



Clinical Pharmacy:
A Healthier America through Safer, More Appropriate Medication Use

Prescription medications play a vital role in modern healthcare. New medications continue to improve health outcomes and quality of life in patients with both acute and chronic diseases. However, with these advances come the growing challenge of assuring that patients receive maximum benefit with the minimum amount of risk from the use of these sophisticated and complex therapies. This challenge is being addressed by the health care provider whose professional expertise is the effective and safe use of medications – **the clinical pharmacist.**

Clinical Pharmacy is a health science discipline in which pharmacists provide patient care that optimizes medication therapy and promotes health, wellness, and disease prevention. The practice of clinical pharmacy embraces the philosophy of pharmaceutical care; it blends a caring orientation with specialized therapeutic knowledge, experience, and judgment for the purpose of ensuring optimal patient outcomes. As a discipline, clinical pharmacy also has an obligation to contribute to the generation of new knowledge that advances health and quality of life.

Clinical pharmacists care for patients in all health care settings. They possess in-depth knowledge of medications that is integrated with a foundational understanding of the biomedical, pharmaceutical, sociobehavioral, and clinical sciences. To achieve desired therapeutic goals, the clinical pharmacist applies evidence-based therapeutic guidelines, evolving sciences, emerging technologies, and relevant legal, ethical, social, cultural, economic and professional principles. Accordingly, **clinical pharmacists assume responsibility and accountability for managing medication therapy in direct patient care settings, whether practicing independently or in consultation/collaboration with other health care professionals.** Clinical pharmacist researchers generate, disseminate, and apply new knowledge that contributes to improved health and quality of life.

Within the system of health care, clinical pharmacists are experts in the therapeutic use of medications. They routinely provide medication therapy evaluations and recommendations to patients and health care professionals. Clinical pharmacists are a primary source of scientifically valid information and advice regarding the safe, appropriate, and cost-effective use of medications.

Medication Use & Expenditures in the United States Continue to Grow.

- Between 1997 and 2003, the Food and Drug Administration (FDA) approved more than 250 new drugs.¹
- Spending on prescription drugs grew at an average annual rate of 14.5 percent from 1997 to 2002, reaching \$162 billion in 2002.
- Prescription drug spending as a share of total health expenditures grew to 10.5 percent in 2002, up from 5.8 percent in 1992.²
- Every week, four out of every five U.S. adults will use prescription medicines, over-the-counter drugs, or dietary supplements. In the same time-period, nearly one-third of adults will take five or more different medications.³

Increased Medication Use Can Result in Increased Medication Problems.

The increased utilization of prescription medications is also associated with a greater likelihood of "*adverse drug events*" (ADEs) due to both the appropriate and inappropriate use of the medications. While some ADEs are unavoidable (after all, the more complex and potent a drug is the more likely it is to have substantial side effects), **medication errors** (harm caused by errors in prescribing or taking the medication) are not inevitable...they are preventable.

Between 44,000 - 98,000 Americans die each year as a result of medical errors.⁴

Preventable "medication errors" (errors occurring in the medication-use process) are among the most common medical mistakes, incurring at least \$3.5 billion a year in extra hospital costs alone.⁵

Each year, approximately 300,000 preventable adverse events occur in U.S. hospitals, many as a result of confusing medical information⁶. The number occurring in outpatient settings is certainly greater, although more difficult to quantify. Prescription-drug-related problems cost the U.S. economy \$177 billion each year, largely from additional physician office visits, hospitalizations and ineffective results.⁷

¹ American College of Clinical Pharmacy Position Statement. Collaborative Drug Therapy Management by Pharmacists. Available from <http://www.accp.com/position/pos2309.pdf>. Accessed January 17, 2007.

² Congressional Budget Office Summary. Would Prescription Drug Importation Reduce U.S. Drug Spending? Available from <http://www.cbo.gov/ftpdocs/54xx/doc5406/04-29-PrescriptionDrugs.pdf>. Accessed January 17, 2007.

³ The National Academies Press: Preventing Medication Errors: Quality Chasm Series (2007). Available from http://books.nap.edu/openbook.php?record_id=11623&page=1. Accessed January 17, 2007.

⁴ The National Academies Press: To Err Is Human: Building a Safer Health System (2000) Available from http://books.nap.edu/openbook.php?record_id=9728&page=1. Accessed January 17, 2007.

⁵ The National Academies Press: Preventing Medication Errors: Quality Chasm Series (2007). Available from http://books.nap.edu/openbook.php?record_id=11623&page=R1. Accessed January 17, 2007

⁶ U.S. Food and Drug Administration. FDA Drug Safety Initiative Fact Sheet. Available from <http://www.fda.gov/oc/factsheets/initiative.html> Accessed January 17, 2007.

⁷ American Pharmacists Association (APhA). Prescription Drug Misuse Costs U.S. Economy Billions. Available from: www.aphanet.org/AM/Template.cfm?Section=Search&template=/CM/HTMLDisplay.cfm&ContentID=2065

What Are Clinical Pharmacists Doing to Address these Issues?

Two important developments in the contemporary practice of pharmacy are already demonstrating the value pharmacists bring to patient care:

Collaborative Drug Therapy Management (CDTM)

CDTM is defined as a collaborative practice model or agreement between one or more physicians and pharmacists wherein qualified pharmacists working within the context of a defined protocol are permitted to assume professional responsibility for performing patient assessments; ordering drug therapy-related laboratory tests; administering drugs; and selecting, initiating, monitoring, continuing and adjusting drug regimens.

CDTM brings the pharmacist into a collaborative partnership with physicians and other members of the health care team to provide services that ensure enhanced medication use outcomes for the patient. Effective models of CDTM deliver care that assures that:

- The best pharmaceutical treatment options are presented to physicians
- Physician-prescribed treatments are administered properly
- Patients understand their medications, and how to take them
- Preventable interactions and adverse effects are avoided.

Currently, 43 states have approved regulations that authorize and support formal practice agreements between pharmacists and physicians to facilitate the collaborative management of patients' drug therapy.

The value of CDTM in improving health outcomes has been demonstrated by a series of studies known as the *Asheville Project*. The Asheville Project was launched in 1996 as the City of Asheville, North Carolina - a self-insured employer – utilized pharmacists to provide education and personalized care to employees with chronic health problems, such as diabetes, asthma, hypertension, and high cholesterol.

One of several recent evaluations of the Asheville Project measuring the clinical, humanistic, and economic outcomes of pharmacist-driven collaborative drug therapy management for asthmatics found:

- Direct cost savings averaged \$725/patient/year.
- Indirect cost savings were estimated to be \$1,230/patient/year.
- Indirect costs due to missed/nonproductive workdays decreased from 10.8 days/year to 2.6 days/year.
- Patients were six times less likely to have an emergency department/hospitalization event after program interventions.⁸

Similarly impressive results have been seen for patients with diabetes and elevated cholesterol levels.

⁸ The Asheville Project: Long-Term Clinical, Humanistic, and Economic Outcomes of a Community-Based Medication Therapy Management Program for Asthma. Available from: http://www.aphafoundation.org/searchable_files/filemanager/JAPhA%5FAsthma%20Article.pdf

Medication Therapy Management Services (MTMS)

For every dollar spent on pharmaceuticals, another dollar of spending results from “drug misadventures.”⁹

In recognition of the value of MTMS, the 2003 Medicare Modernization Act (MMA) required all Part D prescription drug plans to establish MTMS programs designed to optimize therapeutic outcomes, improve medication use, reduce the risk of adverse drug events and drug interactions, and increase patient adherence and compliance with prescribed regimens. The MMA defined MTMS as *“patient focused services aimed at improving therapeutic outcomes,”* and the Centers for Medicare and Medicaid Services has noted that it expects MTMS to *“evolve and become a cornerstone of the Medicare Prescription Drug Benefit.”*¹⁰

Evidence already shows that MTMS can reduce the use of physician and hospital services by reducing adverse health events and ultimately reduce per-member-per-month (PMPM) total health costs.¹¹

The Vital Role of the Clinical Pharmacist in Contemporary Health Care

Today’s clinical pharmacist is a patient-focused practitioner who provides direct patient care services that promote effective and safe medication use outcomes. The clinical practice of pharmacy helps to promote a healthier America through safer and more appropriate medication use. As vital members of the contemporary health care team, clinical pharmacists bring greater effectiveness and value to the medication use process.

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⁹ American Pharmacists Association/Lewin Group. Medication Therapy Management – Executive Summary Report. Available from <http://www.accp.com/position/mtms.pdf>. Accessed January 17, 2007.

¹⁰ *Ibid.*

¹¹ *Ibid.*