

## Pharmaceutical care model for elderly patients in South Carolina

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**P**almetto SeniorCare (PSC) is a medical service program that operates within the Program of All-inclusive Care for the Elderly (PACE) model in Columbia, South Carolina. The national PACE model is based on the belief that seniors are better served in the community, with the assistance of family or a caregiver, than in a nursing home. PACE participants receive comprehensive daycare services while living at home with a caregiver. To enroll in PACE, a person must be 55 years or older and certified by the state as eligible for nursing-home care. In South Carolina, people are deemed eligible for long-term care if they require intermediate or skilled nursing care or demonstrate functional deficits. The program operates at five sites in the Columbia area. The PSC staff comprises physicians, nurse practitioners, nurses, nursing aides, pharmacists, nutritionists, occupational therapists, speech therapists, physical therapists, recreational therapists, social workers, and transportation coordinators. Three clinical pharmacists serve the five PSC clinics, and two dispensing pharmacists and two pharmacy technicians run the pharmacy. In this article, we describe the pharmaceutical care provided by PSC pharmacists.

The typical PSC participant is an 80-year-old African-American woman who is widowed, requires assistance with most activities of daily living, and resides with a single caregiver. The

average participant has eight comorbid conditions, the most common of which are hypertension, arthritis, eye diseases, dementia, depression, anxiety, cerebrovascular disease, diabetes mellitus, peripheral vascular disease, obesity, and coronary artery disease. PSC's pharmacists strive to optimize drug therapy and patient care while developing innovative approaches to reducing the overall cost of medication therapy. Funding comes mostly from Medicaid; few participants pay privately.

### Clinical pharmacy services.

Upon enrollment in PSC, a patient is interviewed by a clinical pharmacist, who completes a comprehensive review of the patient's medication history. This consultation assesses the patient's compliance with therapy, identifies appropriate therapy on the basis of diagnoses, eliminates prescriptions that have no apparent indication, and explores medication history to prevent treatment failures. Working with an on-site physician, the pharmacist develops an initial therapeutic regimen and establishes appropriate monitoring.

One of the most important aspects of the initial consultation is the establishment of a caregiver. The caregiver is responsible for the patient's personal care and medication administration. A close relationship between the caregiver and the pharmacist helps ensure the success of the care plan. The caregiver is asked during the initial consultation and follow-up evaluations to list specific goals of the patient's treatment regimens. Many caregivers state that they do not want their elderly loved ones to take excessive medications.

The elderly tend to utilize numerous health care providers and medical specialists.<sup>1</sup> Because their prescribers generally do not confer with one another, polypharmacy is a frequent problem. Also, elderly patients without prescription drug benefits often patronize several pharmacies in search of the best price. Therefore, the elderly are at increased risk of adverse drug reactions.<sup>2,3</sup> To help prevent these problems, PSC participants see one primary health care provider and have all their prescriptions filled at the PSC pharmacy. Clinical pharmacists act as gatekeepers of drug therapy, each day reviewing all drug orders for therapeutic duplication, drug-drug interactions, contraindications, dosage, and drug therapy used to treat adverse reactions. There are about 40 new medication orders per day for all five centers, or approximately 680 new prescriptions

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monthly. The dispensing pharmacists notify the clinical pharmacists immediately about all clinically significant potential drug interactions detected during daily order filling. It is the clinical pharmacists' responsibility to make sure a monitoring plan is in place or to recommend alternative therapies.

We began collecting data on all new PSC enrollees in May 1995. Between May 1995 and September 2002, new patients used an average of 7.72 medications a day before the first consultation. Upon initiation of the pharmacists' care plans, the average number of medications per patient per day was reduced to 4.22. After six months at PSC, the average participant used only 4.83 medications a day.

PSC's clinical pharmacists have created measurable therapeutic goals for most diseases; these goals are individually set for each patient. For example, the pharmacist sets a fasting blood glucose goal for a particular patient with diabetes mellitus, educates the patient and the caregiver about diabetes, and suggests pharmacologic and nonpharmacologic interventions necessary to achieve the goal. The patient's compliance is determined during follow-up appointments. The clinical pharmacist reports all possible and actual adverse drug reactions to FDA's Med-Watch program.

Another responsibility of PSC's clinical pharmacists is to oversee the floor stock drug inventory. Each site stocks drugs that are needed quickly, such as furosemide, digoxin, ceftriaxone, laxatives, antacids, and acetaminophen. A medical facility having drug floor stocks is required by the state board of pharmacy to have a drug outlet permit. Classified as a long-term-care facility, PSC is required to employ a consultant pharmacist. The clinical pharmacists are designated for meeting this requirement.

**Drug distribution and follow-up.** Patients in the PSC program receive a monthly supply of all their medications. All services are provided under

a capitated monthly rate; this includes prescription and nonprescription medications. The dispensing pharmacists fill new drug orders daily with the assistance of the technicians. A monthly supply of medications is generally provided for patients compliant with treatment. Patients found to have problems with compliance (about 25% of patients) are given a seven-day drug supply in a container specifically designed to increase compliance. This device is also used for medications that may require frequent dosage adjustments to contain cost. The clinical pharmacists verify the medications that are sent to patients' homes and ensure proper monitoring. Home visits are conducted as needed. By keeping in close contact with the participant's caregiver, the pharmacist assesses compliance with therapies monthly. As the pharmacist conducts monthly regimen reviews, he or she recommends changes in pharmacotherapy necessary to streamline dispensing and minimize drug waste.

**Teaching.** The clinical pharmacists serve as preceptors for the clinical rotations of students attending the University of South Carolina College of Pharmacy. The founder of pharmaceutical services at PSC is a full-time employee of the college. Many fourth-year pharmacy students spend one month at PSC. During the rotation, students are taught the intricacies of treating frail elderly people with multiple comorbidities. Students learn how to work as part of a multidisciplinary health care team, and they assist the team and the clinical pharmacists in developing care plans and monitoring therapy.

**Interdisciplinary collaboration.** One of the most important duties of the clinical pharmacists is cochairing PSC's drug-use-evaluation (DUE) committee. The DUE committee is similar to a pharmacy and therapeutics committee at an institutional facility. There are 15 committee members, including the 3 clinical pharmacists, 4 physicians, 5

nurse practitioners, 2 geriatric medicine fellows, and 1 of the 2 dispensing pharmacists. The DUE committee manages the formulary, discusses drug updates, and monitors drug costs. The formulary system at PSC helps control costs and limit variability in prescribing. The clinical pharmacists review newly marketed drugs and important clinical trials. At the DUE committee meetings, the pharmacists present other committee members with prescribing protocols and treatment algorithms for individual drugs and diseases, as well as discuss the impact of these policies on PSC's participants. The committee reviews the cost-effectiveness of the 10 most expensive drugs (these medications account for 30% of PSC's total drug costs). The clinical pharmacists recommend simple ways of reducing costs, such as tablet splitting and using trial supplies (as opposed to the usual monthly supply) of medications that are subject to frequent dosage changes. By serving on the DUE committee, the pharmacists greatly influence prescribing habits and have a positive impact on the pharmaceutical care of PSC participants. They collaborate with the entire health care team every day and provide consultation on drug-therapy issues. Members of other disciplines regularly inform the pharmacists about patients' progress.

**Conclusion.** A community-based medical service program for the elderly in South Carolina allows pharmacists to fully utilize their clinical skills and knowledge to optimize care.

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