

CONSIDERING THE WHOLE PATIENT WITH HYPERTENSION: THE ETHOS OF PHARMACEUTICAL CARE

From a pharmaceutical care perspective, this article will assess co-existing factors affecting the patient with hypertension. It will begin by defining pharmaceutical care, the components necessary for the provision of such, and how the provision of pharmaceutical care has already affected patient care. Then, it will explore those factors that influence the development of the therapeutic relationship, such as culture and ethnicity, socioeconomic status, age, gender, and functional status. Finally, this article will conclude with the rationale for and impact of providing pharmaceutical care to the patient with hypertension. (*Ethn Dis.* 2002;12[suppl3]:S3-72-S3-75)

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INTRODUCTION

Pharmacy is one of the oldest health professions and the role of the pharmacist has continually evolved from the traditional shopkeeper preparing primarily natural remedies to patient care giver.

In the post-World War II era, significant changes in the drug manufacturing industry had profound effects on the profession. Medications, in a dosage-ready form, began to be delivered to pharmacies in bulk container to be repacked (dispensed), instead of pharmacists preparing doses (compounding) from raw materials bought from reputable producers.

Then, in the late 1950s and early 1960s, the clinical pharmacy movement was started and gained momentum in a few West coast and Southeastern Colleges of Pharmacy. From these elite institutions, the doctor of pharmacy (PharmD) was introduced, patient-oriented curricula and coursework were developed, unit-dose drug delivery systems were implemented, and drug information provision, as we know it today, was begun. These are the building blocks that have constructed the foundation for providing pharmaceutical care. The development and implementation of clinical pharmacy was the beginning of shifting from a product orientation to a patient-centered profession.

DEFINING PHARMACEUTICAL CARE

In 1990, Hepler and Strand revolutionized the profession of pharmacy by coining and defining the term "pharmaceutical care."¹ Although many phar-

macists were performing patient care activities within the scope of their practice, the delineation of specific pharmaceutical care principles further elevated the practice of pharmacy and made patient-centered care the standard of practice. Pharmaceutical care is defined as "the responsible provision of drug therapy for the purpose of achieving definite outcomes that improve a patient's quality of life."¹

In an official statement, the then-American Society of Hospital Pharmacists (now American Society of Health-Systems Pharmacists) further qualified this definition by outlining the *Principle Elements of Pharmaceutical Care*.² These essentials are: 1) medication-related; 2) care; 3) outcomes; 4) quality of life; and 5) responsibility. Pharmacists are expected to identify, address, and prevent medication-related problems. At the core of this element of care is the development of the therapeutic relationship. This connection represents a covenant, which is both trusting and mutual, between pharmacist and patient. It is predicated upon effective communication. Another significant aspect of the therapeutic relationship is pharmacist-physician collaboration. Working as a team to improve patient care is a primary aim of pharmaceutical care. The major outcome of pharmaceutical care is to optimize a patient's health-related quality of life within realistic economic limits. The quality-of-life endpoints include: curing or preventing illness; abating symptoms; or mitigating the progression of disease. The responsibility of the pharmacist is to insure that the drug therapy is the most appropriate, safest, and most convenient when taken as indicated.

Pharmaceutical care is a natural and

necessary evolution of the profession. Consider the following facts: 1) patients are living longer, thereby requiring more pharmacological therapy; 2) many therapeutic regimens are more complex and some drugs require significant therapeutic monitoring, even on an outpatient basis; 3) patients are suffering from multiple conditions using several classes of therapeutic agents, which increases the potential for interactions and adverse effects; and 4) today's patients want to be more involved with their care.

Many medication-related problems are due to misadventures such as inappropriate prescribing, patient noncompliance, and adverse drug reactions and interactions. Pharmaceutical care addresses a variety of patient illnesses and concerns, enabling the development of strategies to achieve optimum functional status. It further has served to lower costs and improve patient outcomes. Finally, with the definition of pharmaceutical care, the pharmacy profession has created a heightened awareness, both externally and within, of the benefits of sound pharmaceutical care.

BENEFITS OF PHARMACEUTICAL CARE

Many studies have illustrated the positive impact of pharmaceutical care on patient outcomes. Numerous research endeavors have shown that patient adherence to treatment regimens can be improved by 21%–54% through routine intervention by pharmacists.³⁻⁵ In other studies, pharmacist interactions resulted in a patient's increased level of satisfaction and knowledge about coping with the disease.^{3,6,7} In a Richmond, Virginia hyperlipidemia clinic, Shibley and Pugh demonstrated that patients' quality of life improved in conjunction with their opinion of pharmacy services.⁶

Additional benefits have also been shown. The provision of pharmaceutical care can significantly reduce adverse

drug reactions.^{8,9} In a study conducted by Bond and Salinger, schizophrenic patients had significantly lower rehospitalization rates, decreased medication-related side effects, and improvement in functional capacity, thereby demonstrating the clinical benefit of pharmacy intervention.⁸ Furthermore, Munroe proved a cost savings up to \$293 per month per patient in a community pharmacy-based disease management model.¹⁰⁻¹¹ All of these examples indicate a need for increased pharmacy involvement in patient care.

INFLUENCES ON PATIENT CARE

Factors that may have an impact on patient care and outcomes include: cultural and ethnic influences; gender and age differences; socioeconomic status; and co-morbid conditions and functional status. The provision of high-quality pharmaceutical care can be used to overcome these potential barriers for the achievement of maximum patient benefit from drug therapy.

The US population is comprised primarily of 5 major multicultural groups.¹² In the 2000 census, non-Hispanic Whites represented about 72% of the population; African Americans accounted for about 13%; Hispanics and Asian Americans represented 11% and 4%, respectively; and Native Americans represented less than 1%. It is projected by the year 2050, the entire ethnic minority population will be equal to the size of the non-Hispanic White population.¹² Obviously, pharmacists must be equipped with tools to meet the needs of this diverse and growing populace. It is imperative that pharmacists have self-awareness, effective communication skills, and adequate resources to understand diversity. For example, pharmacists must be prepared to address many of the misgivings that African Americans may have toward the healthcare system. Many beliefs are founded in

Table 1. How to facilitate and promote multicultural pharmaceutical care¹²

Create a supportive environment for practicing multicultural patient care.
Allocate adequate resources to purchase culturally consistent patient-education materials, to attend workshops and courses, and to train staff personnel.
Accept diversity in the approaches and techniques used for different patient populations, and be able to adapt and change your practice in reference to the changing environment and differences inpatient-population needs.
Respect the differences in people.
Strengthen collaborative relationships with other healthcare providers.

outdated knowledge and a long-time dependence on home remedies to cure certain ailments.¹³ However, it is known that the African-American patient with hypertension has "an earlier onset . . . higher incidence of complications (and) has a worse prognosis."¹⁴ Ethnicity, as an influence on patient care, cannot be ignored. Sharkness et al, as well as Monane and his colleagues, showed that being classified as a Caucasian was significantly associated with better medication adherence.^{15,16}

In their article, Brown and Nichols-English delineated actions that pharmacists may take in order to facilitate multicultural pharmaceutical care.¹² Table 1 lists key activities that should be implemented to make possible and promote multicultural pharmaceutical care. Better patient outcomes will be achieved if close attention is paid to these core concepts.

According to much of the research available, it has been shown that there are no significant differences in medication-taking behaviors between genders.^{16,18,19} In a study exploring predictors of medication compliance, Coons et al found that there was no relationship between medication compliance and gender.¹⁹ Furthermore, Schwarz and his colleagues found similar rates of medication-taking errors between the 2 genders.¹⁸ These results do not mean,

however, that gender should not be an important consideration in the provision of pharmaceutical care.

Col, Fanale, and Kronholm estimated that 28% of all hospital admissions in the elderly population were due to drug-related problems. Forty percent of those admissions were the result of the geriatric patient's inability to follow the medication regimen.¹⁷ Pharmacist intervention with this growing segment of the population could definitely enhance patient outcomes and have a significant positive impact. Multiple studies of medication usage highlight the facts that the elderly patient: 1) may have more difficulty following medical advice; 2) are less likely to ask for clarification; 3) tend to be less active in self care; and 4) are more susceptible to the adverse consequences of nonadherence.^{20,21} The accessibility of the pharmacist places him or her in a unique position to work with these patients to diminish such adverse conditions.

It is an accepted fact that the cost of medication constitutes an essential barrier in noncompliance with the therapeutic regimen. Multiple research and lay press endeavors have illuminated the plight of patients unable to purchase medication.^{22,23} For the patient with hypertension, lack of income has been inversely correlated with blood pressure control. Shulman showed that patients who are unable to pay for their antihypertensive medications are the most susceptible to target organ disease manifestations.²³ To further support the economic impact of medication usage, Col found that patients eligible for Medicaid actually had better compliance rates than those with incomes within 200% of the poverty level ($\leq \$20,000$) and not eligible for assistance.¹⁷

There seems to be conflicting evidence concerning the role of co-morbid conditions and its influence on adherence to medication regimens. On one hand, Billups showed that noncompliant patients had a higher number of chronic conditions.²⁴ To the contrary,

Sharkness demonstrated that patients with multiple chronic conditions believe themselves to be in need of treatment and, therefore, these patients are more compliant.¹⁵ Regardless, pharmacists must be available to monitor and prevent the problems associated with polypharmacy in patients with concomitant chronic ailments. They must be vigilant in providing patient education, on the lookout for drug interactions, and continuously updating the patient profile. Often, the community pharmacy is the point of convergence for multiple prescribers. The pharmacist's unique drug therapy knowledge combined with a sometimes more complete patient database enables him or her to play a distinctive role on the healthcare team.

There is an obvious role for the implementation of the pharmaceutical care in the management of patients with hypertension. Targeting strategies for high-risk patients can be an effective means of reducing the consequences of uncontrolled hypertension.²⁵⁻²⁶ Specifically, a study conducted by Strogatz and Earp showed that patients who received routine care were twice as likely to cease medication administration, compared to those who received periodic home visits by nurses or pharmacists.²⁷ Additionally, Solomon et al showed a significant reduction in systolic blood pressure, a significant increase in compliance rates, and a decreased number of hospitalizations for those patients participating in a pharmaceutical care program.²⁸

CONCLUSION

Providing pharmaceutical care to the patient with hypertension is beneficial; specific services that can be offered to these patients in order to achieve better health outcomes include: assessment of patients; provision of therapeutic drug monitoring; recommendation and assistance with lifestyle changes; and counseling and education of patients. Pharmaceutical care also involves working

closely with the healthcare team. Pharmacists can refer patients to physicians for treatment, while physicians can refer the patient to the pharmacist for closer monitoring of drug therapy. Physicians and other prescribers will also enjoy the benefits of valuable collaborations and a vast source of drug information.

Evidence proves that pharmaceutical care can be used to appreciably affect patient care and, consequently, patient outcomes. Including the pharmacist as an integral part of the healthcare team offers other healthcare professionals additional options for drug therapy. Considering the entire patient and his/her differing factors constitutes the principles of foundation of pharmaceutical care and the philosophy of the ever-evolving profession of pharmacy.

REFERENCES

1. Hepler C, Strand L. Opportunities and responsibilities in Pharmaceutical Care. *Am J Hosp Pharm.* 1990;47(3):533-543.
2. American Society of Hospital Pharmacists. ASHP statement on pharmaceutical care. *Am J Hosp Pharm.* 1993;50:1720-1723.
3. McKenney JM, Slining JM, Henderson HR, Devins D, Barr M. The effect of clinical pharmacy services on patients with essential hypertension. *Circulation.* 1973;48(5):1104-1111.
4. McKenney JM, Brown ED, Necsary R, Reavis HL. Effect of pharmacist drug monitoring and patient communication on hypertensive patients. *Contemp Pharm Pract.* 1978;1:50-56.
5. Maguire T, McElnay JC. Therapeutic drug monitoring in community pharmacy—a feasibility study. *Int J Pharm Pract.* 1993;2:168-171.
6. Shibley MC, Pugh CB. Implementation of Pharmaceutical Care services for patients with hyperlipidemia by independent community pharmacy practitioners. *Ann Pharmacother.* 1997;31(6):713-719.
7. Johnson KA, Parker JP, McCombs JS, Cody M. The Kaiser Permanente/USC patient consultation study: patient satisfaction with pharmaceutical services. University of Southern California. *Am J Health Syst Pharm.* 1998; 55(24):2621-2629.
8. Bond CA, Salinger RJ. Fluphenazine outpatient clinics: a pharmacist's role. *J Clin Psychiatry.* 1979;40(12):501-503.
9. Monson R, Bond CA, Schuna A. Role of the clinical pharmacist in improving drug therapy. Clinical pharmacists in outpatient therapy. *Arch Intern Med.* 1981;141(11):1441-1444.

10. Munroe WP, Kunz K, Dalmady-Israel C, Potter L, Schonfeld WH. Economic evaluation of pharmacist involvement in disease management in a community setting. *Clin Ther.* 1997;19(1):113-123.
11. McCombs JS, Liu G, Shi J, et al. The Kaiser Permanente/USC patient consultation study: change in use and cost of healthcare services. *Am J Health Syst Pharm.* 1998;55(23):2485-2499.
12. Brown CM, Nichols-English G. Dealing with patient diversity in pharmacy practice. *Drug Topics.* 1999;17:61-70.
13. Caralis DV, Davis B, Wright K, Marcial E. The influence of ethnicity and race on attitudes toward advance directives, life-prolonging treatments, and euthanasia. *J Clin Ethics.* 1993;4(2):155-165.
14. Adrogue HJ, Wesson DE. Role of dietary factors in the hypertension of African Americans. *Semin Nephrol.* 1996;16(2):94-101.
15. Sharkness CM, Snow DA. The patient's view of hypertension and compliance. *Am J Prev Med.* 1992;8(3):141-146.
16. Monane M, Bohn RL, Gurwitz JH, Glynn RJ, Levin R, Avorn J. Compliance with antihypertensive therapy among elderly Medicaid enrollees: the roles of age, gender, race. *Am J Public Health.* 1996;86(12):1805-1808.
17. Col N, Fanale JE, Kronholm P. The role of medication noncompliance and adverse drug reactions in hospitalization of the elderly. *Arch Intern Med.* 1990;150(4):841-845.
18. Schwarz D, Wang M, Zeitz L, et al. Medication errors made by elderly, chronically ill patients. *Am J Public Health.* 1962;52:2018-2029.
19. Coons SJ, Shehan SL, Martin SS, et al. Predictors of medication noncompliance in a sample of older adults. *Clin Ther.* 1994;16:110-117.
20. DiMatteo MR, Hays RD. Adherence to cancer regimens: implications for treating the older patient. *Oncology.* 1992;6(suppl):50-57.
21. Breemharr B, Visser AP, Kleijnen JGVM. Perceptions and behavior among elderly hospital patients: descriptions and explanation of age differences in satisfaction, knowledge, emotions, and behavior. *Soc Sci Med.* 1990;31:1377-1385.
22. Brand FN, Smith RT, Brand PA. Effect of economic barriers to medical care on patients' noncompliance. *Public Health Rep.* 1977;92(1):72-78.
23. Shulman NB. Economic issues relating to access to medications. *Cardiovasc Clin.* 1991;21(3):75-82.
24. Billups SJ, Malone DC, Carter BL. The relationship between drug therapy noncompliance and patient characteristics, health-related quality of life, and healthcare costs. *Pharmaco-therapy.* 2000;20(8):941-949.
25. Pardell H, Tresserras R, Armario P, Hernandez del Rey R. Pharmacoeconomic considerations in the management of hypertension. *Drugs.* 2000;59(suppl 2):13-20.
26. Benson S, Vance-Bryan K, Raddatz J. Time to patient discontinuation of antihypertensive drugs in different classes. *Am J Health Syst Pharm.* 2000;57:51-54.
27. Strogatz DS, Earp JA. The determinants of dropping out of care among hypertensive patients receiving a behavioral intervention. *Med Care.* 1983;21(10):970-980.
28. Solomon DK, Portner TS, Bass GE, et al. Clinical and economic outcomes in the hypertension and COPD arms of a multicenter outcomes study. *J Am Pharm Assoc (Wash).* 1998;38(5):574-585.

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