COMMONWEALTH of VIRGINIA

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Office of Integrated Health

Polypharmacy Health & Safety Alert

Introduction

The simplest way to think of polypharmacy is “many medicines”. Polypharmacy has commonly been defined as the daily use of multiple medications at the same time for a single diagnosis, and or taking multiple medications for numerous conditions at the same time. Several professional organizations have similar but slightly different definitions for polypharmacy (3) (4) 13).

The Centers for Medicare and Medicaid Services (CMS) defines polypharmacy as routinely taking three to five, or more, medications daily, to include those prescribed by a physician, over-the-counter drugs, and supplements, such as vitamins and herbs, by an individual who is over the age of 18 years old (3) (4).

Medications are meant to slow the progress of disease, to extend life and address symptoms but are often overprescribed for both chronic physical and mental health conditions. The occurrence of polypharmacy increases as individuals age and their health declines (2) (3) (4). Research has shown at least 50% of all medications taken together causes some level of drug-to-drug interference with metabolism, which increases with age (3).

Polypharmacy can be broken down into two types, **appropriate and inappropriate** (4) (13). The greater the number of medications a person takes, the greater the chance of an adverse drug reaction.

A regular medication review has been shown to reduce polypharmacy and the possibilities of adverse side effects. A team approach is considered “best practice” to minimize adverse effects from polypharmacy. The team should include the prescribing physician, the pharmacist, the individual and their caregivers (4) (13).

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Contributing Factors to Polypharmacy

There are several contributing factors which can lead to polypharmacy. These include:

- Multiple physicians prescribing medications.
- Multiple pharmacies used to fill prescriptions.
- Access and availability of drugs on the internet and over the counter (OTC).
- Lack of communication between care team members who don't have access to the same electronic records.
- The use of automated refill systems.
- Poor updating of medication administration records (MARs), which occurs when a discontinued drug is not taken off the MAR (2) (3) (4).

Health Risks Related to Polypharmacy

Taking numerous types of medications and various supplements comes with increased health risks. These risks include:

- Toxic medication reactions.
- Drug-to-drug, drug-to-supplement, or drug-to-OTC interactions.
- Increased falls with injuries.
- Increased hospital admissions.
- Increasing frailty, and muscle weakness.
- Decline in mental functioning.
- Decline in ability to manage activities of daily living such as bathing, dressing and toileting.
- Reduced appetite.
- Urinary incontinence (3) (4) (14).

Highest Risk for Polypharmacy

- Older individuals, (over 65 years of age), metabolize medications differently than someone younger. Drugs are processed in the liver and as the body ages, liver functioning reduces. A person's physical age, rather than their chronological age, influences the risk of adverse drug reactions due to polypharmacy (13).
- Medications most commonly associated with adverse reactions from polypharmacy are anti-depressants, anti-psychotics, benzodiazepines, antihistamines, and nonsteroidal anti-inflammatory (NSAIDs), diuretics, Warfarin and opiates (13) (14).

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Appropriate Polypharmacy

Appropriate polypharmacy must include regular monitoring of an individual's conditions, their response to medications, (including documented observations of adverse drug reactions, and or desired effects), and regular medication reviews by a pharmacist (13).

Careful consideration of the individual, their physical conditions, their mental health conditions and their medications, is required to achieve appropriate polypharmacy. There are several professional tools which can assist an individual's physician to safely prescribe new medications or adjust existing ones (4) (13).

Appropriately prescribed medications can enhance outcomes for individuals with complex physical conditions, mental health conditions, or multiple chronic conditions (13). Hypertension, diabetes, heart failure, and cancer, are often treated with multiple medications to accomplish desired outcomes. Mental health conditions such as schizophrenia, bi-polar, and depression may also be treated with multiple psychotropic medications (3).

Inappropriate Polypharmacy

Inappropriate polypharmacy occurs when multiple medications are prescribed, but the intended result does not take place (13).

There are several medication dosing practices which can lead to inappropriate polypharmacy. These include:

- Using one drug, to treat the side effects of another drug, which creates a prescribing cascade.
  - An alternative might be to reevaluate the initial medication for effectiveness, dosage adjustments, or the consideration of another medication altogether.
- Using similar medications to treat the same symptoms.
  - An alternative might be to increase the dosage of one of the medications, then reevaluate for effectiveness.
- The continued use of medications when the physical or mental health symptoms have resolved.
  - Regular re-evaluation of symptoms in which medications are prescribed is considered best practice.
- The use of preventative medications beyond the recommended time limit.
  - Regular medication reviews can lower the risk of this occurring (3).

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Individuals with Intellectual and Developmental Disabilities (IDD) and Polypharmacy

Individuals with intellectual and developmental disabilities typically have more chronic conditions than those which exist in the general population, which places them at higher risk for polypharmacy (1) (10) (2) (9).

- Individuals with IDD are reported to be the most medicated group in society (11). Estimated rates of polypharmacy are reported to range between **20%** and **40%**, but may be as high as **60%** in those over 50 years of age (15) (1) (10) (9) (8).
- Individuals with IDD are typically prescribed medications at an earlier age and may take medications for a much longer period of time than the general population (10) (9).
- A diagnosis of a cognitive related disability impacts an individual's sensitivity to polypharmacy (10).
- Polypharmacy has been found to result in actual and or potential barriers to improving health, doing more harm than good in many cases, and increasing the chances for developing chronic health conditions such as type 2 diabetes in individuals with I/DD (1) (10) (9).
- A major problem with identifying polypharmacy among individuals with IDD relates to their difficulty in understanding abstract concepts (i.e. dizziness, light-headedness, nausea, etc.). Due to this, when asked how they are feeling (after the introduction of a new medication or combination of medications), they may fail to identify their symptoms accurately.
- Symptoms of polypharmacy may be expressed through a change in their behavior, especially among individuals who are non-verbal (10). Caregivers should closely monitor an individual's physical and behavioral responses for side effects of medications (10) (3).
- Community physicians may lack specialized information and training relating to those with cognitive disabilities, which may further increase risk of polypharmacy (1) (10) (9) (8).

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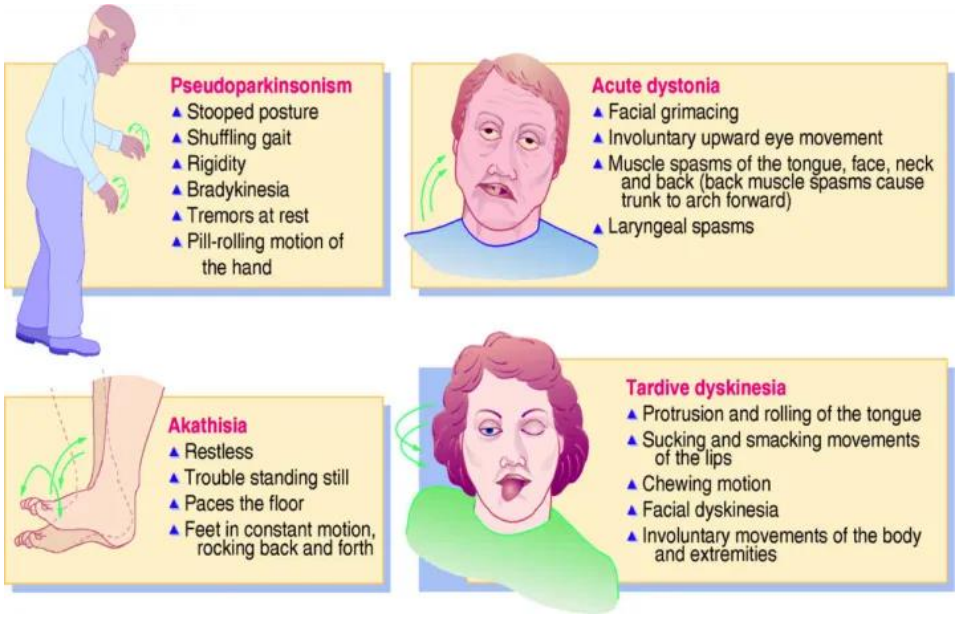
Psychotropic Polypharmacy in Individuals with Intellectual and Developmental Disabilities (IDD)

- Individuals with IDD are often treated with two or more psychotropic medications due to the high prevalence of mental health disorders and challenging behaviors, even without specific psychiatric diagnoses (15) (1) (10).
- Psychotropic polypharmacy can result in serious drug side effects and adverse drug reactions when numerous antiepileptic, antidepressants, mood stabilizers, anti-anxiety and anti-psychotic medications are taken together (1) (9) (8).
- Psychotropic polypharmacy has been directly connected to deaths of individuals with IDD. If a caregiver suspects an individual is experiencing an adverse drug reaction they should get the individual to the hospital emergency room immediately with a list of their current medications (15) (1).
- Individuals with IDD are at increased risk for developing potentially permanent movement disorders such as:
  - Tardive dyskinesia (uncontrollable movements).
  - Akathisia (the inability to stay still).
  - Pseudo-parkinsonism (tremors and slowed movements).
  - Acute dystonia (involuntary contractions of muscles) (1).
- **If caregivers suspect an individual is experiencing any of these reactions, they should take the individual to their prescribing physician immediately, or take the individual to the hospital emergency room (8).**



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Caregiver Considerations

- Caregivers should be educated about medication therapy changes and possible adverse drug side effects so they are aware of signs and symptoms which may require medical intervention (3).
- Caregivers might be required to monitor and document new behaviors or movements, an individual's temperature, blood pressure, pulse, respirations, oxygen levels, urinary output, bowel movements, sleep habits, physical motor skills and appetite, when an individual is starting a new medication. This information is extremely useful to prescribing physicians considering adjustments to medications (3).

Deprescribing

Deprescribing is different than discontinuing medications. "Deprescribing" is the purposeful person-centered act of identifying medications whose dangers outweigh their benefits and discontinuing them (2) (3) (4).

The goal is to:

- Detect medications which no longer provide any benefit to the individual.
- Detect medications prescribed for symptoms which no longer exist.
- Detect medications at high risk for drug-to-drug adverse interactions,
- Simplify treatment while maintaining the benefits (3) (4).

Some barriers to deprescribing relate to fear of withdrawal symptoms, a continued belief the drug is necessary (because it's been taken for a long period of time), or a fear of the original condition returning (3).

Education regarding the dangers of inappropriate polypharmacy, communication to address concerns relating to the tapering of drugs, and reassurance medications will be restarted, if needed, have all been shown to reduce inappropriate polypharmacy (6).

Physician barriers for deprescribing relate to time constraints during office visits, poor communication with individuals and caregivers relating to the dangers of inappropriate polypharmacy, and lack of individual, person-centered medication and treatment reviews. Poor communication about the deprescribing process can also lead to confusion and medication errors (2). Physicians should follow deprescribing guidelines, to increase safety throughout the process. Regular medication reviews and deprescribing (when appropriate) is best practice (2).

Medication Reviews

An individual's insurance will drive how often a "Medication Regimen Review," or MRR (also known as Drug Regimen Review, DRR) must occur.

The standardized MRR process requires the following three conditions:

1. Completion of a drug regimen review at the beginning of the care episode;
2. Physician contact and follow-up if medication issues are identified at start of care/resumption of care; and
3. Physician contact and follow-up each time significant medication issues are identified throughout the care episode. (5).

Medication Regimen Review is recommended prior to adding additional drugs to evaluate other possible therapies which could be used as an alternative to drugs, and or life style changes which could positively influence an individual's overall health and wellbeing (3) (4).

An accurate and up-to-date medication list is a very important part of medication reconciliation, and should accompany an individual to every physician's appointment, hospital, urgent care, and emergency room visit (2).

A clinical pharmacist, with a specialty in care of individuals with IDD, is a valuable part of the process when proposing a plan for streamlining treatment (10) (9) (3) (4).

Resources

The Centers for Disease Control and Prevention: Medication Safety Program - https://www.cdc.gov/medicationsafety/index.html

World Health Organization (2019). Medication safety in polypharmacy: Technical report - https://apps.who.int/iris/handle/10665/325454

Deprescribing.org - https://deprescribing.org/resources/helpful-links/

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