

Clinical Pharmacy in Ambulatory Care Patients: the US Experience

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**"I feel a lot better since I ran
out of those pills you gave me."**

Description of Clinical Site: PACE

- Program of All Inclusive Care for the Elderly
- 40 PACE programs across the United States
- Provide comprehensive health care and social services including:
 - primary and specialty medical care
 - day health program
 - social work services
 - prescription medications

Description of Participants

- At least 55 years old
- In need of nursing facility level of care as defined by:
 - needing extensive assistance with 2 activities of daily living (ADLs) , OR
 - minimal assistance with 3 ADLs
 - ADLs include eating, toileting, ambulation, transfer support, bathing and self-medication.

Description of Participants

- ~150 participants
- Similar to the average nursing home resident, on average she is:
 - 80 years old
 - 8 medical conditions
 - limited in approximately 3 ADLs
- 49% have been diagnosed with dementia



Role in Clinic

- Provide consultation ½ day per week onsite
- Review participant medication regimen
 - Upon entry into program
 - Every six months coinciding with interdisciplinary team review
- Reduce drug costs
- Provide health care provider education
- Communicate with participant, caregiver or facility staff to resolve medication related issues.

Participant Medication Review Process

- Review conducted 3 weeks prior to the interdisciplinary team assessment meeting
- Review medical chart
 - Physician and other health care provider notes
 - Discharge notes from prior hospitalizations
 - Medication changes over past 6 months
 - Pertinent lab values
- Develop written recommendations which is routed to the physician and then placed in chart

Emphasis of Medication Review

- Assess appropriateness of therapy
- Detect and correct undertreatment of conditions
- Identify undetected medication-induced problems
- Reduce psychoactive medication use when possible

Participant Medication Review

Assess appropriateness of therapy

- Indication
- Effectiveness
- Appropriate dosing
- Cost effective
- Drug-drug interactions
- Drug-disease interactions

Participant Medication Review

Detect and correct undertreatment

- Secondary prevention for heart attack and stroke
 - Aspirin for patients with heart disease
 - ACE inhibitor use in congestive heart failure
 - Beta blocker use in congestive heart failure or after heart attack
- ACE inhibitor use in hypertension and renal insufficiency
- Osteoporosis management
 - Calcium, vitamin D, bisphosphonates

Participant Medication Review

Other Issues

- Identify undetected medication-induced problems
 - Any adverse drug reaction
 - Geriatric syndromes
 - Falls
 - Memory impairment
 - Urinary incontinence
- Reduce psychoactive medication use
 - Trazodone use for sleep
 - Atypical antipsychotics and mood stabilizers for behavioral problems due to dementia

Case Example

DD is a 75 year old white female with chronic pain who presents with a one year history of declining functional status and frequent falling episodes. She is newly enrolled in the program.

Case Example

- Medical History
 - Back pain (multiple sources, osteoarthritis)
 - Osteoporosis with vertebral fractures
 - Hypertension
 - Type 2 diabetes
 - Overactive bladder with urinary incontinence (pretty well controlled)
 - Coronary artery disease (s/p MI 5/04)

12 Medications !

Zolpidem 10 mg qhs

Glyburide 10 mg bid

HCTZ 25 mg qd

Amlodipine 5 mg daily

Oxybutynin 5 mg TID

Benadryl 50 mg qhs

Vitamin E 400 U daily

Calcium carbonate 500 mg
BID

Pain medications

- Propoxyphene/APAP (100/650) q 6 hr (4-5/day)
- Cyclobenzaprine 10 mg TID
- Tylenol with codeine #3 prn (3-4/day)
- Glucosamine sulfate 500 mg TID as needed

Potentially Inappropriate/Unnecessary Drugs?

Zolpidem 10 mg qhs

Glyburide 10 mg bid

HCTZ 25 mg qd

Amlodipine 5 mg daily

Oxybutynin 5 mg TID

Benadryl 50 mg qhs

Vitamin E 400 U daily

Calcium carbonate 500 mg
BID

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mg TID as needed

Undertreatment

- CAD
 - Add daily aspirin
- Post-MI
 - Add beta-blocker
 - Add Ace-inhibitor
- Osteoporosis
 - Increase calcium supplementation (400 mg from current supplement, 300 mg from diet).
 - Add Vitamin D 600-800 IU
 - Consider bisphosphonate

Medication-Induced Problems?

- Falls and impaired function
 - Cyclobenzaprine, diphenhydramine
 - Zolpidem (J Am Geriatr Soc 2001;49:1685-90)

Goal: Reduce Drug Costs

- Work with pharmacy provider to determine which medication is most cost effective within a therapeutic class
- Communicate this information on regular basis to physicians to ensure prescribing of most cost effective medication
- Example: statins for lowering lipid levels

Why Is This Relationship Successful?

- Employed by PACE program
- Work collaboratively with 2 physicians in program to identify focus for my activities.
- Major goal is to improve patient care and reduce drug costs if possible.



"It was caused by low blood sugar."