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Visits were made to 21 pharmacies in two poor neighborhoods on the west side of Chicago and interviews conducted with pharmacists-in-charge. The objective of the study was to provide a comprehensive description of the function, capabilities, and problems of urban pharmacy. We present results on the structure and function of these inner-city pharmacies. The pharmacies fit one of three structural forms: chain, independent, or medical center. The majority of respondents viewed the function of the inner-city pharmacy as patient-centered but also identified several barriers to effective patient communication. The results suggest that inner-city physicians and pharmacists should communicate with patients more often and in ways that patients understand. Also, Medicaid and other drug insurance programs should develop patient information networks and coverage packages intended to maximize patient health status. (Henry Ford Hosp Med J 1992;40:56-61)

The use of pharmaceutical products is an important dimension of the United States health care delivery system for many reasons:

- Drugs often substitute for more expensive and potentially dangerous therapeutic interventions.
- The appropriate utilization of drugs can result in substantial improvement in health status when no other technology is capable of doing so. For example, the dramatic decline (37.9%) in the infant mortality rate in the 1940s has been attributed to the emergence of antibiotics (1).
- Medication therapy is the most common of all therapies provided to patients making physician office visits (2).
- Spending for prescription drugs in the United States in 1988 was $42 billion, or 7.8% of the $540 billion spent on health care. The only expenditure categories of greater magnitude were hospitals (39%), physicians (19%), and nursing homes (8%) (3).
- Pharmaceutical drugs have the potential to do great harm to health status, even causing death. The absence of a drug that is needed, the presence of one that is inappropriate, incorrect dosage levels or mix of drugs, and other misadventures can result in serious consequences for the patient. This is especially pertinent as increasingly powerful agents become available. Indeed, 10% of all hospital admissions may be due to drug misadventures (4). These mishaps can arise from several sources, including less than optimum prescribing behavior by physicians, dispensing errors by pharmacists, and lack of compliance by patients.

The emergence of prefabricated dosage forms has helped to define the pharmacist's traditional role in the drug use process as a distributive one. In many institutional settings, however, pharmacists have assumed clinical functions beyond distribution, including consulting with physicians on therapy decisions, computing correct dosage levels, and kinetic monitoring. These and other patient-centered functions (e.g., drug utilization review and counseling) have not been firmly established in the community setting where efficient dispensing and financial performance are emphasized. The prevalence and value of the clinical functions are important issues because the community pharmacist operates at the intersection of prescribing and compliance. The community pharmacist has both the prescription and the patient in proximity at the time of dispensing and theoretically has the potential to both suggest prescribing improvements and educate and counsel patients to improve compliance behavior.

In recent years several events have served to focus attention on the potential clinical function of the community pharmacist:

- Many states have considered and in some cases enacted laws mandating pharmacists to counsel patients (5).
- The Medicare Catastrophic Coverage Act, had it not been repealed, would have resulted in Medicare coverage of outpatient drugs for heavy utilizers and required community pharmacists to conduct prospective drug utilization review and provide counseling to these Medicare recipients. The Act also spawned considerable interest by policymakers, researchers, and leaders of the profession regarding the economic and health status consequences of pharmacy services.
- A report issued by the Inspector General of the United States concludes that the clinical functions of community phar-

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macies have value but that such functions are not routinely performed (6).

- The Medicaid Prudent Pharmaceutical Purchasing provisions of the Omnibus Budget Reconciliation Act (OBRA) of 1990 require significant changes in the Medicaid outpatient drug program. Among other reforms, OBRA mandates that community pharmacists engage in prospective drug utilization review and counseling for all Medicaid patients. According to a report written by the staff of Senator David Pryor, author of the law, pharmacists should provide oral information if they feel the patient does not adequately understand how the medication is to be taken (7). Also, the legislation mandates demonstration projects to evaluate the cost-effectiveness of cognitive services provided by pharmacists and studies of the adequacy of state reimbursement rates for pharmacists.
- The Accrediting Commission on Pharmaceutical Education has begun an initiative to make the Doctor of Pharmacy (Pharm.D.) degree the sole standard of educational entrance to the field (8).

Health Care in Inner-City Chicago

Concurrent with these developments has been intensive study of the health care delivery system in Chicago. These efforts reached their peak in the Chicago and Cook County Health Care Summit. "Limited access for the poor, inconsistent quality of care, episodic acute care rather than continuity of care and the lack of comprehensive services" are just a few of the problems itemized in Summit-related documents (9). These discussions and analyses have tended to focus primarily on hospital and physician care, unfortunately not explicitly considering drug therapy in its central role in the total care process.

However, when the economic- and health status-related benefits and dangers of drug therapy are considered, it is clear that the evaluation of pharmaceutical-related care and services in the city of Chicago should be given consideration as a major addition to the health policy agenda. Several community leaders have advocated that the roles of pharmacies, pharmacists, and pharmaceuticals be explored.

Health Care Summit documents have identified the west side of Chicago as an area with serious health status and delivery system problems. This West Side Corridor includes, among others, the Austin and West Garfield Park community areas. Of all the neighborhoods in the West Side Corridor, Austin has been singled out most often for its many problems and considerable potential as a site for interventions aimed at improving the situation.

Medicaid coverage is extensive in Austin and West Garfield Park, and numerous pharmacies exist in these neighborhoods. In 1980, the 171,891 combined population of Austin and West Garfield Park was young (mean age = 28.1 years), predominantly black (79%), relatively uneducated (35% high school graduation rate), and poor (38% below 150% of poverty in 1983). A total of 44% of West Garfield Park residents receive some type of public assistance. Females comprised 53.3% of the population, and 35.2% of households in Austin were headed by females. Residents of Austin are at increased risk for 1) preventable childhood conditions, such as measles, lead poisoning, teenage pregnancy, low birthweight infants, and infant dysentery; 2) sexually transmitted diseases; 3) infant death (infant mortality rate = 17.4 per 1,000 live births); 4) health and safety hazards related to environmental factors; and 5) violent death. The incidence of gonorrhea in Austin is almost twice the city-wide rate, and the number of reported cases of the acquired immunodeficiency syndrome in 1989 was in the top nine of the 77 community areas in Chicago (10,11).

Within the framework of factors outlined above, it was resolved to conduct a descriptive study of pharmacies in the Austin and West Garfield Park areas. The objectives of the study were to estimate the quality potential of community pharmacies in these neighborhoods and to elucidate the issues and problems of the urban pharmacy with special attention to Medicaid-related issues.

Methods

The Illinois Department of Professional Regulation supplied a list of all licensed pharmacies in the contiguous neighborhoods of Austin and West Garfield Park. Letters were written to the 28 functioning, noninstitutional pharmacies with telephone follow-up conducted to seek participation. Of the 28 licensed and operating pharmacies in the area, 21 agreed to participate. Visits were made to these pharmacies and interviews conducted with pharmacists-in-charge during November and December 1990. The principal investigator was accompanied by one project staff member (pharmacy student) on 10 of these pharmacy visits. Two of the visits took place off site (i.e., the pharmacist would not meet at the pharmacy), but one of these was followed up by a visit to the pharmacy on a later date.

Issues regarding the structure and function of urban pharmacies were approached via open-ended questions regarding the ownership and legal relationships of the pharmacy and respondents' views of the role of the community pharmacy in the inner city.

We use the comments of respondents and the observations of interviewers to elaborate on the structure and function of inner-city pharmacies, paying special attention to the dynamics of pharmacist-patient interactions. While we have condensed and paraphrased the comments of respondents, in no case has the substance or intent of a response been modified.

Results

Structure of inner-city pharmacies

All 21 pharmacies studied met one of three organizational structure categories: chain (n = 4), independent (n = 4), or medical center (n = 13). Of the three types of pharmacies that exist in these poor, inner-city Chicago neighborhoods, the chain drugstore pharmacy is large and well equipped, processes many prescriptions, offers many nonprescription items for sale, and is electronically linked to its counterparts; the much smaller, independent drugstore pharmacy has a small prescription volume which is largely non-Medicaid, and offers far less nonprescription merchandise but purports to be friendly and efficient; and the medical center pharmacy shares space with its prescribers,

offers prescription-only items, and has a high volume of Medicaid patients. The chain and independent pharmacy models can be found in cities, suburbs, and even rural areas, but the medical center format is primarily an inner-city phenomenon.

Chain pharmacies—Four of the pharmacies are units of one of two sizeable chain drugstore corporations. All are large in terms of square feet and prescription volume (mean = 221 prescriptions dispensed per day), although as a percentage of total sales, the prescription business is relatively modest (mean = 39.5%). Stores within the same chain are similar by virtue of being subject to corporate policies: both chains advertise substantially, are open for business on Sunday, and offer after-hours emergency service. Both chains have formal policies to encourage generic substitution, as well as mission statements, organizational charts, written employee job descriptions and personnel and operating policies, formal employee training programs, and formal, centralized inventory control systems and product recall policies. All four chain stores possess their respective corporation's computerized patient profile system which is linked to a central data depository. Both of these systems are comprehensive and state-of-the-art.

Chain pharmacies report that prescriptions dispensed to Medicaid patients account for an average of 40% of total prescription volume.

Two of three females, two of three blacks, and the only Pharm.D. respondent work at the pharmacy chain stores.

Independent pharmacies—Independent pharmacies have no structural relationships with other organizational entities. The four independent pharmacies visited are physically small with a very small prescription volume (mean = 41 prescriptions filled per day) that accounts for a larger percentage of total sales (mean = 50%). The independent pharmacists pride themselves on personalized and speedy service. They report that customers wait an average of 8 minutes to have a prescription filled, while the chain pharmacists report an average of 24 minutes. Three independents utilize a formal inventory control system, and one independent has what may be called a mission statement. None possess formal generic substitution policies, organizational charts, job descriptions, personnel or operating policies, training programs, or product recall policies. Three of four independent pharmacies possess computerized patient profile systems. Independent pharmacies report that Medicaid prescriptions average 3% of prescription volume.

Medical center pharmacies—The predominant organizational form encountered during the research is the medical center model (n = 13): a storefront structure with offices for physician(s) and possibly a dentist, optometrist, or sex therapist on one side, a pharmacy on the other, and a waiting room between the two. The medical center pharmacy is essentially a small room facing the patient waiting area. Patients stop at the pharmacy to have their prescriptions filled immediately after concluding their physician visit. Medical center pharmacists report that an average of 93% of their business is from medical center patients. Medical center pharmacies are extremely small in terms of square feet but have a relatively large prescription business (mean = 101 prescriptions filled per day) that accounts for 98% of total sales. Two medical center pharmacies make use of a formal inventory control system, and one has a formal product recall policy. None possess formal generic substitution policies, organizational charts, job descriptions, personnel or operating policies, training programs, or mission statements. Nine of 13 medical center pharmacies have computerized patient profile systems. Medical center pharmacies report that Medicaid prescriptions account for an average of 87% of all prescriptions dispensed.

Two of the 13 medical centers visited have formal connections to nonprofit hospitals. In each case the medical center is owned by a physician, who has a formal relationship with a management company employed by the hospital. The hospital presumably obtains patient outreach through such an arrangement and, most importantly, also exercises considerable influence over the operation of the pharmacy. No clear pattern exists regarding the other medical center ownership arrangements, but the varieties include: 1) building owned by third party, physician rents building, and pharmacist sublets pharmacy area from physician; 2) building owned by third party, pharmacist rents building, and physician sublets medical area from pharmacist; 3) building owned by third party, and physician and pharmacist sublet for space on an independent basis; or 4) physician or pharmacist owns building, and the other one rents from the owner.

Function of inner-city pharmacies

When asked to describe the major job or objective of community pharmacies, subjects provided responses that were coded into one of three categories: no opinion, traditional function, or clinical function.

Three respondents (all from nonhospital-affiliated medical centers) had no opinion, apparently having never considered the issue.

Four respondents (all from medical centers) referred to the traditional roles of dispensing products and/or earning profits.

The remaining 14 subjects (including all chain and independent store pharmacists and one hospital-affiliated medical center pharmacist) provided a patient-centered, or clinical, view of the function of the community pharmacy. These respondents indicated that the purpose of the community pharmacy is to contribute to the health and well-being of the patient in some way beyond the simple distribution of effective medications. These responses were further subdivided into three groups:

1. Two respondents provided general statements about the community pharmacy's role in enhancing health status. The respondent from a hospital-affiliated medical center pharmacy said "being a role model to help people maintain health" is important, and the respondent from a chain store pharmacy said "giving community residents the best possible health care" is important.

2. Six respondents explicitly defined the function of the community pharmacy in terms of its connection to other health professionals, most notably physicians. The view of these subjects is that the community pharmacist serves as an intermediary between physicians and patients by providing information, education, counseling, support, and interpretation of physician instructions to patients. One medical center pharmacist defined

the role as "bridging the gap between physicians and patients which includes providing information, helping with compliance, etc." Another respondent provided a useful example of the role of the pharmacist as a bridge between physician and patient: "When patients submit a prescription that says 'take as directed,' the pharmacist will ask whether they know how to take the medication. The patients often say that their physician never told them. Physicians don't tell their patients enough about how to take the medication and also don't tell the patients what the drugs are for, so the result is this real need to counsel."

3. The remaining six respondents viewed the pharmacy's role as providing counseling-related services to patients, but they did not explicitly mention physicians. A chain pharmacist viewed the role as "counseling patients to ensure compliance."

That two-thirds of the respondents reported a clinical function as the role of the community pharmacy raises the question of whether a social desirability response is at work. This question was not formally tested, but results presented in the following sections suggest that such a bias is minimal.

Barriers to the patient-centered clinical function

The patient-centered clinical function described above was elaborated by pharmacists in other components of the interview when they discussed their problems and described day-to-day life in an inner-city community pharmacy.

Conflict between clinical and management imperatives—Seven respondents (including one chain and one independent store pharmacist and both of the hospital-affiliated medical center pharmacists) observed that patient-centered ideals are compromised because the need to focus on dispensing medication leaves little time to provide clinical services. This distribution effort is not whimsical: sales and reimbursement revenues are based on products dispensed, not on services provided. Failure to recognize this would most likely mean financial ruin for the pharmacy. Presumably for this reason, none of the pharmacies visited included counseling booths or private consultation areas. As one pharmacist said, "It is not economically feasible to counsel patients. If you take the time to do it, you have to cut down on the number of prescriptions you dispense. You get paid for the prescriptions, not the counseling. So you don't have enough time for economic reasons to do it."

Patient attitudes—Many respondents identified patient compliance as an important issue, but three reported that they harbor strong reservations about the ultimate value of providing compliance-related counseling to patients. Their view is that patients are not receptive to such counseling and will not make use of the information provided to them. According to this view, patients do not ask many questions regarding their medication and do not have a desire to be counseled. One respondent indicated that patients can be offended by counseling. Another pharmacist reported that a common question from patients concerns whether or not they can drink alcohol while using the medication.

Four respondents observed that many patients expect to have their prescriptions filled quickly and would gladly sacrifice counseling in the interest of speed. Some of these patients typically wait three to four hours to see a physician and reach a frustration peak at the pharmacy. They expect quick service and can be irritable, rude, and resistant to investing time in counseling.

Six respondents suggested that this barrier can be overcome by establishing personal relationships with patients. One pharmacist indicated that "face recognition" is important: "Patients know you and your moods; you know them. This impacts on the effectiveness of counseling." Another pharmacist said: "You know your patients. They know you. They trust you. Experience is crucial. Over the years, you get to know your patients and the types of problems that occur regarding drug therapy."

These comments were supported by the observations of the interviewers. All interviews occurred during business hours, enabling the interviewers to observe the interaction between respondents and patients.

Patient abilities—Even when a patient's disposition is not a problem, the need for and success of counseling is dependent on other patient characteristics. Four pharmacists noted that a patient's lack of education results in a tendency to ignore therapeutic necessities. For example, patients often stop taking medication when symptoms are not present (e.g., hypertension medication and antibiotics), or they insist on receiving a medication that has been effective on a previous occasion but is not the best therapeutic alternative for the patient's current condition. This, together with the fact that many patients have difficulty understanding written and oral communication, requires that pharmacists patiently provide detailed information in short and simple terms.

Ability to pay was another counseling-related issue identified as a problem by eight respondents. Patients without Medicaid coverage and Medicaid enrollees with prescriptions for noncovered drugs will often forgo the needed medication. Alternatively, these patients will sometimes take drugs less often than directed in order to "stretch out" their medication or request that a prescription be reduced in size to make it affordable. For example, when presenting a prescription for an expensive antibiotic that is to be taken for 10 days, a patient might request to be given an amount worth $5.

Several pharmacists stated that they extend credit informally to their patients. One observed that patients to whom he has extended credit and who are not able to repay are sometimes too embarrassed to return to the pharmacy, which reduces the effectiveness of this intervention. He said that it is possible to lose customers in this way. Another pharmacist mentioned that although it is usually unnecessary for him to extend credit because most of his patients are on Medicaid, he will occasionally advance medication to patients whom he knows personally to help them until they are able to pay or until their insurance coverage is resumed. Another stated that he dispenses the medication even if patients cannot pay for it and keeps a list of names with the dollar amounts owed to him. This list was observed by the interviewers, as was a patient repaying another pharmacist for such a credit arrangement.

Lack of background information—Four respondents observed that lack of availability of comprehensive patient records is a barrier to effective counseling. Even if the pharmacy maintains a computerized patient profile, patients may visit other pharmacies and more than one physician. Thus, pharmacists

must rely on the patient to provide the information needed to maximize the effectiveness of counseling (e.g., other drugs being taken, disease states, pregnancy status, use of alcohol, etc.). Respondents addressing this issue uniformly expressed reservations about the accuracy of patient-provided information.

Discussion

The Austin and West Garfield Park areas are probably similar to other depressed neighborhoods in Chicago and other large cities. Still, the small number and concentrated location of pharmacies that were visited in this study suggest that generalization to pharmacies in other areas ought to be undertaken with care. This type of research, however, is costly both in time and financial expenditure. The greatest testimony to this is the dearth of empirical studies of community (especially inner-city) pharmacies. The study described herein takes a structured interview approach to street-level issues related to pharmaceutical use and care in the inner city. The depth of understanding achieved in this way should provide a foundation for community pharmacy-based research that will undoubtedly occur at increased levels as a result of the factors discussed above.

Many of the pharmacists interviewed reported a need to provide information and medication-related counseling to patients. They feel that physicians do not adequately explain to patients the indications for prescribed medications or how the medicines are to be administered. A contributing factor may be a tendency of physicians to use a vocabulary that patients do not understand. Physicians may be responding to a considerable need for services in the inner city and/or to the Medicaid incentive that makes it relatively more profitable to treat a high volume of patients. In either case, they may be sacrificing the quantity and quality of their patient medication counseling. Inner-city physicians need to talk to patients more.

It is somewhat surprising that respondents said little about counseling for over-the-counter (OTC) products, physician referrals, or nondrug interventions. These are other areas in which an obvious role for pharmacy exists.

Clearly, the attitudes, educational level, and economic status of patients play a role in proper medication use for the residents of these inner-city neighborhoods. It appears that lack of protection from the economic cost of medicine results in lower levels of utilization of prescribed therapies. Reforms of Medicaid and other outpatient drug insurance programs should be undertaken with this in mind and should make use of rational formularies that provide coverage for at least the most important OTC products. Also, pharmacy schools should emphasize a clinical education that ensures that students gain an appreciation of the importance of "face recognition" in the community (i.e., personal relationships with patients built on familiarity, empathy, and trust that span cultural backgrounds).

The limitations of most patient profiling systems make effective counseling, drug utilization review, and drug interaction screening difficult to accomplish. Profiles usually do not contain the patient's medical history or other important background information and frequently have incomplete medication histories. Because patients often utilize more than one pharmacy or physician, no pharmacy can claim to have access to a complete medication profile. Obtaining medical and drug histories from patients is inadequate, because one must rely on the patient's memory and understanding of the medical problems and medications. The obvious solution to this problem is implementation of a comprehensive, computerized medical record network so that pharmacists and other providers in all settings can have access to complete medical records.

Although some medical center ownership patterns create potential conflicts of interest through economic incentives that may not be in harmony with the goals of public policy, the medical center model also offers significant potential to enhance patient care through information availability. Because medical center prescribers and pharmacists share the same physical space, they have ready access to complete patient records. This approximates the closed type of patient information system presently available in the institutional setting but unavailable and much needed in the community to ensure comprehensive, high-quality care. Indeed, such information fragmentation was identified in Chicago Summit deliberations as an important delivery system problem. Chain drug stores, by way of contrast, lack physical intimacy with prescribers but do make use of centralized patient medication profiles available across outlets. This, too, creates the potential to achieve a total patient view, at least in terms of drug therapy. Health policymakers need to foster these potentialities and make them available on a wide-scale basis. For example, the drug utilization review for Medicaid patients mandated by OBRA will probably provide every participating pharmacy the capability to monitor all Medicaid-sponsored medication use for an individual patient regardless of where the medicines were obtained. This is a step in the right direction. Without access to the patient's total health care record, providers can easily miss the opportunity to optimize patient care.

The only acknowledged major study of inner-city community pharmacies in the United States was published in 1975 and explored pharmacist performance along the dimensions of dispensing fundamentals, OTC and prescription drug usage control, drug monitoring, health information, and patient contact and empathy (12). The researchers found that practitioners in poverty areas performed worse than their counterparts in non-poverty areas, but the latter group did not perform well either. The most important related research conducted since then is summarized in the Inspector General's report, which concludes that the clinical functions of community pharmacies do have value even though they are not routinely performed (6).

In the present case, the average percent of prescription business accounted for by Medicaid varies widely across pharmacy structural category: 87% for medical centers, 40% for chain stores, and 3% for independents. Medical centers seek financial success by coupling physical proximity to prescribers with high Medicaid volume. Because stand-alone independent pharmacies do not have the prescriber connection, their total prescription volume is low and thus they probably minimize Medicaid participation and its attendant financial risk. Chains show no clear pattern. Apparently, they can achieve high volume through low prices and use that to offset the risk of Medicaid participa-

tion. Indeed, one of the chain stores visited is located in one of the poorest areas of the study, and its prescription volume is 85% Medicaid.

Of most concern is that all of the respondents who either had no opinion regarding the function of the community pharmacy (n = 3) or believed that the function is distributive rather than clinical (n = 4) are medical center pharmacists. This raises the question of whether some Medicaid patients receive the level and quality of service available to others. Perhaps implementation of OBRA (1990) will enhance uniformity of service provision, as the Act requires pharmacists to provide patient-centered services to Medicaid recipients. Another possibility is that implementation will be problematic in these pharmacies.

The majority of pharmacists interviewed perceive the function of inner-city pharmacies to be patient-centered and not simply distributive. A social desirability response may be at work, and physicians and patients may have different viewpoints. The fact that it is not commonplace for pharmacists to receive reimbursement for providing medication-related counseling suggests that such a service is not considered to be of economic value by patients or third parties. Also, physicians may view community pharmacists as dispensers. A recent study (13) found that two-thirds of physician respondents consider prescription filling to be the pharmacist's most important function. Further exploration of the views of patients and physicians regarding the function of the community pharmacy and the dynamics of patient counseling is needed.

On the other hand, medical education is placing renewed emphasis on the value and importance of providing care in the outpatient setting (14), and physicians are exasperated with the magnitude of malpractice premiums. It may be then that physicians can realize some benefit if patient counseling by pharmacists has clinical and/or economic significance. This may also be of benefit to the pharmacy profession, which is showing signs of frustration at the barriers to moving beyond the traditional dispensing role. Of most importance is the possibility that proper use of such a "check-and-balance" approach may contribute to better drug therapy and health status outcomes for inner-city residents.

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