Polypharmacy: Combating Inappropriate and Excessive Drug Use

Polypharmacy refers to the use of multiple medications, often prescribed by different providers working independently, to manage coexisting health conditions. The term encompasses several questionable prescription practices, such as:

- prescribing more drugs than are clinically justified, according to evidence-based guidelines
- ordering inappropriate drug dosages and complex administration schedules
- tolerating redundant and duplicate medications, and neglecting to review drug regimens
- failing to monitor a drug’s effectiveness for purposes of adjustment or discontinuance

If left unchecked, polypharmacy may lead to adverse drug reactions (ADRs), drug interactions, resident falls and other preventable hazards. In fact, as many as 28 percent of elderly inpatient admissions involve ADRs, and for every $1 spent on medications in aging services settings, $1.33 is expended on treating their side effects.\(^1\)

For aging services organizations, polypharmacy is an immediate and serious threat to quality of care, as well as a major source of liability. With as many as 44 percent of men and 57 percent of women over the age of 65 taking five or more medications per week, drug-related incidents are not uncommon in residential care settings.\(^2\) Failure to prescribe safely, monitor for toxic build-up and perform proper utilization review are some of the numerous drug-related allegations levied against providers. Adverse occurrences are often due to systemic issues, and reducing this major exposure involves evaluating and, if necessary, redesigning the medication management process.

This edition of CareFully Speaking\(^\text{®}\) offers a range of recommendations designed to help aging services providers manage long-term medication use in frail, elderly residents. The following strategies – including enhanced educational efforts, assessment techniques, prescribing methods and quality assurance review – can help reduce monetary and reputational risk, while protecting residents from the potentially life-threatening consequences of polypharmacy.

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EDUCATIONAL INITIATIVES

Medical and nursing directors, geriatric nurse practitioners and pharmacists can help protect residents and minimize exposure by providing ongoing instruction to practitioners and caregivers about the risks of polypharmacy. Educational programs for staff members should include the following fundamental topics, among others:

**Appropriate drug usage and dosing.** Staff members at all levels must be vigilant about medication risks. To promote awareness, many organizations utilize the nationally recognized Beers Criteria, a clinical resource designed to limit elderly individuals’ exposure to potentially inappropriate medications. The tool can help practitioners create safer medication plans by minimizing the number of prescriptions, simplifying dosing schedules, promoting laboratory monitoring of blood levels and preventing unnecessary medication changes. It is available in various formats (including a pocket-card version) from the American Geriatrics Society at http://www.american geriatrics.org/health_care_professionals/clinical_practice/ clinical_guidelines_recommendations/2012.

**Effects of advanced age on drug metabolism.** Educational programs also should impart basic information about how aging increases sensitivity to the effects of medications by altering renal and hepatic blood flow, fat stores and water balance. The more drugs a resident takes, the lower the body’s efficiency in absorbing, distributing and clearing them. Other key topics include

- side effects of medications used to treat common geriatric conditions, as well as the protocol for notifying a physician or medical director if symptoms appear in residents
- nonpharmacological interventions, such as exercise, natural sleep aids and additional hydration to abate potential drug side effects
- potential secondary effects of polypharmacy, including lower appetite and weight loss
- drug-disease interactions, such as how anticholinergic drugs can worsen glaucoma, Alzheimer’s disease and benign prostatic hyperplasia
- drug-drug interactions, such as how a narcotic analgesic and an antidiarrheal agent, each with different indications, can cause constipation when used in combination
- the “prescribing cascade” phenomenon, in which an adverse reaction to one medication goes unrecognized or misinterpreted, resulting in the inappropriate prescribing of a second drug to treat signs and symptoms
- laboratory procedures to gauge how well drugs are metabolized, especially tests of liver function and creatinine levels

RISK ASSESSMENT

Symptoms of polypharmacy are frequently mistaken for worsening physical and psychological conditions. To protect against allegations of missed drug intoxication and failure to monitor, assess residents for both medication and dietary supplement usage as part of the intake process and regularly thereafter, including upon readmission from inpatient stays.

Comprehensive medication review and risk assessment should be conducted by an interdisciplinary team, comprising the medical director, director of nursing, Minimum Data Set (MDS) coordinator, nursing manager, pharmacist (when available), therapeutic director and social worker. The following strategies can help team members detect higher-risk prescribing practices and the potential for polypharmacy:

**Incorporate screening tools.** The federally mandated MDS and Resident Assessment Instrument offer a starting point for clarifying active diagnoses in relation to currently prescribed medications. They should be used in conjunction with the following polypharmacy screening instruments, in order to more effectively detect higher-risk residents:

- The Assess, Review, Minimize, Optimize, Reassess (ARMOR) tool supports interdisciplinary programs aimed at preventing excessive medication use. It is available at http://www.annals oflongtermcare.com/content/armor-a-tool-evaluate-polypharmacy-elderly-persons#sthash.WN8ssS2a.dpuf.
- The Screening Tool to Alert Doctors to the Right Treatment (START) and the Screening Tool of Older Persons’ Potentially Inappropriate Prescriptions (STOPP) focus on guiding practitioners toward safer medication choices. START is available at http://ageing.oxfordjournals.org/content/36/6/632.long, and STOPP is available at http://ageing.oxfordjournals.org/content/early/2008/10/01/ageing.afn197.full.pdf.
Review medication regimens monthly. Residents who screen positive for actual or potential polypharmacy, or who experience falls or sudden behavioral changes, require careful monitoring to eliminate unnecessary or duplicate drugs, and to detect any deterioration due to excessive or interacting medications. Team members should be trained to review prescription activity, focusing on the following commonly prescribed and potentially hazardous categories of medications:

- antibiotics
- antidepressants
- antipsychotics
- benzodiazepines
- cardiac drugs
- diuretics
- gastrointestinal drugs
- potassium replacements
- vasodilators

In addition, medication review should encompass all vitamins, minerals or herbal preparations taken by residents, as some dietary supplements can interact with prescribed drugs to serious effect.

The treatment team should review medication profiles on a monthly basis, in order to

- reevaluate primary health goals
- note changes in clinical status
- identify unnecessary or higher-risk medication use
- look for possible drug-drug, drug-disease or drug-diet interactions
- check adherence to medication therapy, noting any barriers to compliance
- determine whether the current medication plan requires modification
- educate residents and family members about medication usage, potential side effects and warning signs

By thoroughly documenting all stages of medication review, organizations can significantly reduce exposure to claims stemming from polypharmacy. (For further suggestions, see “Prescribing and Documentation Strategies to Minimize Risk” on page 4.)

WORK PROCESSES

Reducing the incidence and impact of polypharmacy requires an organization-wide commitment to implementing sound drug prescription and administration practices. The following initiatives can significantly enhance resident safety and well-being:

Establish prescription support teams (PSTs). These teams consist of physicians, nurse practitioners, pharmacists and other staff members who bring geriatric expertise to the medication selection and prescription process. PSTs can reduce the risks and costs associated with excessive drug use and complex medication administration regimens by reinforcing the following safe practices, among others:

- **Prescribe a single agent to treat a condition, rather than multiple drugs.**
- **Ensure that all dosages reflect individual factors, such as age, weight, degree of renal functioning and general health status.**
- **Start with low drug doses where clinically indicated,** and proceed slowly with incremental increases.
- **Select drugs that can be given once or twice a day,** rather than three times or more.
- **Identify and eliminate redundant medications prescribed** by different healthcare providers for the same condition.
- **Eliminate drugs with no therapeutic benefit or clinical indication,** and substitute safer drugs for higher-risk medications whenever possible.
- **Discontinue or reduce drugs suspected of causing a problem,** and track all such changes and consequent patient response in the resident care record.3

3 For additional recommendations on safe prescribing practices for the elderly, see Rochon, P., “Drug Prescribing for Older Adults,” posted on the UpToDate® medical Web site, August 2013, at http://www.uptodate.com/contents/drug-prescribing-for-older-adults
Prescribing and Documentation Strategies to Minimize Risk

To safeguard residents and limit potential liability, care providers must commit to solid clinical and documentation practices at all stages of the medication management process. The following recommendations address critical risk issues with respect to both prescribing drugs and maintaining resident care records:

PRIOR TO ORDERING MEDICATION …
- Use the active diagnoses and problem list from residents’ Minimum Data Set to identify medications that are no longer warranted, and cite a clinical diagnosis as the basis for ordering any new medications.
- Assess and document any impairments that may affect drug efficacy, e.g., cognitive/visual/auditory deficits, swallowing difficulties, poor renal function or low blood pressure.
- Review known side effects, interactions and contraindications of all prescribed medications, in order to anticipate and document potential adverse reactions.
- Seek specialty input from other physicians and pharmacists, where necessary, and document any advice given.

WHEN WRITING PRESCRIPTIONS …
- Systematically evaluate each prescribed medication, noting on record how the drug will likely benefit the resident and why this benefit outweighs associated risks.
- Start with the lowest practicable dose to achieve the desired therapeutic effect, and increase dosage slowly as necessary.
- Write a time-limited prescription whenever ordering drugs for symptomatic treatment.
- Refrain from adding medications to treat side effects of currently prescribed medications.
- Limit the number of permitted repeat prescriptions whenever possible.
- Document drug administration directions clearly – i.e., instead of using vague phrases such as “As directed” or “Give PRN,” be specific, e.g., “Give two tabs when required for pain.”

WHEN MONITORING DRUG EFFECTIVENESS …
- Work as a team (including physicians, pharmacists and staff) in reviewing medication lists and eliminating drugs that are no longer necessary or are causing unwanted effects.
- Define the criteria for therapeutic monitoring, including goals of treatment, signs of progress and likely clinical indications that the drug therapy is poorly tolerated.
- Document predetermined end points of drug therapy, and review patient status frequently to determine if specific drugs are still needed.
- Investigate persistent or abrupt changes in clinical status to ascertain whether they are caused by a drug’s adverse effects.

WHEN CONSIDERING WHETHER TO SIMPLIFY A DRUG REGIMEN …
- Prioritize the review of higher-risk residents, e.g., those who take nine or more medications.
- Utilize a respected documentation tool, such as the Medication Appropriateness Index.
- Identify potential drug-drug, drug-disease and drug-food interactions, and modify the resident’s medication regimen or diet accordingly.
- Reduce dosing schedules, to the extent possible.
- Cite medication safety profiles in clinical notation.
- Employ the Beers Criteria to avoid excessive doses, frequencies and durations of medications.
- Document the continued presence or absence of clinical necessity, especially regarding antipsychotics, hypnotics, laxatives and anticholinergic medications.

WHEN DECIDING WHETHER TO CONTINUE OR STOP A MEDICATION …
- Thoroughly assess the resident, documenting the effects of drug therapy to date and whether the condition/symptom for which the drug was ordered is resolved or under control.
- Quantify the severity of symptoms, using a 1-5 scale.
- Consider whether current drug therapy is likely to provide significant benefit in view of the resident’s overall condition and life expectancy.
- Note the use and outcome of non-pharmacological treatment alternatives, such as art and music therapy, or meditation and relaxation techniques.
- Reduce or discontinue only one drug at a time, in order to ease the transition.
- Consult specialists regarding the cautious withdrawal of the following medications:
  - ACE inhibitors and diuretics, when prescribed to ameliorate symptoms of heart failure
  - drugs for heart rate or rhythm control, e.g., beta blockers, Digoxin, Amiodarone
  - essential hormones, e.g., oral steroids, Levothyroxine
  - antidepressants, antipsychotic and mood-stabilizing drugs
  - anticonvulsants for epilepsy
  - drugs for managing Parkinson’s disease
  - disease-modifying anti-rheumatic drugs
  - longstanding benzodiazepines and opiates
Utilize medication administration specialists. Aging care facilities often assign the task of administering medications to several nurses or nurse assistants, in order to expedite the process. However, this protocol may require nurses to balance drug administration with the demands of bedside care, thereby increasing risk. By designating one nurse as medication administration specialist, organizations help promote the following safe practices:

- implementing new medication orders in a timely and coordinated manner
- promptly recognizing medication interactions and other adverse effects
- avoiding delays in administration times due to conflicting tasks, such as when medications require administration before or after meals
- inspecting carts frequently to ensure ready access to properly stocked medications
- reconciling resident medication regimens following readmission from inpatient stays

Consider having medication administration specialists wear a distinctively colored uniform, making it easy for residents and families to find them when answers are needed to drug-related questions and concerns.

Incorporate electronic advances. Modern technology offers various means to integrate and enhance the drug-prescribing and dispensing process. In particular, electronic medication systems, including robotics and bar-code technology, can significantly reduce the likelihood of error. These systems typically permit users to access Web-based worksites and tools to manage other medication-related functions, including inventory, reorders and Medicare Part D rejections. Handheld scanners and other bedside technology complement automated medication distribution systems, allowing nurses to monitor and review medication status at the point of care. (For information regarding implementation of medication management technologies in the aging services setting, visit the “Technology for Long-Term Care” Web site at http://www.techforltc.org/key-issue.aspx?id=2746&cid=2511.)

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QUALITY IMPROVEMENT

Quality assurance directives are essential to minimize polypharmacy and prevent ADRs. Facilities are encouraged to create a joint quality assurance-pharmacy committee to review drug use in all residents deemed at high risk (e.g., those taking upwards of nine medications). Written recommendations should be prepared on a quarterly basis and sent to members of both the multidisciplinary medication review board and institutional PSTs.

In addition to individual case reviews, the following methods can be incorporated into quality assurance programs:

**Electronic or paper chart audits** can help measure compliance with initial and ongoing medication risk review, and also identify ADRs associated with duplication of medications, “prescribing cascade” patterns and other aspects of polypharmacy. Additionally, chart audits allow monitoring of medication utilization by residential unit, specialty setting and prescriber, while affording a closer look at prescription patterns for higher-risk medications, such as tricyclic antidepressants, opiate-containing painkillers and anticholinergics.

**Formal protocols for medication disposal** can stop residents from hoarding old prescriptions or sharing unused pills with fellow residents. Protocols can further protect aging services facilities from environmental claims, as unused medications are routinely flushed through municipal water treatment plants, potentially affecting public safety. (For more about safe drug disposal, see [http://www.benzos.une.edu/documents/pharmacistslettervol23.pdf](http://www.benzos.une.edu/documents/pharmacistslettervol23.pdf).)

**Automatic pharmaceutical consultations** protect at-risk residents, including those with a history of falls, chronic pain or longstanding behavioral disorders. Discontinuing certain drugs or gradually diminishing dosages or frequencies may be indicated in residents coping with chronic physical or mental conditions. Pharmacists are uniquely qualified to perform regular reviews of resident medication profiles, and can offer valuable insights regarding drugs, dosages and administration modalities.

**Preventive interventions** are useful for elderly residents in independent or assisted living settings who self-administer medications or have prescriptions written by more than one physician. Simple but effective interventions to reduce or prevent ADRs include sending regular medication reminders, accompanying residents to the pharmacy and holding “brown-bag” gatherings, where residents place all current medications in a sack and meet with a pharmacist or nurse to review drug indications and safe dosages. (For additional strategies, see “Reducing Polypharmacy in Independent Settings,” page 7.)

**Behavior maps** can assist cognitively impaired residents who are not capable of communicating clearly to staff about adverse drug reactions. Yelling, wandering, aggression or other difficult behaviors may signify a possible medication side effect in residents with dementia. Before rushing to treat such residents with psychotropic medications or sedatives, caregivers should create behavior maps, noting exactly where residents are and what they are doing every 15 to 30 minutes over the course of one or more days. This exercise can help determine what may be triggering aberrations and whether a drug reaction is to blame. (For a sample behavior and symptom-mapping tool designed specifically for the aging services setting, visit [http://www.albertahealthservices.ca/hp/if-hp-ltch-pharm-behaviour-mapping-tool.pdf](http://www.albertahealthservices.ca/hp/if-hp-ltch-pharm-behaviour-mapping-tool.pdf).)

Every drug presents some degree of risk for elderly and infirm residents, and the potential hazard increases exponentially with each new medication added to the list. Excessive and unmonitored medication use among residents is a form of abuse, which can create significant liability exposure for care providers. The strategies offered in this publication, if implemented in a consistent and well-documented manner, can help reduce the risks associated with prescription medicines, while maximizing their therapeutic effectiveness.
Reducing Polypharmacy in Independent Settings

In independent living and similar settings where residents typically administer their own medications, every effort must be made to anticipate polypharmacy-related issues. Physicians, pharmacists and nurses all should communicate with residents about the potential hazards of drug therapy and offer tips to prevent drug-taking errors and adverse reactions. The following questionnaire is designed to help aging services providers assess whether they are providing adequate assistance to independent residents regarding medication safety:

**DRUG INFORMATION:**
- Are residents instructed to maintain a list of all current medications, dietary supplements and herbal remedies, along with the reasons for taking each of them?
- Does the medication list include both generic and brand names of drugs, as well as corresponding dosage, frequency and related information?
- Are residents informed about the most common and serious side effects of their medications, as well as symptoms that may signal an adverse reaction, e.g., confusion, falls, tremors, sleepiness, or visual or auditory hallucinations?
- Is the name and telephone number of an on-site or local pharmacy posted in the resident’s room, if questions arise regarding medication therapy?
- Is emergency contact information provided to residents, and are they advised to keep the information near their telephone in the event of a health crisis?

**DRUG STORAGE, ORGANIZATION AND DISPOSAL:**
- Are residents’ medication supplies periodically monitored, and are expiration dates checked?
- Are residents told to store drugs in a secure, dry place away from direct sunlight, or to refrigerate them if necessary?
- Are residents offered memory aids, such as color-coded charts and seven-day pill cases, to help simplify drug administration and prevent mistakes?
- Are residents discouraged from saving excess prescribed drugs for future use and strictly prohibited from sharing medications with other residents?
- Are residents instructed in how to safely dispose of prescription drugs and given a copy of the written protocol governing drug disposal?

**MEDICATION ADMINISTRATION:**
- Are medicine administration times synchronized with daily activities, in order to help residents stay on schedule?
- Are residents asked whether they require compliance aids, such as automatic dispensers with bells and voice-activated message services?
- Are manual dexterity problems identified, which might potentially prevent a resident from opening drug packaging?
- Do residents receive frequent reminders underscoring the importance of taking all medications as directed and informing them what to do if a dose is missed?

**COMMUNICATION:**
- Are residents advised to check with a pharmacist or their physician before taking any new compounds, including over-the-counter agents, supplements or herbal remedies?
- Are residents instructed to use only one pharmacy for prescriptions, in order to avoid errors that may occur when multiple pharmacies dispense medications to the same person without central coordination?
- Are residents encouraged to inform their physician of any allergies or other reactions that may develop after starting a new drug?
- Do staff members caution residents against stopping a prescription drug without consulting a physician, even after they feel better?
- Do staff offer a designated place and time for residents to meet with a physician, nurse and/or pharmacist to review their medication regimen and discuss any drug-related concerns they may have?
- When residents are admitted to the hospital, are they accompanied by active medication lists, in order to ensure that drug regimens are continued and/or safely discontinued?
RESOURCES
- American Geriatrics Society (AGS),
  at http://www.americangeriatrics.org/
- American Medical Informatics Association (AMIA)
  Pharmacoinformatics (PI) Working Group,
  at http://www.amia.org/programs/working-groups/
  pharmacoinformatics
- American Society of Consultant Pharmacists (ASCP),
  at http://education.ascp.com/
- Commission for Certification in Geriatric Pharmacy (CCGP),
  at http://www.ccgp.org/
- Gerontological Society of America® (GSA),
  at http://www.geron.org/
- Institute for Safe Medication Practices (ISMP),
  at http://ismp.org/
- National Coordinating Council for Medication Error
  Reporting and Prevention (NCC MERP),
  at http://www.nccmerp.org/
- University of Louisville School of Medicine Polypharmacy
  Initiative, at http://polypharmacyinitiative.com/

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