Anthem Prescription

Why Learn About Adverse Drug Reactions (ADRs)?[1]

- There are over 2 million serious ADRs annually
- There are 100,000 deaths annually
- ADRs are the 4th leading cause of death ahead of pulmonary disease, diabetes, AIDS, pneumonia, accidents and automobile related deaths

Costs Associated with ADRs[1]

Older adults take more medications than any other group. At the same time, their physiological ability to effectively metabolize and excrete multiple drug products diminishes as they age.[2]

- ADRs cost approximately $136 billion annually
- Greater than total costs of cardiovascular or diabetic care
- ADRs cause 1 out of 5 injuries or deaths per year to hospitalized patients

Due to age-related changes in kidney function for patients over the age of 65, standard adult dosing of some medications may need to be adjusted.

Why Are There So Many ADRs?[2]

- Two-thirds of patient visits result in a prescription
- 2.8 billion outpatient prescriptions (10 per person in the United States) were filled in 2000
- ADRs increase exponentially when a patient is taking 4 or more medications

Anthem Prescription is a pharmacy benefit management company that serves the needs of over 7 million individuals. One of Anthem Prescription's goals is to provide information about pharmacy issues and to assist physicians, providers and their patients.

Anthem Prescription manages a variety of prescription drug benefit programs, including our mail service, Anthem Rx Direct, Anthem Rx Direct Specialty, and a national retail pharmacy network, Anthem Rx Network. Anthem Prescription also provides other quality initiatives to certain plans, including programs for the management of drug use and prescriber drug reporting.

References:

1. http://www.fda.gov/cder/drug/drugReactions/#ADRs:%20Prevalence%20and%20Incidence
2. Maura Conry, Pharm.D., M.S.W. Polypharmacy: Pandora's Medicine Chest? Geriatric Times, Sept/Oct 2000. Vol. I, Issue 3.
3. Fick DM, Cooper JW, Wade WE, Waller JL, Maclean R, Beers MH. Updating the Beers Criteria for Potentially Inappropriate Medication Use in Older Adults. Arch Intern Med/Vol 163, Dec 8/22, 2003. Pgs 2716-2724.
4. Carlson JE. Perils of Polypharmacy: 10 steps to prudent prescribing.

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Polypharmacy is the use of many medications at the same time. The major concern is the potential for adverse drug reactions and interactions.

10 Steps to Reducing Polypharmacy[4]

1. **Have patients "brown bag" all medications at each office visit, and keep an accurate record of all medications, including OTCs and herbals.**
2. **Get into the habit of identifying all drugs by generic name and drug class.**
3. **Make certain the drug being prescribed has a clinical indication.**
4. **Know the side-effect profile of prescribed drugs.**
5. **Understand how pharmacokinetics and pharmacodynamics of aging increase the risk of ADRs.**
6. **Stop any drug without known benefit.**
7. **Stop any drug without a clinical indication.**
8. **Attempt to substitute a less toxic drug.**
9. **Be aware of the prescribing cascade (treating an adverse drug reaction with another drug).**
10. **As much as possible, use the motto, "one disease, one drug, once-a-day."**

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Potentially Inappropriate Medication Use in Older Adults[3]

High Risk Drug	Risk	Alternatives
indomethacin (Indocin®)	The most CNS adverse effects of all the NSAIDS	**ibuprofen** (Motrin®)
pentazocine (Talwin®)	CNS adverse effects (confusion and hallucinations) Exhibits mixed agonist / antagonist actions	**acetaminophen/codeine** (Tylenol® #3) **hydrocodone/acetaminophen** (Vicodin®)
Long-acting benzodiazepines: flurazepam (Dalmane®), chlordiazepoxide (Librium®), chlordiazepoxide-amitriptyline (Limbitrol®), clidinium-chlordiazepoxide (Librax®), diazepam (Valium®), quazepam (Doral®), halazepam (Paxipam®), clorazepate (Tranxene®)	Increases risk of falls due to long half-life	**lorazepam** (Ativan®) <3mg, **alprazolam** (Xanax®) <2mg, **oxazepam** (Serax®) <60mg, Ambien®, **Sonata®**, **temazepam** (Restoril®) <15mg, **buspirone** (Buspar®), **triazolam** (Halcion®) <0.25mg
amitriptyline products: Elavil®, chlordiazepoxide-amitriptyline (Limbitrol®), perphenazine-amitripytline (Triavil®)	Has strong anticholinergic and sedating properties	**Celexa™**, **Effexor®**, **Effexor® XR**, **Lexapro™**, **fluvoxamine** (Luvox®), **nortriptyline** (Pamelor®), **paroxetine** (Paxil®), **Zoloft®**
doxepin (Sinequan®)	Has strong anitcholinergic and sedating properties	**Celexa™**, **Effexor®**, **Effexor® XR**, **Lexapro™**, **fluvoxamine** (Luvox®), **nortriptyline** (Pamelor®), **paroxetine** (Paxil®), **Zoloft®**
meprobamate (Equanil®, Miltown®)	Highly addictive Highly sedating	Ambien®, **lorazepam** (Ativan®) <3mg, **buspirone** (Buspar®), **temazepam** (Restoril®) <15mg, **oxazepam** (Serax®) <60mg, **Sonata®**, **alprazolam** (Xanax®) <2mg, **triazolam** (Halcion®) <0.25mg
methyldopa products (Aldomet®, Aldoril®)	May cause bradycardia May exacerbate depression	**HCTZ** (Diuril®), **metoprolol** (Lopressor®), **atenolol** (Tenormin®), **Toprol XL®**
Muscle Relaxants: orphenadrine (Norflex™), methocarbamol (Robaxin®), carisoprodol (Soma®), chlorzoxazone (Parafon®), metaxalone (Skelaxin®), cyclobenzaprine (Flexeril®)	Anticholinergic adverse effects, sedation Effectiveness questionable at doses tolerated by elderly Assess benefit vs risk	Analgesic rubs and ointments
chlorpropamide (Diabinese®)	May cause prolonged and serious hypoglycemia due to long half-life Causes SIADH	**Actos®**, **Amaryl®**, **Avandamet™**, **Avandia®**, **glyburide** (Diabeta®, Glynase®, Micronase®), **metformin** (Glucophage®), **glipizide** (Glucotrol®), **glyburide/metformin** (Glucovance®), **Metaglip™**, Glyset®, Prandin®, **Precose®**, **Starlix®**

Formulary Generic, Tier 1, Low Copay. **Formulary Brand, Tier 2, Medium Copay**. *Formulary is subject to change without notice to provider*

Other Prescription Drugs Considered to be High Risk in Older Adults[3]

High Risk Drug	Risk
trimethobenzamide (Tigan®)	One of the least effective antiemetics, causes extrapyramidal adverse effects
disopyramide (Norpace®)	A potent negative inotrope, strongly anticholinergic
Gastrointestinal antispasmodics: dicyclomine (Bentyl®), hyoscyamine (Levsin®/Levsinex®), propantheline (ProBanthine®), belladonna alkaloids (Donnatal®), clidinium-chlordiazepoxide (Librax®)	Potent anticholinergic properties
All barbiturates (except phenobarbital) except when used to control seizures	Highly addictive, causes more adverse effects than most sedatives
meperidine (Demerol®)	Not effective in doses commonly used, may cause confusion
ticlopidine (Ticlid®)	No better than aspirin in preventing clotting; safer, more effective alternatives exist
ketorolac (Toradol®)	Avoid long term use since many older persons have asymptomatic GI pathologic conditions
Amphetamines and anorexic agents	Potential to cause dependence, hypertension, angina, and myocardial infarction
Long-term use of full-dosage, longer half-life non-COX-selective NSAIDs: naproxen (Naprosyn®), oxaprozin (Daypro®), piroxicam (Feldene®)	Potential to produce GI bleeding, renal failure, hypertension, heart failure
Daily fluoxetine (Prozac®)	Risk of producing excessive CNS stimulation, sleep disturbances, and increasing agitation
amiodarone(Cordarone®)	Associated with QT interval problems; risk of provoking torsades de pointes
guanethidine (Ismelin®) and guanadrel (Hylorel®)	May cause orthostatic hypotension
nitrofurantoin (Macrodantin®)	Potential for renal impairment
methyltestosterone (Android®, Virilon®, and Testred®)	Potential for prostatic hypertrophy and cardiac problems
thioridazine (Mellaril®)	Greater potential for CNS and extrapyramidal adverse effects
mesoridazine (Serentil®)	CNS and extrapyramidal adverse effects
Short-acting nifedipine (Procardia® and Adalat®)	Potential for hypotension and constipation
Dessicated thyroid	Concerns about cardiac effects