dhp.virginia.gov/media/dhpweb/docs/nursing/leg/Med_Admin_Immunization022119.pdf
- VBON Regulations Governing The Registration Of Medication Aides - https://www.dhp.virginia.gov/media/dhpweb/docs/nursing/leg/MedicationAides020620.pdf
- Virginia Law, Chapter 34: The Control Drug Act - https://law.lis.virginia.gov/vacode/title54.1/chapter34/
- National Institutes of Health, National Library of Medicine (2019). Medline Plus database - https://medlineplus.gov/druginformation.html
- Drugs.com (2019). Find drugs and conditions database - https://www.drugs.com/
- U.S. Food & Drug Administration (2019). Drugs @ FDA database - http://www.fda.gov/drugsatfda

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29. Virginia Code, 22VAC40-61-300. Medication management.
30. Virginia Code, 22VAC40-73-680, Administration of medications and related provisions.
31. Virginia Code: 22VAC40-151-750, Section H.
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