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THE LAST DROP (THE GAY CAVALIER), 1639
JUDITH LEYSTER, 1609–1660

The cover of this issue of JMCP offers an extraordinary seventeenth century Dutch painting by Judith Leyster. The piece is prescient of current day themes through its moralistic message regarding consumption and health. Its history is equally fascinating by virtue of the rarity of professionally trained women painters during that period of European history.

UNUSUAL BEGINNINGS

The exact circumstances that led Judith Leyster to pursue the profession of painting are not well known. Baptized in the Reformed Church of Haarlem on July 28, 1609, Judith was the eighth of nine children. Records suggest that the family enjoyed a relatively privileged social status until her father, presumably a prosperous brewer, declared bankruptcy in the year 1625. This financial catastrophe probably necessitated that the children work to defray family expenses and delivered Judith Leyster to the arts.

She received training in one of several possible Haarlem studios over the following years, starting as an embroiderer, which was common instruction for young ladies at that time. Her personal relationship with the family of the studio director may have led to her introduction to painting. By 1629, she had taken up study in the studio of Frans Hals and was apprenticed in the Haarlem Guild of St. Luke, which permitted her to sign her own works. In 1633, Leyster became the first woman to join the Haarlem Guild of St. Luke as a full practicing member. It was during this period that she produced the majority of the works attributed to her.

Leyster married a fellow Haarlem painter, Joannes Molenaer, in 1636. As with her father's family, financial difficulties plagued the couple throughout their married life—largely caused by her husband's lack of attention to bills. From 1639 to 1650, Leyster gave birth to five children, two of whom survived to adulthood. She does not seem to have painted much after her marriage and the birth of her children. Most of her major, signed, and dated works originate before her marriage—the featured work being one of the few exceptions. A set of botanical illustrations produced by Leyster for a tulip catalogue (dated 1643) indicate that, under the restrictions of raising a family, Leyster took on new smaller-scale works that could be easily managed at home.

Leyster's marriage at the age of 26 held her to a life of complicated financial obligation, debts, and lawsuits. Those burdens, coupled with the responsibilities of her young family and the early deaths of three children, clearly precluded her continued growth as a recognized artist. The promise of her youthful work was not to be realized later in life as her painting career diminished.

A MODERN-DAY MESSAGE

The moral theme of The Last Drop (oil on canvas, 89 x 73 cm) focuses on the degrading and dissipated state of drunkenness. The two figures in the foreground are pictured lurching in the aftermath of revelry. While one guzzles wine from the mouth of a large wine jug, the other holds an empty wine tankard and smokes a pipe—both images representative of vice. Because of their dissipated state, neither figure is aware of the menacing, lurid visage in their midst. The skeleton raises an hourglass in its right hand, a candle and a skull in its left, portending the fate of the two unfortunate victims. The tone of the composition is emphasized by the flickering, shadowy light of the candle, which lends a seedy atmosphere to the scene of debauchery.

Leyster frequently painted night scenes illuminated by artificial light. The significance of illumination in The Last Drop may relate to Vastenavond, the night before the beginning of Lent, during which excess was indulged before the long period of fasting and abstinence. Coupled with this imagery is a reference to the archetypical figure Gula (Gluttony), as embodied in the tilted, drunken pose of Leyster's left figure. The Gula archetype was well recognized in the seventeenth century Baroque style, derived from Bosch's Tabletop of Seven Deadly Sins (circa 1485–1500). Such compositions including permutations of the Gula, the raised pipe, or skeletons were also explored by other influential Dutch artists of the period, such as Molenaer and Brouwer.

The skeleton seems intent on the Gula-type figure, but its moral warning also applies to the other figure and to the viewer as well. The image of the skeleton is common to medieval and Renaissance art, where it personified the inevitability and unpredictable nature of death. However, Leyster's portrayal of the skeleton in a scene of merrymaking is somewhat unusual, suggesting that the theme is not so much the moral dilemma of gluttony and the fear of death, but rather the foolishness of the young revelers. To that effect their staggering behavior mimics the exaggerated gestures of clowns.

Interestingly, this featured version of The Last Drop was only recently restored to reveal the original composition. In the previous incarnation of the work, an unknown artist had cleverly painted over the skeleton and replaced it with a nightstand set with a glowing candle that preserved the lighting effect. Portions of the skeleton's foot structure formed the legs of the nightstand so that the alteration did not disturb the perspective of the painting. The content of the original composition was suggested only through an existing archival copy of the work.

Robert W. Baran, Pharm.D.
Contributing Editor, JMCP
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Improving quality is most definitely a way to control costs. But since quality is often very difficult to demonstrate and is always difficult, but not impossible to measure, many companies continue to manage costs simply by measuring the cost of each component of care.

As discussed in the features in this issue of JMCOP on internal and external marketing and reimbursement for cognitive services, the time has come for pharmacy to step up to the plate and begin a difficult educational process for health care buyers and payers. The more easily measured numbers—such as PMPM, generic substitution rates, discounts off the network, and formulary compliance percentages—are of use only in "silo" management. Is it not the overall or total management of a patient, including quality of life, that is so very important—to managers and to the patients and their families?

INTEGRATION NEEDED NOW

For example, MCOs state that, although preventive care is a very basic premise of their business, an on-going struggle within an organization often seems to center on funding or dedication of resources for such programs because of difficulty in measuring the impact or outcome of these activities. The very fact that many organizations do not have the sophisticated and integrated data-management systems to monitor or review the impact of prevention makes the concept of outcomes studies difficult to sell internally.

Fortunately, an increasing number of MCOs, including Kaiser Permanente of Northern California and Harvard—Pilgrim Community Health Plan, have made the dedicated efforts to put in place such preventive health programs and have successfully measured their effects. Colon-cancer screening and domestic violence programs have proven that patient education and early screening play a crucial role in cost-containment. Instead of being considered "fluff," forward-looking organizations are considering such concepts essential in the argument for preventive-care services, or disease management.

PHARMACY DATA: INTEGRATION WITH OUTCOMES

The sophisticated databases and information systems available in pharmacy departments of MCOs and pharmacy benefits management companies have emerged as key resources for organizational leaders. These resources are providing more sophisticated outcomes research programs and preventive health-management programs in MCOs.

The problem in many organizations is that the systems currently in place are mostly claims-payment or financially based ones. They do not contain complete or consistent data adequate for clinically based studies of the type now being routinely requested by more sophisticated payers, which cover a large portion of health care costs.

This leaves organizations facing tremendous costs coupled with a protracted timeframe needed for making systems changes and building a bank of data or information for such studies. Even though this has been a well-known fact or dilemma for quite a few years now, the momentum of HEDIS (Health Plan Employer Data and Information Set) has pushed many organizations into dedicating tremendous resources to "catch up"—or, more accurately, stay—in the game.

COMMITTING TO THE PROCESS

What does it really take for the necessary changes to become part of the organization's mission and goals without a time-consuming battle fought across the entire organization? Progressive, visionary companies are most likely already well on their way to designing and implementing systems or making necessary changes to existing ones. For companies forced to respond by customer demands or consultants' ideas—well, they are scrambling so hard now they do not have time to read the plethora of published articles guiding others along this path.

Pharmacy has a tremendous jump start on other parts of MCOs in using databases and related tools. The advantages for managed care pharmacists using these data and their practice skills include the following:

▲ Building interdepartmental alliances
▲ Demonstrating the pharmacy department's value to the health plan
▲ Demonstrating the value of a well-managed pharmacy benefit as part of the overall health care program

▲ Showing enhanced leadership and visionary abilities and skills to colleagues in the organization.

PUTTING PHARMACY IN THE FOREFRONT

As more emphasis is placed on measuring the benefits of a well-managed pharmacy program and its impact on the patient's total health care picture, managed care pharmacists having access to more complete patient data can play an even greater role in the complete and high-quality management of patients. The daily activities of managed care pharmacists already have produced an even greater impact on improving the outcomes of their patients—now we need to be able to measure and monitor continually the impact of our value to providing quality patient care and meeting necessary financial goals.

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▲ References
Pharmaceutical Benefits Attract New and Current Health Care Purchasers

Managed care pharmacists are communicating with three key groups in an effort to enhance market share: employers, senior citizens, and potential customers wanting information-intensive pharmaceutical services. Here's how.

As competition heats up in managed care markets, pharmacists and marketing personnel are teaming up in an effort to publicize the many benefits of programs providing progressive pharmaceutical care. In both pharmacy benefits management companies (PBMs) and managed care organizations (MCOs), astute managers are expanding educational efforts explaining the benefits of managed pharmaceutical care.

New and current purchasers of health care services are targeted by PBMs and MCOs to alter the perception that pharmacy is an optional benefit. As the Medicare risk market grows, many MCOs are publicizing pharmaceutical benefits as a way to attract senior citizens. Third, potential customers who require information-intensive, value-added pharmaceutical care are contacted by PBMs and MCOs able to provide this level of service.

ELAINE ZABLOCKI

ELAINE ZABLOCKI is a freelance medical writer in Arlington, Virginia. She is a contributing editor of The Quality Letter for Healthcare Leaders and writes regularly for many health care publications.

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EMPLOYERS SEEK VALUE-ADDED SERVICES: BENEFITS MANAGERS SPEAK TO PHARMACISTS

Employers are becoming more sophisticated and precise in their negotiations for managed pharmaceutical benefits. "In the past, employee benefits managers often spent their time primarily dealing with health plans and pharmaceutical care just sort of tagged along," recalls Fred Hamacher, vice president for compensation and benefits at Dayton Hudson in Minneapolis. "We were not knowledgeable about pharmacy benefits, and we didn't focus on those issues. Now employers are starting to concentrate more on the pharmaceutical aspects of healthcare.

What do employers look for? First, says Hamacher, they need more background information on how pharmacy programs work. Pharmacy benefits managers need to explain their role, what they do, how they add value. I'm always looking for added value. In the past, employers did not realize the cost implications of pharmaceutical care, especially for retiree populations. Pharmaceutical managers today need to educate employers about the benefits as well as the costs of pharmaceutical care.

In addition, health plans should emphasize the ways they use accumulated data to improve providers' practice patterns, particularly in prescribing cost-effective medication, Hamacher suggests. Another aspect of value-added care is more sophisticated management of specific diseases. "Data are just data," he says. "Unless you use the data, they are worthless. Organizations can really add value by taking data and putting it into useful forms, and by disseminating information to the provider community about which medications really work. These are the kinds of programs that cutting-edge employers are looking for.

In fact, the Midwest Business Group on Health (MBGH) an Illinois-based coalition of major employers, recently selected a pharmacy benefits manager to serve the needs of coalition members. It chose ValueRx, based in Bloomington, Michigan.

We have a diverse group of member companies, and we needed a flexible program," explains MBGH vice president Larry Boerres. "It had to meet the requirements of companies with varying cultures, politics, and personalities. Some companies have a strong interest in generic drugs, while for others that's not a major concern. Some companies believe the employee should bear a percentage of the cost, while others only want a minimal copayment," he said. MBGH looked for a program that would offer a retail network, a mail-service option; and a combined program, depending on each company's preference. Another priority: competitive rates that would decrease as the number of participants increased.

Boerres agrees with Hamacher that employers today seek a sophisticated use of data, as well as lower costs. "Just offering discount drugs would not be sufficient for our members," he says. "Employers seek value-added services. They want information on how their population is using pharmaceutical benefits, disease management programs for high-risk conditions, programs that help people self-manage their medications, and programs that enhance communication between the pharmacist and prescribing physicians so there is less potential for error.

The coalition began offering ValueRx to its members in January, 1996; since many members have existing multiyear contracts, they may not have the option of participating in the new program until 1997 or 1998.

In this article, I discuss the marketing now underway to these "external" customers. In the second feature in this issue of JMCP, similar efforts directed toward internal decision-makers are detailed.

ADDITIONAL EDUCATION NEEDED FOR LARGE PAYERS

"First, we face an educational problem with large employers," says Judie Vermilyea, a consultant at Scott-Levin, in Newtown, Pennsylvania. "Too often they think of pharmacy as the extra benefit you can throw in if you want to. I work with pharmacy directors around the country, and one of the most common complaints I hear is that employers think of pharmacy as a separate item, and focus only on cutting the number of prescriptions per member per month. We need to educate corporate benefit managers so they understand that pharmaceutical care is an integral part of health care. Through appropriate use of pharmaceuticals, you can lower your hospitalization rate—and overall costs can be lowered."

Some employers already understand the advantages of managed pharmaceutical care and are actively seeking sophisticated, fully integrated services (see above sidebar). But employers vary widely in their level of understanding. Kim Babbin, Pharm.D., a consultant and national practice leader for Towers Perrin, says about one half of U.S. employers, which cover 70% of employees, already have extensive experience with managed pharmaceutical care and today are interested in more information-intensive programs (see later discussion about such services).

These employers typically already have a community pharmacy network integrated with a mail-service option. They probably rely on a traditional use-review program, and they may have a voluntary formulary. "These employers are looking for additional levels of management—and additional cost savings," Babbin says. "They are seeking a higher level of service, in improved customer service and account management, as well as more sophisticated clinical pharmacy programs, disease state management, outcomes management, and programs that look at

Continued on page 471
the effects of various drug therapies on employee work attendance."

The other 50% of U.S. employers generally use a traditional indemnity program, perhaps with a mail-service option. Or they may use a health-management organization (HMO) without really focusing on the level of pharmaceutical services provided. These employers are not receiving the maximum benefit possible from fully integrated pharmaceutical services, and they are a potential target for increased educational efforts.

INTEGRATED SERVICES AS SELLING POINT TO LARGE PAYERS

Fully integrated MCOs use their extensive patient database to appeal to new purchasers, says Patricia Wilson, of Associates and Wilson in Rosemont, Pennsylvania. "One of the advantages of the HMO is that they have so much information about the patient. They have medical data, laboratory test data, and the pharmaceutical record. If HMOs wish to be effective, that complex body of data could be at the core of a very appealing message."

However, while most managed care organizations do have this mass of data available from a wide variety of sources, it is often not in usable form. The laboratory, pharmacy, and physician's office each may have separate computer systems that are not able to share information.

"If an HMO wishes to market these services successfully, it must be able to integrate data efficiently," Wilson says. "It has to be able to take the information, put it into usable form as an integrated electronic record, and then use it to not only manage the quality of care, but also to manage costs. It should be able to capture and use data in spotting potential problems early and targeting interventions. The HMO must develop and use advanced technology—at present, this is where many HMOs fall flat on their faces."

Many large integrated MCOs are currently working to upgrade their data-processing systems. Within the next five years, many more health plans will use this sort of integrated patient record in marketing themselves to new customers and to compete more strongly with PBMs.

PHARMACY A KEY BENEFIT FOR THE ELDERLY

In addition to employers, who make health care purchasing decisions on behalf of large groups, Americans eligible for Medicare represent another potential target for increased education about managed pharmaceutical benefits. Elderly Medicare beneficiaries make their own individual health care purchasing decisions and have the freedom to change plans at will.

"Almost all HMOs now are attempting to market to seniors," Wilson says. "One of the selling points they use is that they offer benefits not covered by Medicare. Saying 'we're going to offer you these pharmaceutical services' is marketing in and of itself. Keep in mind that HMOs have many obstacles to overcome in dealing with the senior population. For one thing, seniors tend to have very strong allegiance to the physicians with whom they have dealt for extended periods of time. You have to do something tempting to persuade seniors to change physicians."

Pharmaceutical benefits are a major marketing tool that can strongly influence seniors' health care decisions. For example, CareData Reports of New York surveyed more than 2,500 members of Medicare HMOs in California. The 1995 analysis reflected that prescription drug coverage was a reason for selecting a particular plan for 70% of beneficiaries. Prescription drug coverage was the most frequently selected item on the list of 15 different items that might affect consumer choices.

Many MCOs have developed services designed to appeal specifically to the rapidly growing Medicare risk market. Barbara Wipf, a consultant in the Atlanta office of Towers Perrin, says, "Some of these programs actually price pharmacy almost at a loss. They make their pharmaceutical program so enticing or affordable that retirees or people who need a good deal of medication will select a plan based on just that information. Medicare HMOs publicize their benefit package, lower copayments, or faster mail service—pharmaceutical care is a very visible benefit."

Health plans are using a wide variety of advertising methods to inform seniors about their pharmaceutical programs, including aggressive local campaigns using radio, billboards, and print ads posted on public transportation.

SecureHorizons, a division of California-based PacifiCare, serves more than 330,000 Medicare members on the West Coast. It makes special presentations on its program to groups of senior citizens, emphasizing benefits that reach beyond standard Medicare coverage, including prescription drugs. The senior citizen market, very responsive to pharmaceutical benefits, is equally sensitive to comparisons among different benefit packages, says Valerie Consolo, market director, SecureHorizons, Sales, Southern California. "We're seeing a benefit war right now, not a price war, since almost all HMOs in California have no additional charge for Medicare recipients. We find that someone may enroll in SecureHorizons, where they get a $2,500 annual pharmacy benefit; if they learn two weeks later that another HMO offers unlimited prescription benefits, we may lose that..."
person to the competition. Even if they do not currently use pharmacy benefits, they still shop very carefully."

VALUE-ADDED SERVICES OFFER ADVANTAGE FOR PBMS

According to Blair Jackson, vice president for public relations for PCS Health Systems, Phoenix, Arizona, many potential customers are very interested in new, information-intensive, value-added pharmaceutical services.

PCS recently began Performance Rx, a preferred drug program implemented at the community pharmacy level. In certain drug classes, two or three medications are selected as the most cost-effective. When a member comes into the pharmacy with a drug not on the "preferred" list, the pharmacist obtains permission from the patient to contact the physician about a change to the preferred drug.

In late June, PCS launched disease-management programs for asthma, diabetes mellitus, ulcers, upper respiratory infections, depression, and elevated cholesterol levels. These programs use educational and behavior-modification interventions to help patients better manage their diseases.

According to Jackson, interest is high in these information-added pharmaceutical services. "We serve four types of organizations: self-insured employers, insurance companies, Blue Cross/Blue Shield, and MCOs. Across the board, we find a high degree of interest in these services. All our proposals address our ability to provide this sort of program."

The Performance Rx program, instituted last January, now has grown quickly to include 5 million members. Comparable data are not yet available for the disease-state management program, but Jackson reports, "All of our customers are asking about it. I think there is a growing realization that if you can manage pharmaceutical prescription therapy and improve compliance, you save a lot of money down the road in medical costs such as surgeries, hospitalizations, and emergency room use."

DRIVING CHANGES IN BENEFIT DESIGN

Pharmacists should spearhead efforts by managed care plans to ensure that beneficiaries receive the pharmaceutical care they need. Only by adding medications to the benefits plan can this be a certainty. Through proper marketing, pharmacists can spread the message of the advantages of medications over most other modalities of care.

This program will provide an overview of HIV/AIDS and the societal impact of the diseases from medical, economic, and patient perspectives. The management of HIV/AIDS and the clinical and economic implications of different treatment strategies on healthcare outcomes will be discussed.

TARGET AUDIENCE
Managed care pharmacy clinicians and managers who are interested in learning more about approaches to pharmaceutical care of patients with HIV and AIDS and the impact of these conditions on patients and the healthcare of system.

LEARNING OBJECTIVES
After attending this program, the participant should be able to:
1. Describe the epidemiology of HIV/AIDS.
2. Give examples of the psychologic consequences and quality-of-life issues associated with HIV/AIDS.
3. Summarize the various treatment options available for the management of HIV/AIDS.
4. List and describe newer pharmacotherapeutic agents available for HIV/AIDS.
5. Explain the impact of disease management programs on healthcare outcomes and costs of HIV/AIDS.

PROGRAM AGENDA
Thursday, October 31, 1996
12:00 PM Registration/Lunch
12:45 PM Program Overview
12:50 PM Epidemiology of HIV and AIDS
   Faculty to be announced
1:25 PM Quality of Life Perspectives of the Patient with HIV/AIDS
   Mark S. Seesak, JD
   Director, Policy and Planning AIDS Project LA
   Los Angeles, CA
2:00 PM Break
2:10 PM Evaluating Treatment Options and Developing a Treatment Care Plan for Your Patient
   R. Scott Herr, MD, Chairman
   President Clinton's Advisory Council on HIV/AIDS
   Los Angeles, CA
3:25 PM Question & Answer Session
4:15 PM Program Conclusion

CONTINUING EDUCATION CREDIT

The Academy of Managed Care Pharmacy (AMCP) and Medical Education Systems, Inc. (MES) are approved by the American Council on Pharmaceutical Education as providers of continuing pharmaceutical education. AMCP and MES have assigned 0.35 CEUs or 3.5 contact hours of continuing pharmaceutical education credit. ACPE provider number 233-777-96-049-102. This program is acceptable for continuing pharmaceutical education credit, which will be awarded free of charge via mail within 4 weeks of the program to participants who attend the program for its duration and turn in a completed evaluation form at its conclusion.

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Internal Marketing: Essential Challenge for Managed Care Pharmacy

Sometimes the most difficult marketing job is the one needed inside the managed care organization. Described here are the efforts made in four MCOs to assure that the talents of pharmacists are made available to plan members.

Pharmacy directors must feel like the Cinderellas of managed care these days. As health care organizations face increasing pressure on costs, top managers think of pharmacy as just another cost center, and they search for ways to limit the pharmaceutical budget. Many health plans track the number of prescriptions per patient per month, or the dollars spent on pharmaceutical care per member per month, in an effort to limit pharmaceutical costs.

But resources used for pharmaceutical care can cut vastly the amount of money spent on high-cost services such as surgery, emergency room visits, and inpatient hospitalizations, making this a short-sighted and counter-productive strategy. But when will the prince come and elevate pharmacy to its rightful place?

In this issue, I describe the marketing problem faced by pharmacy and de-
STUDIES SHOW PHARMACEUTICAL CARE CUTS COSTS, BOOSTS OUTCOMES

Recent studies strongly suggest that effective pharmaceutical care could cut costs and improve outcomes throughout the health care system.

A one-year study at Walter Reed Army Medical Center in the nation’s capital found that health care teams that included a pharmacist had shorter lengths of stay and lower drug costs per admission than teams without a drug expert. No difference in mortality was identified. The average cost savings for teams with a pharmacist were $37 per inpatient admission, and the benefit-to-cost ratio was 6.03:1.

The authors noted, “In our study, pharmacists reduced morbidity, as measured by LOS. We believe that our results can be generalized to other institutions. We are confident of the value added by clinical pharmacists, since sensitivity-analysis showed our model to be robust.

Another study estimated that preventable drug-related morbidity and mortality probably costs $76.6 billion annually in the ambulatory setting in the United States. Using varying assumptions, predicted costs ranged from $30.1 billion to $136.8 billion, and the largest single component of these costs was drug-related hospitalizations.

“Preventable drug-related morbidity and mortality represents a serious medical problem that urgently requires expert attention,” the authors wrote in the Archives of Internal Medicine. “Pharmaceutical care may provide the basis on which health-care professionals can reduce this inappropriate behavior...Pharmaceutical care holds tremendous opportunity for pharmacists to realize their full potential as members of the health care team.”

scribe several different ways pharmacy directors can educate top managers, physicians, and other health care professionals about the meaning and benefits of pharmaceutical care. Pharmacy directors at four leading health plans describe a variety of strategies to publicize the value of pharmaceutical care within their own organizations.

EDUCATING COLLEAGUES WITHIN THE MCO

Deep-rooted reasons are at the heart of this problem, says Judie Vermilyea, a consultant at Scott-Levin, in Newtown, Pennsylvania. “There is an enormous need for education. Historically, physicians have tended to look at pharmacy as being on a lower level, somehow—after all, pharmacists are not physicians. However, I believe this attitude is starting to change.”

Kim Babbin, Pharm.D., a consultant and national practice leader for Towers Perrin, agrees. “Pharmacists face a challenge in making people understand the value of the pharmacy benefit and of pharmaceutical care. Typically, the pharmacy department reports to two different chiefs—both the medical director and the chief financial officer. Ironically, both the medical director and the CFO are looking for similar sorts of information. For example, they both want data on the cost-effectiveness of the products they are considering for the formulary.”

Alan Barreuther, pharmacy manager at Healthpartners Health Plans of Arizona, in Tucson, has been working to educate health plan managers on the value of pharmaceutical care. “One of the things we’ve been able to do fairly well in our plan is to continuously educate the medical directors and all the financial people on how we can increase value and member satisfaction and also contain costs. To tell you the truth, this sort of internal education is a major effort—sometimes it may be even harder to do internally than it is externally.”

Described below are the successes and challenges of internal marketing at four MCOs.

HARVARD PILGRIM HEALTH CARE

Pharmacists at Harvard–Pilgrim Health Plan (HPHP) have a special opportunity to educate physicians in-house, because the plan is a staff- and group-model HMO, says Timothy Birrer, R.Ph., M.B.A., director of pharmacy. Pharmacists attend a regular monthly meeting with the group plan’s 15 medical directors, about half an hour is reserved for a presentation by the pharmacy department. “As pharmacists, we try to point out opportunities to physician leaders who hopefully will take it back to other clinicians. We discuss situations in which they may be able to prescribe more prudently or more cost effectively—or may be able to use drugs to optimize outcomes.”

In addition, HPHP owns and operates 19 health centers serving 500,000 members. Each health center has pharmacists working on-site, and they meet continuously with the physicians practicing in the building. “When I worked as a staff pharmacist in one of the health centers, I ran into physicians constantly, in the cafeteria, on the floor, picking up prescriptions—I talked with them nonstop. We function as a team of clinical people working together: nurses, pharmacists, and doctors.”

When new, expensive drugs become available, Birner considers it his responsibility to educate physicians about indications for appropriate use for that particular medication. Recently he used one of his half-hour monthly presentations to discuss alendronate sodium (Fosamax), the new Merck agent for osteoporosis. “We explained that estrogens still should be considered first-line therapy. However, for women who are at high risk for osteoporosis and who cannot tolerate estrogen for various reasons, we said that physicians might want to consider using this drug, despite its expense.”

Continued on page 479
Similarly, when sumatriptan (Imitrex) became available last year—offering effective therapy for migraine headaches at $70 per course of therapy—HPHP checked its computerized medical database and learned its patients had quite a few emergency room visits, and even inpatient hospitalizations, because of migraine headaches. "It's actually a very costly disease. So we reviewed the records and gave physicians a list of their patients who had this sort of history; we suggested they might want to discuss this new drug with those patients."

When cimetidine became available generically, its cost went down. HPHP conducted an intervention directed at physicians, inviting them to consider the generic histamine H2 antagonist when they were choosing a first-line drug for dyspepsia. "We actually put together a marketing packet, very similar to what the pharmaceutical industry does, and mailed it to all our physicians. It was called 'Cimetidine Makes Sense,'" Birner explains. "Sometimes when a medication becomes available generically, the manufacturer stops promoting it, and we wanted our physicians to continue to have information available—especially from unbiased sources."

Birner emphasizes that pharmacy, like every other department, must live within a responsible budget. To aid patients and improve the quality of their lives by using expensive but valuable new medications, the pharmacy department must keep a tight watch on other, more controllable expenses.

"Often several drugs produce similar outcomes but vary considerably in cost. In those instances, the pharmacy manager has to work with physicians to use the most cost-effective prescriptions. We don't have unlimited resources. If we can save a few dollars in one place, maybe we can put that money into new drugs that are better in other areas."

COMMUNITY HEALTH PLAN

Pharmaceutical managers must be able to explain the value of pharmaceutical care to top health plan management, says Michael Dillon, M.S., R.Ph., director of pharmacy operations for Community Health Plan, based in Latham, New York. "You should be able to understand and speak the same language as the marketing manager or the finance manager," he says.

The implication? As Dillon considers major changes in pharmacy operations, he is always aware of the marketability of various features. "Since we operate our own health center pharmacies, we constantly have a pharmacist on site, available to meet with our members; that is a marketing advantage we can publicize."

The pharmacy director must also always be aware of costs, and operate within a fixed, per-member-per-month budget. "You have to position the pharmacy within the global constraints of the plan's financial situation. By using pharmaceuticals judiciously, we can control—or even lower—health care costs. The classic example is asthma management, in which appropriate medications can clearly cut costs for emergency room use and hospitalizations."

At the same time, the pharmacy director should be able to demonstrate that the pharmacy is tightly and efficiently managed according to usual business standards. For example, Community Health Plan tracks productivity ratios for employees at health center pharmacies, such as the number of prescriptions filled during a given time period. "We are able to demonstrate our need for staff based on the prescription volume generated by each health center," Dillon says.

HEALTH PARTNERS HEALTH PLANS OF ARIZONA

Health Partners Health Plans of Arizona, based in Tucson, has 133,000 commercial and Medicare risk members; it is primarily a network-group and IPA-model HMO. Alan Barreuthers, the plan's pharmacy manager, has a background in academic pharmacy, and he is particularly interested in working with physicians to help them improve patient care. "In my experience, it has been very valuable to bring information back to physicians about their patients—and also to invite physicians to ask questions. This is much better than coming in after the fact to say, 'you did something wrong.'"

One recent Health Partners project on calcium-channel blockers urged physicians to switch from Procardia XL to Avala PLC because the two have similar outcomes and the latter has a 20% lower cost. "When we sent letters to patients about these drugs, we actually got back notes saying 'gee, thank you—thanks for looking out for us.'"

Recently, pharmacists at Health Partners began a regular schedule of academic detailing. Each physician gets a report on drug-use patterns once a quarter; in addition, a pharmacist visits to present a detailed graphic breakdown of all the drugs each prescribes, using a laptop computer right in the office. Physicians receive continuing medical education credit for the time they spend in this consultation. "We try to see each physician at least twice a year," Barreuther says. "This is a very time-intensive process, but my experience is that, if you keep your interaction in the academic mode and focus on learning how to provide better care for patients, physicians will be willing to listen to you. The key is not to focus just on costs."

Barreuther also puts a great deal of effort into educating people within the plan on how managed care pharmacy works. "We consider our operation to be a quality function, not just a cost-containment function. Recently, I spent time educating the marketing staff about the benefits of pharmacy and therapeutics committees and formularies."

KAISER-PERMANENTE MEDICAL CARE PROGRAM

Kaiser-Permanente is a large group-model HMO divided into several...
regions across the country. Carey C. Cotterell, R.Ph., pharmaceutical director of the Orange County Service Area, reports to the southern California regional pharmacy director, who reports to regional management. Unlike pharmacy directors within smaller plans, Cotterell does not have to persuade the medical director or financial officer of his department's fiscal responsibility.

In any case, since Kaiser-Permanent has many years' experience delivering care in an integrated model, fewer barriers exist within the organization, Cotterell says. "We frequently put together interdisciplinary teams—including pharmacists, physicians, nurses, and other administrators—to figure out the best way to deal with a problem such as cholesterol management, hypertension, treatment of problematic elderly patients, or home health care patients."

Kaiser employs some pharmacists whose job is to provide physician education, using a variety of methods, including newsletters, group presentations, and feedback to individual physicians on their own prescribing patterns. Almost every Kaiser physician paycheck envelope includes a brief drug-therapy-related message. "These stuffers tend to be the size of a check, so they are small, and we tend to use them as 'refreshers' on information that has previously been discussed in more detail," Cotterell says.

Because Kaiser is such a large, fully integrated system, it has been able to use pharmacists in somewhat unusual ways. "We have many pharmacists in the region with nontraditional practices related to specific disease states. This is indeed an increased cost to the program on the labor side, but it results in better health outcomes and lower utilization, both of which reduce expenses. For example, over 1,000 patients in Orange county are currently served through an outpatient anticoagulation clinic managed by a pharmacist. They do not see a physician and the physicians do not write orders for the anticoagulants."

CONCLUSION

If pharmacists' talents are not used fully to identify, treat, and prevent drug-related problems in MCO members, it is a lose-lose situation for the plan and patients. Managed care pharmacists must sometimes market the benefits of pharmaceutical care in an effort to assure availability of such services to every beneficiary of the plan.

References
Community-Based Pharmacy: Partnering with Managed Care to Provide Value-Added Services

As pharmacy focuses more on delivering pharmaceutical care, attention is shifting to the notion of reimbursing pharmacists for providing value-added, or "cognitive" services. Although there are still roadblocks to making sure pharmacy is recognized for the value it brings, new opportunities are beginning to take hold.

As an information-based profession evolving in the budding Information Age, pharmacy is identifying a new role for itself, one that encompasses the assessment of patients, provision of relevant information, and—of course—how to get paid for the service independent of the provision of a drug product.

In this article, leaders in community, academic, and managed care pharmacy identify trends and game plans that offer promise for pharmacy in the twenty-first century as it moves further away from a cost-based reimbursement system and toward one requiring the provision of integrated value-added services to optimize care within systems.

PATIENT EDUCATION AT A PREMIUM

In upstate New York, Wellcare health plan is creating a two-tiered pharmacy program that will pay a limited number of pharmacists for patient education designed to improve compli-

Continued on page 487
ance with prescribed medication regimens. This select group of pharmacists will be paid a premium rate for the added cost of cognitive services of pharmaceutical care, adjusted for the number of diabetic or chronically ill patients seen. These "premium pharmacists," as Wellcare's president of administration Bill Strein called them in a recent interview, are "problem solvers, partners with physicians in working with medicine-dependent plan members."

Clearly, Wellcare has devised a payment and referral system that recognizes the value of pharmaceutical care in the total spectrum of patient services. But Wellcare's financing scheme is an exception. Around the country, few pharmacists have ventured into the uncharted waters of cognitive services reimbursement, raising questions about when, if ever, the profession will be paid more than just dispensing fees.

Bob Cipolle, director of the Peters Institute of Pharmacy Care, University of Minnesota College of Pharmacy, just shepherded a three-year study that demonstrated pharmacists can and should get paid for cognitive services. He is not reticent about the need for pharmacists to act now. "Never in the history of health care has anyone gotten paid until a service was provided. Waiting for a third-party payer to start paying pharmacists is a bad business plan," asserts Cipolle.

Today is not too soon to begin billing for cognitive services, he recommends. "Next time a patient asks for counseling about her medications, hand her a bill. Give her a flyer that explains what services are offered by the pharmacy and how much they cost," says Cipolle.

Cipolle acknowledges that many pharmacists are reluctant to assert their right to obtain payment for services rendered and may have to rethink what their professional duties encompass. "Pharmacists need to orient themselves to providing a service, not a product. This paradigm shift is so fundamental that it may be up to the next generation of pharmacists to develop it," he says.

Nevertheless, delay can be risky. Cipolle urges pharmacists not to wait too long to start billing for cognitive services. "There is a need out there for patient education and other services related to pharmaceutical care. If pharmacists don't meet that need, then other health care practitioners such as physician assistants or nurse practitioners will. The need to deliver pharmaceutical care will not go unmet in a free economy because it costs too much not to deliver it," says Cipolle.

**WAITING TO CONVINCE PAYERS**

While Cipolle urges immediate action to get the ball rolling on cognitive payment, other pharmacists say they first must document the value of pharmaceutical care to win third-party coverage. But they report little success in this approach.

"Perhaps pharmacy is not getting its message across. Perhaps we are just talking among ourselves and not to the people who will be paying us," reflects Gerry Mazzucca, executive director of the Philadelphia Association of Retail Druggists.

Mazzucca says managed care organizations, including pharmacy benefit management (PBM) firms, are making payment for cognitive services contingent upon demonstrating that pharmaceutical care actually improves overall treatment outcomes. This means having data sets with information on the complete episode of care—that link pharmacy services with diagnostic and outcomes data so that the effects of a pharmacist's intervention on the patient's status is documented. However, linking medical files with pharmaceutical claims is an expensive and difficult proposition, comments Mazzucca.

Paying pharmacists for cognitive services is a hard sell job for PBMs, acknowledges Lowell Sterler, PCS's assistant vice president of product management, and AMCP's president-elect. "We know intuitively that cognitive services such as counseling the patient and managing the overall disease state create value because physician office visits and emergency room visits are reduced. But no study has been able to demonstrate that value. The result is that PBMs lack the requisite empirical data to take to an employer and say, 'Here, this is how much you would pay overall for patient care if you paid pharmacists for cognitive services.'"

Sterler also emphasizes that such empirical studies will not be possible until pharmacy claims can be matched against medical claims to track expenditures along the patient-care continuum.

The short-term vision of health plan administrators who demand lower pharmacy costs even if a slight increase in pharmaceutical spending would reduce overall health care costs is lamented by several pharmacists. They complain about "silos of budgets" arrayed across the separate departments of the health plan that keep pharmacy cost savings and expenses separate from overall patient-care expenditures. "Many managed care pharmacists are responsible for a budget and not overall patient expenditures," Sterler notes.

"Plans know that most enrollees will change plans within three years of enrollment, guaranteeing that they will take their potential health problems to the next insurer. Plans need to look at overall medical spending, not just pharmacy costs."

This organizational resistance is forcing PCS to move toward payment for cognitive services at a "glacial pace," says Sterler, often frustrating pharmacists. He explains: "For a number of reasons, we can bring along our clients only very slowly. We have 60 million members all at different levels of sophistication. We work for a lot of employer groups who are simply looking for a discount off average wholesale price and limited inconvenience to their members. In addition, any program PCS implements has to work for 50,000 pharmacies, 100,000 pharmacists who have 200 different computer programs, and thousands of employer groups with differing benefit designs."

Aside from considerable administrative and philosophical hurdles, Sterler wonders if perhaps the profession has set its sights too low. "APHa has set as its goal to have only 15% of pharmacists certified in pharmaceutical care by 1997. That shows pharmacists themselves are moving at a slow pace."

PCS is inching its way to reimbursing for cognitive care. It currently pays pharmacists more than just a dispensing
fee, but the financing scheme falls short of recognizing the full value of cognitive services. Sterler explains that "PCS is using a step-wise approach" to get to the point of reimbursing for cognitive services. "Most of the added payment recognizes administrative efficiencies or increasing use of generics. We are permitting pharmacists to get as much as $12 per prescription by changing a prescription from a nonpreferred to preferred drug."

In June, PCS launched a pilot program that is paying pharmacists in four Midwest states for services that improve compliance. For example, pharmacists are getting paid for bringing in hypertensive patients monthly for blood pressure checks and cholesterol screening. "A full-blown version of the pilot won't be ready for national implementation until mid-1997," Sterler predicts. "PCS expects to be able to demonstrate that community pharmacy can drastically increase patient compliance and bring more value to total patient care," he says.

Nevertheless, the compliance program will not be an easy sell for PCS. "Can we ask groups to sign up with PCS because we will increase their drug costs but actually save on overall medical spending and hospital admissions? Now that's a difficult marketing proposition," he says.

Pharmacists interested in being paid for cognitive services represent an analogous situation to PBMs that are attempting a parallel shift from dispensing a commodity to becoming a provider organization. "That's the bottom line," explains John Jones, director, contracting and compliance for Prescription Solutions. And just as pharmacists are encountering difficulty in convincing payers to reimburse for cognitive services, PBMs are having trouble getting recognized for their sentinel effect on patient compliance and other aspects of total patient care.

PBMs continue to look for a cause-and-effect relationship between pharmaceutical care and total medical costs. "But the stumbling block remains that, while we all agree it is a good thing for pharmacists to talk to health plan members, we can't get clients to agree on the value of those services," says Jones. "We need definitive studies that show, for example, that a compliance intervention reduces overall expenses by $2.00 per member per month. But the data are not yet available. We need to be able to show that certain kinds of counseling correlate to a decrease in medical costs. But so far, we don't have any support for our belief from payers. We are frankly struggling," he admits.

A FRESH FACE FOR PHARMACISTS

The consensus is growing that business as usual is not serving the interests of pharmacists seeking payment for cognitive services and that new steps need to be taken. "Pharmacists must present themselves differently to the public. They will have to market themselves as players," ventures Mazzucca.

He cautions against pharmacists wading in too deep in the unplumbed waters of disease management: "If we narrow too much on specific disease states, we will forego taking care of the whole patient on numerous medications. Comprehensive pharmaceutical care that identifies patients who have specific disease states is needed. Pharmacists are trained in those areas and should get more involved in total patient care than in specific disease-management regimens."

Mazzucca thinks pharmacists also need to consider how automating the dispensing part of their practices will free up time to provide cognitive services. He has a vision: "A central distribution center for a particular region or state could fill and distribute to pharmacies for pick-up by patients, as Kaiser is doing now in Washington State. This pseudo mail-order operation would permit pharmacists to become more involved in patient care."

Cipolle said the three-year project run by the Peters Institute proved the hypothesis that, for "any type of pharmacy, any type of patient, and all payers, pharmacists should be paid for cognitive services." But he laments the possibility that every pharmacy group and managed care plan will feel the need to "reinvent the wheel" and prove again that cognitive services should be reimbursed. Cipolle reports health policy makers from other nations with more systematized health care delivery systems are already integrating some or all of the Peters study findings as they design ways to involve pharmacists more in total patient care.

Cipolle is currently evaluating the results of a three-year project that tested the concept of paying pharmacists for cognitive services. Minnesota Blue Cross/Blue Shield, a major health plan, two drug manufacturers, two PBMs, and an indemnity insurer participated in the pilot both through financing and a commitment of analysts. Cognitive services paid to some 50 pharmacists in the pilot study included providing initial consultations, reviewing drug histories and therapies, constructing new drug taking strategies, providing educational literature, making recommendations or referrals to other health professionals, and providing follow-up consultations.

NEED FOR DISCIPLINE

While the Peters study is being reviewed, Cipolle urged pharmacists to refocus their professional goals. "It's a matter of discipline," he insists. "Pharmacists must develop the elements of cognitive services just as every other health professional group has identified the key element of their practices. Pharmacists must provide three key services: assess a patient's pharmaceutical therapy needs; design a treatment plan that meets those needs; and evaluate the patient at follow-up. To establish this type of practice as the norm, pharmacists must be disciplined to perform certain tasks according to a deliberate thought process. It is time for pharmacists to step up to the plate and do it," Cipolle says.
Guide to Consumers' Pharmaceutical Purchasing Behavior

A nationwide survey of 5,000 consumers sheds light on consumers' purchasing decisions for prescription and nonprescription medications. Included are insights relevant to managed care decision- and policy-makers.

MARSHA FAHEY

MARSHA FAHEY is a writer and editor, Emron, Inc., Warren, New Jersey.

ACKNOWLEDGMENT: Based on A.C. Nielsen's Homescan Panel survey. Some portions of these data were reported in the CibaGeneva Pharmacy Benefit Report, 1996 Trends & Forecasts.

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The pharmaceutical purchasing behavior of consumers is the subject of unending market research for the nation's pharmaceutical companies and managed care organizations (MCOs). Despite the industry's best efforts to predict future trends based on past experiences, consumers continue to confound the prognosticators.

Several issues particularly pertinent to MCOs were explored in a recent consumer survey conducted by Emron, Inc., using the A.C. Nielsen Homescan panel as the survey sample group. In this article, I explore consumers' behaviors relative to medication purchases in these areas:

▲ Sources of advice about prescription and nonprescription medications
▲ Communications with prescribers about cost and impact on quality of life
▲ Opinions about price equity of med-
consumer at the primary care level.

Michael Dillon, M.S., R.Ph., pharmacy director of Community Health Plan in Latham, New York, says he is pleased but surprised by the study results on the number of consumers who turn to their pharmacist for advice. “Considering the business diversity in the field, the many ways prescriptions are dispensed—chain and independent pharmacies, supermarkets, mail service, clinics, long-term care facilities—these figures are a validation of the traditional role of the pharmacist.”

Supporting the apparent value consumers place on advice from pharmacists are data indicating that 48% of those in this survey believe their pharmacists should have access to information about the patient’s overall health status. As would be expected, considering their higher dependence upon the pharmacist for information about using medication, even more Medicaid patients regard this criteria as important (60%).

Allan Chernov, M.D., vice president of medical services for southwestern operations of Prudential HealthCare, is glad to see such an expression of confidence in pharmacists. “In managed care, we have tried to create an environment in which people see health care and the people who provide it as members of a team that encompasses the entire continuum of a patient’s care. Figures such as these show that the pharmacist is viewed as a member of that team—a member contributing to decisions about patient care and treatment.”

An even more telling expression of faith in the pharmacist is consumers’ behavior at the point of purchase (Table 2). When filling a prescription, only 43% ask to have it filled as written, while 21% allow the pharmacist to fill the prescription with the brand he or she chooses. Indemnity patients are even more laissez faire (24%) than managed care patients (20%) in allowing the pharmacist to fill prescriptions with the

**续于第494页**
Table 3. Household Expenditures per Month for Prescription Medications by Survey Respondents

<table>
<thead>
<tr>
<th>Prescription Expenditures Per Month ($)</th>
<th>All Plans</th>
<th>Managed Care Plans</th>
<th>Indemnity Plans</th>
<th>Medicare Plans</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 10</td>
<td>46.2</td>
<td>48.9</td>
<td>45.0</td>
<td>32.2</td>
</tr>
<tr>
<td>11–50</td>
<td>37.7</td>
<td>41.1</td>
<td>37.3</td>
<td>34.3</td>
</tr>
<tr>
<td>51–100</td>
<td>8.4</td>
<td>5.9</td>
<td>10.4</td>
<td>15.1</td>
</tr>
<tr>
<td>&gt; 100</td>
<td>6.1</td>
<td>3.1</td>
<td>5.9</td>
<td>15.4</td>
</tr>
<tr>
<td>Do not know</td>
<td>1.6</td>
<td>1.0</td>
<td>1.3</td>
<td>3.1</td>
</tr>
</tbody>
</table>

Table 4. Frequency of Provision of Wellness and Disease-Management Programs by Type of Plan

<table>
<thead>
<tr>
<th>Categories of Responses</th>
<th>All Plans</th>
<th>Managed Care Plans</th>
<th>Indemnity Plans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes, someone in household participates.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wellness</td>
<td>24.6</td>
<td>28.6</td>
<td>20.0</td>
</tr>
<tr>
<td>Disease management</td>
<td>3.2</td>
<td>3.8</td>
<td>2.1</td>
</tr>
<tr>
<td>Yes, no one in household participates.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wellness</td>
<td>16.2</td>
<td>22.6</td>
<td>10.6</td>
</tr>
<tr>
<td>Disease management</td>
<td>11.4</td>
<td>16.3</td>
<td>6.7</td>
</tr>
<tr>
<td>No.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wellness</td>
<td>33.1</td>
<td>23.6</td>
<td>44.3</td>
</tr>
<tr>
<td>Disease management</td>
<td>36.3</td>
<td>29.6</td>
<td>43.1</td>
</tr>
<tr>
<td>Do not know</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wellness</td>
<td>26.1</td>
<td>25.3</td>
<td>25.1</td>
</tr>
<tr>
<td>Disease Management</td>
<td>49.1</td>
<td>50.3</td>
<td>48.1</td>
</tr>
</tbody>
</table>

Most appropriate product. Only Medicare patients show more interest in requiring the pharmacist to fill prescriptions as written (51%).

Further, the purchaser is not making requests at point of purchase based on cost or on brand loyalty. Only 9% say they base their buying decisions on cost differentials; only 2.5% request brand-name products. Consumers, however, are aware that they have the option to fill prescriptions with generics—only one fifth say they have never requested a generic product to decrease the cost of their prescription.

No matter what the source of information, consumers feel satisfied that they are adequately informed (94% overall, consistent across all insurance types and regions). But are they? More than 90% get information about dosing, but only 60% get information about side effects, while 45% get information about drug interactions. Those figures are consistent across all insurance types and regions, with Medicaid patients receiving slightly more information concerning side effects and drug interactions than other consumers. Remember—for this group—the pharmacist is most often the first line of information.

**PRESCRIBER COMMUNICATIONS ABOUT PRICE, QUALITY OF LIFE**

Despite the emphasis on the cost of health care in the media and among insurers and providers, survey data show that only slightly more than one half of patients report having discussions with their physicians about both quality of life and cost considerations when a course of treatment is chosen. In this respect, those covered by managed care plans are no different from indemnity patients. Medicare patients have somewhat more consultations about quality of life considerations, and Medicaid patients have slightly more discussions that include only cost considerations. Across all groups, 30% say they discuss only quality of life issues with their physicians. Unfortunately, this study did not explore where patients go for information about costs or whether they perceive cost as an influence on treatment decisions.

Other data from the survey suggest that most consumers are simply unaware that their physicians may be subject to prescription controls (60% say there are no controls; 25% do not know whether such controls exist). By implication, they may not be aware of other ways in which cost management affects treatment.

Managed care consumers have a higher level of awareness about such restrictions than indemnity patients, but not high enough to reflect the actual disparity in the level of restriction between the two types of coverage. Of managed care consumers, 18% know their physicians are subject to prescribing restrictions; 54% say there are no restrictions, and 27% are not sure. Just below 10% of indemnity patients know their physicians follow prescribing guidelines, 75% say there are no restrictions, and 16% are unsure whether their plan imposes restrictions.

**MEDICATION PRICES: LOOKING FOR FAIRNESS**

Consumers' perception of pharmaceutical price fairness—they believe that drug prices are too high—is at odds with the way they see their own experience. Across all regions and insurer types, 60–70% of survey respondents who have insurance believe the cost of prescription drugs is unfair, but 62% of managed care consumers and 57% of indemnity consumers feel they...
pay “just the right amount” for medication as a proportion of their overall health care expenditures.

Pat Wilson, president of Associates & Wilson, a consultant to pharmacy benefit management companies and self-insured employers, says she is more surprised by the 11.6% of respondents who say they believe they should not have to pay anything. “So many people still feel health care should be totally provided by their employers—but employers have been burned by overutilization. Nothing educates consumers more than sharing the cost of the services they need, even in the form of a low copayment.”

When reporting actual personal expenditures rather than opinions, about 45%, across all regions and insurance types, told the surveyors they spend less than $10 per month on prescription medications; 38% spend between $11 and $50 per month (Table 3). More than 80% of both managed care and indemnity consumers report spending less than $50 a month, and, despite the lower copayments associated with managed care coverage, there is little difference between the two groups. The out-of-pocket differences are less pronounced, even at higher monthly cost levels, between managed care and indemnity consumers than between Medicare and other insurance types (Table 4). Medicare patients are traditionally higher users of all medical services, including pharmaceuticals. As expected, Medicare patients are less satisfied than other groups with the amount they spend. Yet, 40% feel they pay just the right amount; 30% feel they pay too much; while 28% are undecided.

Michael Dillon, who was also surprised by the number of consumers who consider drug prices to be unfair, commented that the pharmaceutical companies and employers who share the cost of the drug benefit with consumers “haven’t done a very good job of demonstrating the value of drug therapies.”

WHAT CONSUMERS FIND IMPORTANT IN A BENEFIT PLAN

A clear majority (more than 70%) of all consumers consider the inclusion of a pharmacy benefit to be a “very important” criterion in their decision to purchase a health plan. Employers are well aware of this. But as Dillon points out, even though the drug benefit is considered important, when consumers are asked to rank a number of purchasing criteria (this survey did not), the price and choice of physician are usually ranked ahead of inclusion of a drug benefit.

Dillon’s point that employers and insurers have not done enough to demonstrate the value of the benefit seems borne out by questions about the extent to which consumers are using it. For example, even though employers and insurers are sold on the concept of managing health through wellness programs and disease management, consumers have not attached much importance to those aspects of their health benefit. Of HMOs, 65% offer workplace wellness programs; almost 70% have some kind of disease management program in place. Yet, half of managed care consumers surveyed did not know whether they have access to disease-management programs, and fewer than 4% report having used them. More take advantage of wellness programs—29%—but only 50% are aware they have access to these programs and 25% are unsure whether they have access (Table 4).

Pat Wilson expressed a different perspective on those figures. “When a disease-management program is done well, it begins by identifying exactly those covered members who fit the profile of being at risk for the targeted disease. Then the plan reaches out to specific patients. Other members in the plan do not necessarily know about the program—they have no need for it.”

NONPRESCRIPTION MEDICATION PURCHASES: PROFESSIONAL ADVICE LACKING

In contrast to the many sources of information consumers consult about prescription medication, 45% do not
seek any professional advice about non-prescription medication purchases (Table 1). Those who do ask pharmacists more often (75%) than physicians (60%). This behavior is consistent across managed care and indemnity consumers. Again, an even higher percentage of Medicare and Medicaid consumers report they would speak to the pharmacist before purchasing a nonprescription product.

All consumers report that they consult advertising for both nonprescription and prescription products, and they highly value the information they get from these ads. Fully one half reported that they consider pharmaceutical advertisements as educational, helping them become "more informed consumers." It is not surprising that 42% say they will base their next purchase decision on such advertising.

Dillon commented that such advertising poses difficult issues for physicians and pharmacists trying to follow formulary guidelines in managing treatment and costs. Such ads, by regulation, must include full therapeutic information (e.g., dosing, side effects, course of treatment, and outcomes). "Patients are now proposing their own regimens," he said. "Physicians and pharmacists are doing their best to determine why the patient is or is not responding to the originally prescribed medication, and they are also explaining their choices as well as they can. Of course, these considerations also give providers a chance to take another look at the treatment and formulary guidelines as they affect a particular patient, to see whether there's been a flaw in the decision-making cascade." The data reinforce Dillon's point: just below 20% say they ask their physician about advertised products; just above 20% say they ask their pharmacist.

Direct-to-consumer advertising is particularly heavy when manufacturers promote highly successful prescription products as their patent protection expires and/or as drugs become available as nonprescription (Rx-to-OTC switch) products. Consumers clearly respond. Roughly 75% say they are likely to extremely likely to purchase switch products. Given this response, direct-to-consumer advertising will probably increase, rather than decrease as benefit managers would prefer.

**IMPLICATIONS FOR PHARMACISTS IN MANAGED CARE**

This consumer survey focused narrowly on behavior and perceptions concerning the cost and value of the pharmacy benefit. The resulting data provide unexpected insights into consumer attitudes about pharmacists as well. Consumers have mixed feelings about the value of prescription medications, a superficial understanding of what their benefit plan offers, but a consistently high level of trust in the pharmacist, whom they regard as a dependable source of medical information.

Health plans empowering pharmacists to offer cognitive services at the point of purchase are likely to increase customer satisfaction and member retention. Plans hoping to realize big savings from mail-service pharmacies should also determine ways through which to maintain patient contact with a pharmacist if they expect patients to adopt long distance dispensing compliantly. Plans in which pharmacists develop guidelines for health and disease-management programs—and in which the dispensing pharmacist aids in the program implementation—are tapping a vital resource. These professionals can apply their drug knowledge to inform patients and encourage compliance.

As more consumers receive benefits through managed care plans, the U.S. patient base is entering "an organized system of health care delivery rather than merely accessing a payment system," as Chernov draws the distinction. Such systems depend on knowledgeable patient handling at every point of contact. This survey indicates that consumers value the pharmacist as exactly that kind of provider. The pharmacist and plan now have to determine whether that trust is justified by the level of patient counseling pharmacists actually provide. Do they probe, discover patient problems with prescribed treatments, and identify complications and side effects? Do they have the ability to access relevant data and implement quality practice guidelines at the point of dispensing? Moving beyond compliance monitoring, will pharmacist interaction with the patient have a positive effect on the overall quality of the treatment regimen? Hopefully, the near future will hold answers.

Reference

Rocky Mountain HMO

Community and relationship building have always been at the heart of Rocky Mountain HMO's philosophy of care. Today, that commitment manifests itself most visibly in new, innovative programs the not-for-profit plan is introducing locally to improve quality and access to care.

CAROL SARDINHA

CAROL SARDINHA is AMCP Director of Communications, Alexandria, Virginia.

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Rocky Mountain HMO, in Grand Junction, Colorado, has always prided itself on the strong relationships it maintains with members, physicians, and other network providers to deliver optimal patient care while focusing on the unique needs of the local—mostly rural—communities it serves. It came as little surprise, then, when the Colorado Medical Society decided to partner exclusively with Rocky Mountain HMO to form a new, statewide managed care program, Rocky Mountain Physicians' Choice.

"Our focus has always been on creating long-term partnerships with our physicians," says Rocky Mountain HMO's Executive Director Michael Weber. Since the HMO's inception in 1974, physicians have been intricately involved in the plan's decision-making.
Rocky Mountain HMO: Facts at a Glance
- Not-for-profit IPA-model plan founded in 1974 by the Mesa County Medical Society
- Third-oldest HMO in Colorado
- Seventh HMO in the nation to become federally qualified (1975).
- Serves 90,000 members in Colorado, most of whom live in the western part of the state.
- Has served Medicaid and Medicare recipients since 1974 and 1975, respectively; currently enrolls roughly 30,000 Medicare members and 19,000 Medicaid members. About 1,000 members are eligible for both programs.
- Top-rated HMO in Colorado based on member satisfaction, according to a 1995 survey by Consumers’ Checkbook magazine, published by the Center for the Study of Services.

process, Weber explains. Local physicians make up 25% of the HMO’s board. Many of the plan’s physicians also serve on regional committees, allowing them to have a strong voice in setting HMO policies and procedures regarding physician credentialing, medical practice review, utilization management, physician reimbursement, and quality improvement initiatives. The Colorado Medical Society also selected Rocky Mountain HMO for this new, expanded partnership based on the plan’s longevity in the state and its track record for giving physicians flexibility to practice medicine in accord with local community standards and needs, Weber says.

Rocky Mountain HMO began marketing Rocky Mountain Physicians’ Choice this summer—a move that should help the HMO add roughly 30,000 new members during the next year and a half, Weber says. Because most of the HMOs in Colorado operate in Denver and the surrounding areas, the new product will fill an important market niche by serving the vast majority of areas in the state that do not have much managed care presence. In an era when consolidations and takeovers by huge health plans are the norm, Rocky Mountain’s new, statewide partnership also will help the 90,000-member HMO continue to grow its market share—and remain independent.

This article will look at some of the ways Rocky Mountain HMO is striving to further the concepts of community and relationship building in the kinds of health care services it provides—offering a glimpse at some of the new thinking evolving in managed medical practice today.

MEDICARE AND MEDICAID: MEETING THE NEEDS OF SPECIAL POPULATIONS

The number of managed care plans offering services to Medicare and Medicaid beneficiaries has surged recently. But for Rocky Mountain HMO, meeting the special needs of these patients has been at the core of its care philosophy since its beginnings. In fact, Rocky Mountain HMO was founded by the local Mesa County Medical Society because physicians wanted to find new, innovative ways to improve access to care for Medicare and Medicaid patients. Today, Medicare and Medicaid patients still make up a substantial portion of the HMO’s total enrolled population—about 35%.

“The doctors felt it was important to try to mainstream these populations, rather than treat them differently” from commercial patients, Weber says. In fact, even today, many Colorado physicians still refuse to treat Medicaid patients who are not Rocky Mountain HMO members because of low government reimbursement levels and the paperwork involved—forcing many indigent patients to not seek care or wait until it is crisis, he observes.

The result of Rocky Mountain’s efforts to tackle this problem has been improved access to care for thousands of Medicaid and Medicare beneficiaries. Today, 75% of all Medicaid eligibles residing in Rocky Mountain HMO’s western Colorado service areas are enrolled with the plan, giving them broad access to all of the area’s hospitals and 93% of the region’s physicians. Rocky Mountain HMO also offers two Medicare plans through a cost contract with the federal Health Care Financing Administration to approximately 10,000 seniors; another 1,900 individuals enrolled with the plan are dual Medicare/Medicaid eligibles.

Although Rocky Mountain HMO’s success in attracting and caring for Medicare and Medicaid patients results from many factors—including the large degree of physician involvement and support—focusing on prevention and outreach has been key to this endeavor. Rocky Mountain HMO maintains a favorable proportion of primary care physicians (30%) in its network, thanks in part to the plan’s involvement with local medical residency programs, which expose primary care physicians to the plan and the practices of managed care in general. That in turn gives the plan an edge in keeping patients—including those most vulnerable to disease—healthy in the first place.

For example, Rocky Mountain HMO is involved in a community pregnancy prevention and prenatal program for teenagers at risk for delivering low-birthweight babies and other complications. Rocky Mountain HMO provides major funding for the programs open to all area teenagers—not just plan members.

Teen pregnancies have decreased 26% since Rocky Mountain HMO’s involvement began in the prevention program in 1993.

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Rocky Mountain HMO was instrumental in the development of the prenatal care program and continues to provide substantial funding to the highly successful program. The percentage of county women delivering low-birthweight babies has decreased from 7.9% in 1989 to 6% in 1995. This percentage
ROCKY MOUNTAIN HMO: PARTNERING FOR SUCCESS

Rocky Mountain HMO has always relied on educating physicians to encourage good prescribing patterns—and that approach is still in effect. The HMO’s pharmacy department regularly updates physicians on formulary drug policies, provides cost-use patterns on specific drugs so physicians can see where savings can be achieved, and provides protocols for appropriate prescribing of certain medications (for example, whether or not a particular drug should be used as first-line therapy). The HMO also collects data and shares them with physicians so they can see how their drug-use rates compare with those of their peers. The HMO also can provide physicians with individual patient prescription profiles to identify such problems as drug abuse, whether a particular patient under long-term treatment for peptic ulcer disease should be treated with antibiotics to combat Helicobacter pylori, and whether an asthmatic patient getting one drug may receive a combination of drug therapies.

Physician response to this approach has been very positive, Hopkins says, "Physicians are looking for information about prescription drugs that is unbiased," unlike what they often receive from drug manufacturers.

Rocky Mountain HMO also establishes close relationships with local network pharmacies to resolve potential problems involving benefit explanations, customer services, and billing. Such one-on-one visits foster good working relationships that benefit the plan, provider, and patient, he says.

is lower—only 5.7%—for women in the prenatal program than for the county at large.

Such programs exemplify the kind of community-focused health care delivery programs at the heart of Rocky Mountain HMO’s mission, and explain why Colorado Medicaid officials have partnered with the plan for 21 years. In 1994 alone, Rocky Mountain HMO saved Coloradans roughly $1.4 million in Medicaid costs.

CHRONICALLY ILL PATIENTS: NEW CHALLENGES, NEW APPROACHES

Keeping people healthy is one challenge; finding ways to improve and coordinate care for those with chronic health problems is another. But Rocky Mountain HMO is breaking ground in this area by participating in two new pilot programs: one to expand and coordinate acute and long-term care services for Medicaid/Medicare patients and another to expand services for Medicare recipients. Here are the details.

Rocky Mountain HMO has been developing a program to partner with the Mesa County Department of Social Services and state Medicaid to provide acute and long-term care coverage to Medicaid/Medicare dual eligibles and the disabled covered under Medicaid. Traditionally, Rocky Mountain HMO’s programs have covered only short-term care conditions. Long-term care needs are covered by a number of state programs that are not fully coordinated. The pilot project, targeted to begin at the end of 1996, aims to change this by better coordinating the patient’s total care to keep acute problems at bay—

Rocky Mountain HMO will pay to assist with grocery shopping so home-bound patients don’t become malnourished, which often leads to medical problems.

then use the savings generated on the acute care side to finance long-term care services.

Under the Social HMO program, which should go into effect in 1997, Rocky Mountain HMO will provide Medicare-eligible seniors with added coverage options that will include nursing home and short-term nursing home care. Again, the goal will be to keep people healthy before they need more costly, high-intensity services. The HMO is one of six plans nationally selected by the Health Care Financing Administration to participate in this leg of the program.

"The idea is to provide a network of services that goes beyond just curing people of an illness or injury," explains Earl Elicker, Rocky Mountain HMO’s coordinator of Integrated Care Programs. "If we help people stay healthy and functional, the trauma and expense of many illnesses can be avoided."

Keeping patients out of the hospital and the nursing home is the ultimate goal of the pilot projects, says Elicker, noting that most patients prefer to be cared for at home when that’s feasible. He estimates that, with proper management and coordination, inpatient and emergency room admissions among this vulnerable group—which often includes the frail elderly—will decrease 25% within one to two years, while admissions to nursing homes will fall by 30%.

Implementing the new pilot programs will involve not only better coordination of care, but a complete change of mind set regarding what should be covered to promote the patient’s total wellness. One of the difficulties with the current system, Elicker notes, is that government red tape has made it virtually impossible to embrace innovative approaches to keeping people well.

Under the new pilot program, Rocky Mountain HMO will have flexibility to provide services that play a direct or indirect role in keeping patients healthy, Elicker says. For example, the HMO will pay to assist with grocery shopping so home-bound patients don’t become malnourished, which of-
ten leads to medical problems. The plan is working with a local grocery store chain to allow patients and/or their care givers to phone in grocery orders and have the store deliver them to the patient’s home. Other support services may including helping home-bound patients develop social networks so they do not get depressed, often, depressed patients may stop eating properly or refuse to take their medications, leading to complications.

Part of the pilot programs will involve identifying patients at risk of developing social or other lifestyle problems that could undermine their health, and assigning them to a case manager who will oversee and coordinate all aspects of their care, Ellicker says. This is where the team concept approach comes into play. “Our expectation is that everybody caring for the patient gives feedback about that person’s care,” he says. If a social worker or home care provider who gives a patient a bath notices the patient isn’t taking their medications, it’s that worker’s responsibility to notify the plan, the patient’s physician, or the case manager of the situation, he says. Rocky Mountain HMO and the Department of Social Services are setting up a centralized system so caregivers can call or send via modem any new information regarding a patient’s status. This information will be entered into a computer so physicians and other providers caring for the patient can readily access it.

To coordinate care effectively, good communication among providers is critical. Last year, Rocky Mountain HMO’s board agreed to donate $200,000 toward the development of a local health care information network to better link area physicians, hospitals, pharmacists, and other caregivers. Since January, the electronic network has enabled physicians to access patient immunization records instantly from the local health department, laboratory results from the hospital, and diagnostic test results from specialists’ offices—without having to pick up the telephone. Network physicians also can authorize prescription orders and refill with the pharmacy on-line. Over time, Rocky Mountain HMO expects more physicians and providers will take advantage of these new links to foster better communication and improve overall coordination of patient care.

Rocky Mountain HMO also is hiring a geriatrician and a geriatric nurse to develop and implement individual patient care plans aimed at preventing problems that could lead to hospitalization or nursing home care. That kind of proactive care also will be extended to patients already in nursing homes, who often develop complications that lead to additional hospitalizations. Rocky Mountain HMO plans to provide “hands on” care to nursing home patients. Caregivers will make rounds at long-term care facilities to check in regularly with high-risk patients, such as those with cardiovascular conditions.

Pharmaceutical Care: Key to Managing Chronic Care Patients

Pharmaceutical care is a crucial component in maintaining and improving the health status of elderly patients and those with chronic conditions. It is also an expensive component: the typical nursing home resident consumes $170 worth of prescription drugs each month, Ellicker says. Rocky Mountain HMO is undertaking a number of steps on the pharmaceutical care side both to improve medical outcomes for elderly patients and to place a tighter rein on rising drug costs.

A common problem among the elderly is that, as they age, their body chemistry changes, making them less likely to tolerate drugs than younger individuals. This increases the likelihood of adverse reactions or other drug-induced complications. The elderly also are more likely to consume many different medications at once, and are less likely to comply with their medication regimens because of failing eyesight and cognitive functions—again placing them at risk and contributing to wasted resources.

To address this concern, Rocky Mountain HMO recently established a separate geriatric pharmacy and therapeutics committee, explains John Hopkins, manager of pharmacy services, manager of legislative affairs, and AMCP’s 1996–97 President. The purpose of the committee is to identify the best ways to meet the special pharmaceutical care needs of the elderly. It comprises a geriatrician, pharmacists, and Rocky Mountain HMO medical directors, who receive input from nurses, community pharmacists, and the medical directors from area nursing homes, experienced in administering care to this population. The committee is studying a number of factors, from typical drug-use rates among the elderly to prescribing protocols adopted by providers who regularly care for this population. Rocky Mountain HMO is to identify the best practices in providing pharmaceutical care to the elderly and educate physicians and nursing home personnel. For example, one nursing home in the area uses a multifaceted committee to frequently and routinely review the medication regimen of each patient. By continually asking questions such as, “Does the patient continue to need this medication?” or “Are there alternative medications or procedures that would better benefit the patient?”, the nursing home has been very successful in providing the most appropriate medications for its patients. “They have gone well beyond simply meeting OBRA requirements and are looking at

Continued on page 507
There is no automatic interpretation available for this text. However, it appears to be a clinical trial report discussing the efficacy and safety of a medication. It includes sections on patient selection, treatment dosages, adverse effects, and clinical trial results. The text is dense and likely requires expertise in pharmacology or medicine to fully understand its implications.
METHOD OF INFLUENCING HMG-CoA REDUCTASE INHIBITOR PRESCRIBING PRACTICES OF PRIMARY CARE PHYSICIANS IN AN IPA-MODEL HMO

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Client Program Director

Cynthia M. Prescott, B.A.
Client Program Assistant

Advance Paradigm, Inc.

Alice M. Sloan, R.Ph.
Pharmacy Consultant
HealthGuard, Inc.

Hunt Valley, Maryland

An HMG-CoA reductase inhibitor (RI) intervention program was developed and implemented to influence the prescribing by primary care physicians of recently approved formulary agents.

Three mailings were sent, two to physicians in this IPA-model HMO and one to patients. A letter to physicians included information about new HMG-CoA RIs added to the formulary. It also provided them with a list of individual patients currently receiving the nonformulary HMG-CoA RIs. A dose-switching algorithm was included to help guide conversion to the formulary agent. A second mailing to physicians included a "physician prescribing profile" specific to the HMG-CoA RI class. A third letter went to members. It included information about the role of high serum cholesterol concentrations in the development of cardiovascular disease and the importance of compliance with antilipemic medications. It also informed the patient that, on the next office visit, the physician might discuss the availability of newer products.

In fourth quarter 1995, before implementation of this program, nonformulary use of HMG-CoA RIs accounted for 64% of prescribing. A total of 106 letters to physicians and 362 letters to members were distributed in March 1996. Conversion of 50% is expected to result in a savings of at least $50,000 per quarter.

This targeted program for influencing the prescribing of HMG-CoA RIs is expected to produce substantial cost savings for the HMO.

IDENTIFYING SPECIFIC THERAPEUTIC DRUG CATEGORIES FOR CUSTOMIZING CLINICAL PHARMACY PROGRAMS FOR MEDICAL GROUPS IN A NETWORK-MODEL HMO

Alice Hsiao, Pharm.D.
Clinical Pharmacy Coordinator

Mahnoosh Rajabnejad, Pharm.D.
Clinical Pharmacy Coordinator

Richard Wagner, Pharm.D.
Acting Director of Pharmacy

Health Net
Woodland Hills, California

In a health plan with 1.3 million covered lives, an analysis of pharmacy claims data for specific drug therapeutic categories identified differences in prescribing patterns between medical groups with low versus high costs.

Pharmacy claims data generated in 1995 for commercial plan members were examined for categories such as lipid-lowering agents and medications used for managing allergic rhinitis. Using the network average per member per month (PMPM) net cost as a benchmark, medical groups were categorized as either low cost or high cost. The low- and high-cost medical groups were compared in prescription-use rate and PMPM cost for each of the selected therapeutic categories.

For certain categories, clear differences in both use and cost emerged between the low- and high-cost groups. In other categories, the difference in use among the groups was negligible, while PMPM differences remained large. In such in-
stances, difference in product selection clearly distinguished those groups with low cost from others with high cost.

Therapeutic category analysis within the low- and high-cost medical groups helped identify unique and specific areas of opportunity for cost savings at the network level and within each medical group.

**RETROSPECTIVE OUTCOMES STUDY OF HMG-CoA REDUCTASE INHIBITORS IN A MANAGED CARE SETTING**

James E. Grzegorczyk, R.Ph., M.S.
Director of Pharmacy and Health Management
Blue Care Network of East Michigan
Saginaw, Michigan

A retrospective study was performed to assess whether patients previously treated with other HMG-CoA reductase inhibitors could be successfully maintained with fluvastatin sodium.

A total of 90 patients treated previously with either lovastatin, simvastatin, or pravastatin were converted to fluvastatin therapy at doses comparable to that of the previous agent. Blood levels obtained after the switch to fluvastatin treatment were compared with those taken during therapy with other agents.

The mean number of months of treatment was 17.84 for the initial therapy and 4.65 for fluvastatin. Mean maximum dose attained was 26.11 mg/day and 27.69 mg/day, respectively. Results show that fluvastatin performed as well as the other agents. No differences in National Cholesterol Education Program LDL-C goal attainment was found between prior treatment and treatment with fluvastatin or between drugs with regard to minimum and final serum cholesterol levels. The incidence of adverse events was low for both fluvastatin and the initial treatment.

In these 90 patients, the efficacy and safety of fluvastatin have been shown to be equal to those of the other HMG-CoA reductase inhibitors. Of all agents in its class, fluvastatin has the lowest average wholesale price. The Blue Care Network continues to switch patients from older HMG-CoA reductase inhibitors as well as to start new patients on this cost-effective alternative. Fluvastatin has thus resulted in substantial cost savings for this plan.

**COMPETENCY ASSESSMENT FOR THE DEVELOPMENT OF PHARMACY**

Randy Vogenberg, R.Ph., M.Ed.
President
ICPR
Waltham, Massachusetts

Objective: To review competency-assessment requirements for pharmacists and report results from a pilot survey in Massachusetts.

Methods: Identify competencies required of pharmacists in managed care and existing requirements by accredited organizations. A qualitative survey using Likert scales and descriptive short answers was mailed to a random sample of both pharmacy directors and administrators at 54 Massachusetts hospitals.

Results: Currently, JCAHO accreditation requires competency assessment for all licensed practitioners including pharmacists. As pharmacists increase their clinical activity and payers require documentation of skills and/or services, the issue of competency assessment will grow. Awareness by NABP, AACP, and other accrediting organizations (NCQA) and performance measures (HEDIS), will force managed care pharmacists to address this issue, which currently exists for hospital pharmacy. The pilot study evaluated the awareness and perception of pharmacists' competency assessment. April 1996 surveys yielded a 37% reply by administrators (n = 20) and 30% of pharmacy directors (n = 16). There was a significant difference in perception between the groups about who determines and how important competency assessment is as well as the use and value of outside benchmarking. In general, pharmacists were less aware and inclined to adequately address this issue than were administrators.

Conclusion: Pharmacists and hospitals should increase their awareness and educate administrators about pharmacists' competencies. Similarly, lessons learned from hospital pharmacists can be used by managed care pharmacists as they begin to address this emerging issue for health care systems.

**CLINICAL IMPACT OF TC-99M HMPAO-LABELED LEUKOCYTE IMAGING ON MANAGEMENT AND OUTCOME OF PATIENTS WITH SUSPECTED ACUTE APPENDICITIS**

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Tri-City Medical Center
Oceanside, California

Acute appendicitis can be difficult to diagnose. In equivocal cases, hospital admission for observation is frequently required. A test that rules out acute appendicitis would be cost-effective by avoiding unnecessary hospital admission and surgery. We determined the accuracy of technetium Tc-99m hexamethylpropyleneamine oxime (HMPAO)-labeled leukocyte (Tc-WBC) imaging for screening patients in this clinical setting and monitored its effect on patient management and outcome.

Consecutive patients (n = 124) referred to nuclear medicine to rule out appendicitis were serially imaged up to three hours following injection of 10 mCi of Tc-WBCs. The results were immediately reported to the surgeon before laparotomy or decision not to operate. Diagnostic accuracy was established by surgical histopathology or by clinical follow-up in nonsurgical cases.

The Tc-WBC scan correctly identified an inflammatory
source of abdominal pain in 65 of 66 cases and was correctly negative in 55 of 58 (sensitivity = 98%, specificity = 85%, accuracy = 90%). The negative laparotomy rate in this group was 4%, significantly less than the 9% institutional rate in patients not having a scan. During the course of the study, the percentage of outpatient referrals increased from 38% to 87%, and hospital admission for observation dropped reciprocally. The number of ancillary tests requested also declined.

Tc-WBC imaging is a highly sensitive test for ruling out acute appendicitis and other acute intra-abdominal inflammatory diseases in patients with lower right quadrant abdominal pain and equivocal presentation. This test is particularly valuable in permitting most patients with a negative scan to be observed at home, avoiding unnecessary hospital admission. From a managed care perspective, Tc-WBC imaging reduced the negative laparotomy rate while reducing hospital admission rates and lengths of stay, suggesting that it is cost-effective in this clinical setting.

COST-EFFECTIVENESS OF THERAPEUTIC INTERCHANGE FROM CALCIUM-CHANNEL BLOCKERS TO FIXED-DOSE COMBINATION THERAPY IN HYPERTENSION

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Research Fellow

S.M. Mohiuddin, M.D.  
Director, Division of Cardiology

B.W. Shinn, Pharm.D.  
Assistant Professor

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School of Pharmacy and Allied Health Professions  
Creighton University  
Omaha, Nebraska

Same-class therapeutic interchange has been used as a cost-cutting measure. We evaluated the cost-effectiveness of a cross-class therapeutic interchange from calcium-channel blockers (CCBs) to fixed-dose combination therapy (FDCT) in patients with hypertension.

Patients with mild-to-moderate hypertension who had been stabilized on and controlled by CCB monotherapy (nifedipine-GITS, n = 28; amlopidine, n = 10; diltiazem-CD, n = 19; felodipine, n = 19) were switched to FDCT (amlodipine/benazepril, n = 19; bisoprolol/hydrochlorothiazide, n = 20). Following the switch, patients returned to the clinic at four-week intervals. A maximum of two dose titrations of FDCT was allowed. All patients were followed for a minimum of three months after the switch. Costs evaluated included drug acquisition, clinic visits, and side effect management.

At the end of three months, 65 of 69 patients (91%) had maintained adequate blood pressure control. Success was achieved in 28 of 29 patients (97%) on amlopidine/be nazepril and in 37 of 40 patients (92%) on bisoprolol/hydrochlorothiazide. All patients who failed the switch did so because of a lack of blood pressure control. Side effects during CCB therapy occurred in 33 of 69 patients (48%) but in only 8 of 69 patients (12%) after the switch. A cost savings of $4,723 was estimated based on treating these 69 patients for one year.

Therapeutic interchange across classes of antihypertensive agents has not been previously reported. We have demonstrated that, in selected patients, switching from CCB monotherapy to FDCT can be cost-effective.

SUMATRIPTAN-UTILIZATION STUDY AT A MIXED-MODEL HMO

Phil Haines, B.S.  
Assistant Director of Pharmacy

Mary Jo Greco-Krumviede  
Integrated Pharmacy Solutions, Inc.  
Jacksonville, Florida

Sumatriptan is a unique, selective serotonin agonist indicated for acute treatment of migraine headache. One year after sumatriptan injection was added to the formulary of this mixed-model HMO, a study was conducted to monitor dosage, efficacy, and safety; to determine whether patients received administration instructions and appropriate preventive therapy (prophylaxis); and to assess emergency room (ER) use for migraine headache.

Prudential HealthCare System of Jacksonville covered 55,000 patient lives in 1994. Prescription data were reviewed to identify sumatriptan recipients. A data-collection sheet was developed to compile data from medical charts, which were available for 63 patients who received sumatriptan injection between February 1 and August 1, 1994.

All patients received dosages within guidelines. Of 47 patients, 42 (89%) with effectiveness notations achieved complete (74%) or some (15%) relief. Six patients experienced adverse events that were mild and not unexpected. Most assessable patients received instructions (46/48 [96%]). Only seven patients of 63 (11%) used more than two kits (four injections) per month; none of them received prophylaxis. The number of ER encounters for migraine headache per 1,000 members dropped from 2.7 in 1992 to 1.3 in 1994; it was 1.5 in 1995.

Sumatriptan was effective and associated with decreased ER use. This study was also useful for identifying high users who may benefit from prophylaxis. We plan to conduct an outcomes study using patient recall to evaluate efficacy, tolerability, quality of life, and productivity.
Managed Care Pharmacy Residency Programs

ADVANCE PARADIGM CLINICAL SERVICES, INC. –

Accredited: No
Length of Program: 12 months
Number of Positions: 2
Application Deadline: 1/15/97
Starting Date: 7/1/97
Estimated Stipend: $25,000
Onsite Interview: Unknown

Contact:
Babette Duncan, Pharm.D., BCPS
Advance Paradigm Clinical Services, Inc.
Executive Plaza II, Suite 1000
11350 McCormick Road
Hunt Valley, MD 21031

Work: 800/426-4488
Fax: 410/785-2140

SOUTHEAST HEALTH PLAN

Accredited: No
Length of Program: 12 months
Number of Positions: 2
Affiliation: Samford University, School of Pharmacy
Application Deadline: 2/15/97
Starting Date: 7/1/97
Estimated Stipend: $27,500

Onsite Interview: Unknown

Special Requirements: Post-Pharm.D. Residency
Fringe Benefits: Significant fringe benefit package provided, including comprehensive health and dental benefits.

Special Features: SHP is a Birmingham-based IPA-model HMO. The focus of education and training is on the development of leaders in managed care pharmacy with advanced knowledge and skills as clinical, fiscal, and human resource managers. Education and training are also directed toward producing a superior practitioner with the ability to advance the public health by: (1) promoting the safe, appropriate, effective, and economical use of drugs, and (2) delivering highly cognitive, outcome-oriented pharmaceutical care that maximizes the benefit of drug therapy while operating to identify, resolve, and prevent drug-related problems and therapeutic misadventures.

Contact:
Tim R. Covington, M.S., Pharm.D.
Managed Care Institute
School of Pharmacy, Samford University
800 Lakeshore Drive
Birmingham, AL 35229-7027

Work: 205/870-2988
Fax: 205/870-2016
E-mail: trcoving@samford.bitnet

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HARVARD PILGRIM HEALTH CARE—MCPAHS

Accredited: Yes
Accrediting Agency: ASHP
Length of Program: 12 months
Number of Positions: 1
Affiliation: Massachusetts College of Pharmacy and Allied Health Sciences
Application Deadline: 1/15/97
Starting Date: 7/1/97
Estimated Stipend: $25,000
Onsite Interview: Required
Special Requirements: B.S. in Pharmacy or Pharm.D.; Massachusetts Licensure or Eligibility for Licensure
Fringe Benefits: Comprehensive medical plan, long-term disability insurance, professional liability insurance, two-weeks paid vacation.

Contact:
Robert L. McCarthy, Ph.D.
Massachusetts College of Pharmacy & Allied Health Sciences
179 Longwood Avenue
Boston, MA 02115

Work: 617/732-2875
Fax: 617/732-2801
E-mail: mcp_mccarthy@flo.org

GROUP HEALTH PLAN

Accredited: No
Length of Program: 12 months
Number of Positions: 1
Affiliation: St. Louis College of Pharmacy
Application Deadline: 2/1/97
Starting Date: 7/1/97
Estimated Stipend: $25,500
Onsite Interview: Unknown

Contact:
Michael S. Maddux, Pharm.D.
St. Louis College of Pharmacy
4588 Parkview Place
St. Louis, MO 63110

Work: 314/367-8700
Fax: 314/367-2784

COLLEGE OF PHARMACY, UNIVERSITY OF ARKANSAS FOR MEDICAL SCIENCES

Accredited: No
Length of Program: 12 months
Number of Positions: 1

Affiliation: University of Arkansas for Medical Sciences
Application Deadline: 3/29/97
Starting Date: 7/1/97
Estimated Stipend: $25,000
Onsite Interview: Unknown

Contact:
Maura J. Monaghan, Pharm.D., M.B.A.
College of Pharmacy
University of Arkansas for Medical Sciences
4301 West Markham Street
Little Rock, AR 72205

Work: 501/686-6390
Fax: 501/686-8315

RX CARE OF TENNESSEE, INC.

Program: Managed Care Pharmacy Administration
Accredited: No
Length of Program: 12 months
Number of Positions: 2
Affiliation: University of Tennessee College of Pharmacy
Application Deadline: 2/1/97
Starting Date: 7/1/97
Estimated Stipend: $25,000
Onsite Interview: Unknown

Contact:
Roger L. Davis, Pharm.D.
Residency Director
Tennessee Pharmacists Association
226 Capitol Boulevard, Suite 810
Nashville, TN 37219

Work: 615/256-3023
Fax: 615/255-3528

PROVENANT HEALTH PARTNERS

Accredited: No
Length of Program: 12 months
Number of Positions: 1
Estimated Stipend: $23,000
Onsite Interview: Unknown
Special Requirements: B.S. or Pharm.D.
Fringe Benefits: Personal employee time, medical insurance, continuing education allowance.
Special Features: The focus of this residency will be to gain experience in practicing pharmaceutical care from the provider's side of managed care. The resident will experience "the ecstasy and the agony" of working for a large integrated health care system in a growing and competitive marketplace. While the emphasis will be working with the members (patients) and the primary-care physicians, the resident will also
get to interact with other players involved in our managed care environment: the payers and the pharmaceutical industry.

Contact:
Anita Nebel, R.Ph.
Managed Care Pharmacy
Provenant Health Partners
1512 Larimer Street, Suite 200
Denver, CO 80202

Work: 303/605-1332
Fax: 303/572-0145

HENRY FORD HEALTH SYSTEM

Accredited: No
Length of Program: 12 months
Number of Positions: 1
Application Deadline: 3/1/97
Starting Date: 4/1/97
Estimated Stipend: $34,000
Onsite Interview: Unknown

Contact:
James N. Clarke, R.Ph., M.S.
Henry Ford Health System
One Ford Place - 4F
Detroit, MI 48202

Work: 313/874-4393
Fax: 313/874-6969

MANAGED PRESCRIPTION SERVICES

Accredited: No
Length of Program: 12 months
Number of Positions: 1
Application Deadline: 3/1/97
Starting Date: 6/1/97
Estimated Stipend: $35,000
Onsite Interview: Unknown

Contact:
Arthur F. Shinn, Pharm.D., FASCP
Managed Prescription Services
515 North Sixth Street, Suite 1000
St. Louis, MO 63101

Work: 314/259-4213
Fax: 314/259-4201

DRUG INFORMATION CENTER

Accredited: No
Length of Program: 12 months

Number of Positions: 2
Affiliation: University of Tennessee–Memphis
Application Deadline: 4/1/97
Starting Date: 7/1/97
Estimated Stipend: $26,500
Onsite Interview: Unknown

Contact:
Teresa D. Hollman
Drug Information Center
University of Tennessee
847 Monroe, Suite 238
Memphis, TN 38133

Work: 901/448-7632
Fax: 901/448-5419

UNIVERSITY OF ILLINOIS AT CHICAGO

Accredited: No
Length of Program: 12 months
Number of Positions: 1
Affiliation: University of Illinois at Chicago
Application Deadline: 3/15/97
Starting Date: 7/1/97
Estimated Stipend: $25,000
Onsite Interview: Unknown
Fringe Benefits: Tuition and fee waiver for graduate courses

Contact:
J. Warren Salmon, Ph.D.
Professor and Residency Director
Departments of Pharmacy Administration and Practice
University of Illinois at Chicago
833 S. Wood Street, MC 871
Chicago, IL 60612

Work: 312/996-0883
Fax: 312/996-3272

PHARMACEUTICAL CARE MANAGEMENT, INC.

Accredited: No
Length of Program: 12 months
Number of Positions: 1
Affiliation: Medical University of South Carolina
Starting Date: 7/1/97
Estimated Stipend: $23,000
Onsite Interview: Unknown

Contact:
Bart Lawrence/Bob Pannone, Pharm.D.
Pharmaceutical Care Management, Inc.

Continued on page 557 >>
SMITHKLINE BEECHAM

Program: Fellowship in Health Economics
Accredited: Pending
Accrediting Agency: APOR
Length of Program: 2 years
Number of Positions: 1
Affiliation: Philadelphia College of Pharmacy and Science and Thomas Jefferson University
Application Deadline: 1/1/97
Starting Date: 7/1/97
Estimated Stipend: Competitive
Onsite Interview: Unknown
Special Requirements: Health and science background; advanced degree in pharmacy or social sciences.
Fringe Benefits: Comprehensive medical coverage; vacation, personal, and holiday leave.

Contact:
Marc L. Watrous, Ph.D.
SmithKline Beecham
1350 South Collegeville Road, P.O. Box 5089
Collegeville, PA 19426-0989

Work: 610/917-5695
Fax: 610/917-4818

TALBERT MEDICAL MANAGEMENT CORPORATION/FHP, INC.

Program: Pharmacy Practice with Managed Care Emphasis
Accredited: Pending
Accrediting Agency: ASHP
Length of Program: 12 months
Number of Positions: 1
Application Deadline: 1/10/97
Starting Date: 7/1/97
Estimated Stipend: $29,000
Onsite Interview: Required
Special Requirements: Arizona licensure, Pharm.D. preferred.
Fringe Benefits: Medical, dental, and vision coverage. Vacation, personal, and holiday leave. No on call.

Contact:
Luann Porter
Lead Clinical Pharmacist
Talbert Medical Management Corporation
1950 South Country Club Drive
Mesa, AZ 85210-6008

Work: 602/833-6041
Fax: 602/644-7281
KAISER FOUNDATION HOSPITAL

Program: Pharmacy Practice
Accredited: Yes
Accrediting Agency: ASHP
Length of Program: 12 months
Number of Positions: 2
Application Deadline: 2/1/97
Starting Date: 7/1/97
Estimated Stipend: $29,000
Onsite Interview: Yes
Special Requirements: Eligibility for California licensure, copy of college transcript, curriculum vitae, and three letters of recommendation.

Fringe Benefits: Full health and hospitalization, dental plan, prescription medications, paid vacation, holidays, and selected seminars.

Special Features: This program has a clinical emphasis. The core rotations include: administration, ambulatory care, drug information, geriatrics, home i.v. therapy, infectious disease, internal medicine, and neonatal/pediatrics. In addition, the program allows for eight weeks of possible elective rotations in areas of interest including: any core rotation, oncology, outpatient pharmacy practice, and pharmacokinetics. During the year, the resident is required to complete a research project to be presented at the Western States Residency Conference in April.

Contact:
Sue Agent, R.Ph.
4647 Zion Avenue
San Diego, CA 92120

Work: 619/528-5383
Fax: 619/528-5884

KAISER FOUNDATION HOSPITAL

Program: Pharmacy Practice
Accredited: Yes
Accrediting Agency: ASHP
Length of Program: 12 months
Number of Positions: 2
Application Deadline: 2/1/97
Starting Date: 7/1/97
Estimated Stipend: $29,000
Onsite Interview: Yes
Special Requirements: Recent pharmacy graduates. Must be licensed by September 1, 1996.

Fringe Benefits: Paid vacation, holidays, and sick leave, free parking, health benefits, uniforms, office space, and mileage reimbursement for off-site rotations.

Special Features: The resident will become familiar with the various aspects of pharmacy practice in a health-maintenance organization (HMO). The residency includes experiences in HMO, inpatient and outpatient administration, drug-use and education, and home infusion services. Clinical rotations in drug information, mental health, ambulatory care, and adult medicine are important segments of this residency. One rotation is set aside for the resident to pursue an area of particular interest. The resident shall serve as preceptor to pharmacy students during the drug information, ambulatory care, and acute care adult medicine rotations. Residents regularly participate in all pharmacy and therapeutics committee activities and are active members of the pharmacy management team.

Contact:
Carey C. Cotterell, R.Ph.
410 North Lakeview Avenue
Anaheim, CA 92807

Work: 714/978-4706
Fax: 714/978-4689

Continued on page 560
KAISER FOUNDATION HOSPITAL

Program: Administration
Accredited: Yes
Accrediting Agency: ASHP
Length of Program: 12 months
Number of Positions: 2
Application Deadline: 3/1/97
Starting Date: 7/1/97
Estimated Stipend: $33,000
Onsite Interview: Yes
Special Requirements: Previous completion of ASHP-accredited pharmacy practice residency training program or an equivalent level of prior experience in hospital pharmacy practice, and possess California license by September 1, 1996.
Fringe Benefits: Paid vacation, holidays, and sick leave, free parking, health benefits including dental/optical (also dependents), office space, and mileage reimbursement for off-site experiences.
Special Features: Residency includes experiences in human resources management, financial planning and monitoring, cost accounting and productivity, purchasing and inventory control, and departmental operations. The residents are active members of the Los Angeles Area Pharmacy Management Team. The residents will learn about the administrative responsibilities associated with the management of a regional pharmacy department responsible for providing pharmaceutical care and services to 2.3 million Kaiser members in the southern California Region.

Contact:
Lawrence R. Strom II, Pharm.D.
1515 North Vermont, Suite 846
Los Angeles, CA 90027

Work: 213/667-8306
Fax: 213/667-7609

KAISER FOUNDATION HOSPITAL

Program: Pharmacy Practice
Accredited: Yes
Accrediting Agency: ASHP
Length of Program: 12 months
Number of Positions: 2
Application Deadline: 1/15/97
Starting Date: 7/1/97
Estimated Stipend: $29,000
Onsite Interview: Yes
Special Requirements: Applicant must be a graduate of an accredited school of pharmacy and receive licensure in the state of California by September 1, 1996.
Fringe Benefits: Paid vacation, holidays, and sick leave, free prepaid health benefits including dental/optometry (also dependents), mileage reimbursement for off-site experience.
Special Features: The residency offers opportunity to develop knowledge and skills in a managed care environment. Training blocks are offered in acute care, ambulatory care, drug information, drug-use policy development, and practice management. Experience in oncology, home i.v., antibiotic monitoring, mental health, influencing drug prescribing, hypertension clinic, and outpatient anticoagulation are important aspects of this residency.

Contact:
John J. Carbone, Pharm.D.
13652 Cantara Street
Panorama City, CA 91402

Work: 818/375-2885

Special Features: This diverse and very comprehensive program includes experiences in ambulatory and acute care medicine as well as drug information, drug-use policy development, and practice management. In addition, the resident may select a variety of elective experiences to pursue specialized areas of particular interest. The elective experience may include mental health, chemical dependency, oncology, home health, neonatal intensive care unit, inpatient pediatrics, drug education, anticoagulation, and infectious disease. During the year, each resident will participate in all pharmacy and therapeutics committee and pharmacy management team activities, precept pharmacy students, attend family practice rounds and various training programs (e.g., life support, computer), and be actively involved in making pharmaceutical care a reality.

Contact:
Patricia Grzonka, Pharm.D.
9961 Sierra Avenue
Fontana, CA 92335

Work: 909/427-3838
Fax: 909/427-3830
KAISER FOUNDATION HOSPITAL

Program: Pharmacy Practice
Accredited: Yes
Accrediting Agency: ASHP
Length of Program: 12 months
Number of Positions: 2
Application Deadline: 1/13/97
Starting Date: 7/1/97
Estimated Stipend: $29,000
Onsite Interview: Yes

Special Requirements: Applicants should be recent pharmacy graduates. Must be licensed by September 1, 1996.

Fringe Benefits: Paid vacation, holidays, and sick leave, free parking, health benefits including dental/optical (also dependents), uniforms, office space, mileage reimbursement for off-site experiences.

Special Features: The resident will become familiar with the various aspects of pharmacy practice in a health-maintenance organization (HMO). The residency includes experiences in acute and ambulatory care practice, drug information/drug-use policy development, and practice management. Experiences in drug information, mental health, home health, and physician drug education are important area segments of this residency. Time is allowed for resident to pursue an area of particular interest. Residents participate in all pharmacy and therapeutics committee activities; are active members of the pharmacy management team; and precept pharmacy students during the drug information, pediatrics, intensive care unit, and ambulatory care rotations.

Contact:
Lawrence R. Strom II, Pharm.D.
1515 North Vermont, Suite 846
Los Angeles, CA 90027

Work: 213/667-8306
Fax: 213/667-7609

KAISER PERMANENTE MEDICAL CENTER

Program: Pharmacy Practice
Accredited: Yes
Accrediting Agency: ASHP
Length of Program: 12 months
Number of Positions: 1
Affiliation:
Application Deadline: 2/1/97
Starting Date: 7/1/97
Estimated Stipend: $29,000
Onsite Interview: Yes

Special Requirements: Recent graduate of an accredited school of pharmacy and eligible for California licensure, three letters of recommendation, curriculum vitae, and minimum grade point average of 2.50.

Fringe Benefits: Paid vacation, holidays, and sick leave, free parking, health benefits including dental/optical (also dependents), uniforms, office space, mileage reimbursement for off-site experiences.

Special Features: The resident will become familiar with the various aspects of pharmacy practice in a health-maintenance organization (HMO). The residency includes experiences in acute and ambulatory care practice, drug information/drug-use policy development, and practice management. Experiences in drug information, asthma management, anticoagulation, hyperlipidemia, home health, and physician drug education are important area segments of this

and outpatient), all prescription medications, dental plan, optometry/ophthalmology plan, paid vacation, holidays, and sick leave, and continuing education.

Special Features: A unique opportunity for a primary care specialty residency program at a health maintenance organization (HMO). The rotations are diverse and provide an excellent experience in specialized areas in primary care such as chronic adult medicine, outpatient anticoagulation, HIV/infectious disease, home health, and inflammatory bowel disease. The program allows for 6–12 weeks of electives that include pediatrics, oncology, drug-use evaluation, and required training in drug information and administration. The preceptors are well versed in their specialty areas and allow flexibility to meet the goals of the resident. The resident will be required to develop and complete a research project at the completion of the program. The resident will also precept senior pharmacy students from the University of Southern California, University of the Pacific, and University of California–San Francisco.

Contact:
Joan M. Fredella, Pharm.D.
25825 South Vermont Avenue
Harbor City, CA 90710

Work: 310/517-2268
Fax: 310/517-4197

KAISER PERMANENTE
residency. Time is allowed for the resident to pursue an area of particular interest. Residents participate in all pharmacy and therapeutics committee activities; are active members of the pharmacy management team; and precept pharmacy students during the year.

Contact:
Sadao Mochidome, Pharm.D.
9400 East Rosecrans Avenue
Bellflower, CA 90706

Work: 310/461-6070

KAISER PERMANENTE MEDICAL CENTER,
WEST LOS ANGELES

Program: Pharmacy Practice
Accredited: Yes
Accrediting Agency: ASHP
Length of Program: 12 months
Number of Positions: 2
Application Deadline: 2/1/97
Starting Date: 7/1/97
Estimated Stipend: $29,000
Onsite Interview: Yes
Special Requirements: Must be recent pharmacy school graduate, have California licensure by September 1, 1997, copy of college transcript, curriculum vitae, two letters of recommendation, and application.
Fringe Benefits: Paid vacation, holidays, and sick leave, free parking, health benefits including dental/optical (also dependents), uniforms, office space, mileage reimbursement for off-site experiences.
Special Features: The resident will become familiar with the various aspects of pharmacy practice in a health maintenance organization (HMO). The residency includes experiences in acute and ambulatory care practice, drug information/drug-use policy development, and practice management. Experiences in drug information, mental health, home health, physician drug education, and ambulatory clinical services are important area segments of this residency. Time is allowed for resident to pursue an area of particular interest. Residents participate in all pharmacy and therapeutics committee activities; are active members of the pharmacy management team; and precept pharmacy students during the drug information and acute care clinical services experience.

Contact:
Michael Cinnamond, Pharm.D.
6041 West Cadillac Avenue
Los Angeles, CA 90034

Work: 213/857-2157

KAISER PERMANENTE MEDICAL CARE
PROGRAM/DRUG INFORMATION SERVICE

Program: Drug Information
Accredited: Yes
Accrediting Agency: ASHP
Length of Program: 12 months
Number of Positions: 1
Application Deadline: 3/1/97
Starting Date: 7/1/97
Estimated Stipend: $33,000
Onsite Interview: Yes
Special Requirements: Graduate of accredited college of pharmacy; completion of pharmacy practice residency program or equivalent clinical or drug information experience; excellent verbal and written communication skills; eligible for California licensure, curriculum vitae, and three letters of recommendation.
Fringe Benefits: Medical, dental, and optical insurance. Paid vacation, holidays, and sick leave, office space, mileage reimbursement, and attendance at one pharmacy conference.
Special Features: Residency offers extensive training and experience in responding to inquiries from health care providers, use of computer databases, coordination and administration of drug information activities, and writing and editing numerous drug information publications. The resident will precept pharmacy students and residents, participate in the pharmacy and therapeutics committee, update drug formulary for publication, and participate in the quality assurance program for the drug information service.

Contact:
Mirta Millares, Pharm.D.
9521 Dalen Street
Downey, CA 90242-4894

Work: 310/803-2937
Fax: 310/803-2550
COMPARATIVE RESEARCH

Fluoroquinolone-Use Evaluation for Acute Cystitis

Don Whipps, Linda Zebrowski
Asuncion Aseneta, Paul Tomondy
Lawrence Staubach, Gino Regalli
and Greg Parry

OBJECTIVE:
To determine whether clinically acceptable, less expensive medications may have been appropriate for patients prescribed a fluoroquinolone for uncomplicated acute cystitis.

DESIGN:
Fluoroquinolone overuse for treating lower, acute, uncomplicated urinary tract infections (acute cystitis) was measured through a drug-use evaluation study. According to recent guidelines developed for managed care organizations, trimethoprim/sulfamethoxazole (TMP/SMX) is the primary preferred agent and nitrofurantoin the secondarily preferred agent for treatment of acute cystitis. The DUE method consisted of reviewing randomly selected charts of women patients prescribed a fluoroquinolone to treat acute cystitis during a six-month timeframe. Patient charts were reviewed to validate the diagnosis of acute cystitis and to determine whether use of either TMP/SMX or nitrofurantoin was contraindicated.

SETTING:
A 63,000-member, staff-model health-maintenance organization in Maryland.

RESULT:
A search of the pharmacy and medical database over the period March 28 to September 29, 1994, identified 436 patients prescribed a fluoroquinolone who had a possible diagnosis of acute cystitis. From this group, 150 patients were randomly selected for chart review. Of these patients, 110 (73%) patients were confirmed to have acute cystitis. Of the acute cystitis patients, 63 (57%) had no contraindications to TMP/SMX and 96 (87%) had no contraindications to nitrofurantoin recorded in the medical record. Only six (5%) patients had contraindications to both TMP/SMX and nitrofurantoin.

Managed care organizations (MCOs) are striving to reduce healthcare costs while maintaining or improving healthcare quality.1 Drug-use evaluation (DUE) is a recognized method of reviewing medical care; it can be effectively used in MCOs. Through analyzing, understanding, and modifying practices of affiliated physicians, an MCO can balance cost containment with quality care.2 DUE can be an effective tool for identifying ways to reduce both drug and overall treatment costs in acute- and chronic-care situations. DUE is a method by which actual drug use can be compared with desired or ideal drug use.3 Discovery of physician-prescribing habits that deviate from an MCO’s preferred criteria enables intervention to bring actual drug use more in line with established standards of practice.4

CONCLUSION:
Some 95% of acute cystitis patients prescribed a fluoroquinolone had no documented contraindications to either nitrofurantoin or TMP/SMX. Prescribing clinically acceptable and less expensive therapies, such as TMP/SMX or nitrofurantoin, may reduce prescription costs for treating acute cystitis and may help reduce the development of bacterial resistance to the valuable fluoroquinolone class of drugs.

KEY WORDS:
Fluoroquinolones, Managed care, Drug-use evaluation, Prescribing guidelines, Nitrofurantoin, Trimethoprim-sulfamethoxazole, Acute cystitis.

J Managed Care Pharm 1996; 2: 564–568.

Authors
DON WHIPPS, R.Ph., is Chief Pharmacist; LINDA ZEBROWSKI, R.Ph., is Staff Pharmacist; ASUNCION ASENEFA, R.Ph., is Staff Pharmacist, Twin Knolls Pharmacy, Columbia, Maryland. PAUL TOMONDY, PHARM.D., is Drug Information Specialist for Managed Care; LAWRENCE STAUBACH, M.D., M.B.A., Medical Monitor; GINO REGALLI, M.D., is Medical Director; and GREG PARRY, Ph.D., is Technical Brand Manager, Procter & Gamble Pharmaceuticals, Cincinnati, Ohio.


ACKNOWLEDGMENTS: To Procter & Gamble Pharmaceuticals for support.


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Columbia Medical Plan (CMP) is a 63,000-member staff-model health maintenance organization in Maryland; its two clinical sites, located in Columbia and Annapolis, are staffed by approximately 200 physicians. Anti-infective agents accounted for 8–9% of CMPs overall pharmacy budget in 1994.7

Each year, urinary tract infections (UTIs) are responsible for 6–7 million physician office visits nationally, costing about $4.5 billion.6,7 Most cases of acute cystitis occur in young women, and the most common bacterial causes in that group are Escherichia coli (80%) and Staphylococcus saprophyticus (5–15%).7

CMP adopted guidelines for treating acute cystitis (Figure 1) as one method to encourage more efficient medical service. In support of this guideline, a DUE was conducted to evaluate fluoroquinolone use for treating acute cystitis to determine if clinically acceptable, less expensive therapies, specifically trimethoprim–sulfamethoxazole (TMP/SMX) or nitrofurantoin, were indicated. By reserving fluoroquinolones for more serious infections, CMP may be able to reduce pharmacy prescription costs.

Another benefit to reducing unnecessary fluoroquinolone use is reducing the potential resistance development to this important drug class. Numerous authors have warned that extensive fluoroquinolone use raises the risk of resistance development, which has been seen with previously susceptible strains of Staphylococcus aureus and Pseudomonas aeruginosa.10-20 Many authors have concluded that fluoroquinolones should ideally be reserved for use in serious infections, while alternative drugs are indicated for less serious infections.
Table 1. Contraindications for Nitrofurantoin and Trimethoprim–Sulfamethoxazole

<table>
<thead>
<tr>
<th>Contraindications</th>
<th>TMP/SMX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypersensitivity</td>
<td>Hypersensitivity</td>
</tr>
<tr>
<td>Treatment failure</td>
<td>Treatment failure</td>
</tr>
<tr>
<td>Glucose-6-phosphate</td>
<td>Glucose-6-phosphate</td>
</tr>
<tr>
<td>dehydrogenase deficiency</td>
<td>dehydrogenase deficiency</td>
</tr>
<tr>
<td>Anuria, oliguria, or renal impairment</td>
<td>Megoblastic anemia secondary to folate deficiency</td>
</tr>
<tr>
<td>Resistance organism</td>
<td>Resistant organism</td>
</tr>
<tr>
<td>Pregnancy at term, during labor or delivery, or when the onset of labor is imminent</td>
<td>Pregnancy at term and during nursing</td>
</tr>
<tr>
<td>Drug interactions such as required use of magnesium-based antacids, probenecid, and sulfapyrazone</td>
<td>Drug interactions such as required use of thiazides</td>
</tr>
</tbody>
</table>

a Adapted from references 23 and 24.

METHODS

The DUE design was a randomized, observational chart review of women patients who were prescribed a fluoroquinolone for acute cystitis treatment between March 28 and September 29, 1994. Based on a 95% fluoroquinolone overuse rate measured in a pilot DUE,14 we estimated that 116 evaluable encounters were needed to detect a 90% overuse rate using a one-sided 0.05 significance level with 0.80 power. Based on a 28% ineligibility rate measured in the pilot DUE, we estimated that chart review of 150 patient records would deliver about 116 evaluable encounters. Eligibility was based on the following inclusion criteria:

▲ Woman
▲ Age 18–70 years
▲ Prescription for a fluoroquinolone
▲ Uncomplicated acute cystitis confirmed upon review of medical record.

A list of possible acute cystitis encounters was obtained from the medical claims database by searching for codes 595, 595.0, 599.0, 599.7, and 599.9 as listed in International Classification of Diseases, ninth revision (ICD-9).25 These acute cystitis encounters were sorted by drug therapy, using local drug code numbers from a pharmacy benefits database printout.

Every fifth patient was selected from a randomized list of ICD-9 codes for acute cystitis matched with fluoroquinolone prescriptions. The gender, age, drug prescription, and diagnosis of patients were confirmed at the time of chart review. Men patients were replaced by the next randomly selected case number (the fifth patient after the last patient chosen in sequence). Patient charts meeting all inclusion criteria were then reviewed for possible contraindications to TMP/SMX and nitrofurantoin (Table 1). Important assumptions in this study were the following:

▲ Sufficient information was available in the chart to confirm acute cystitis diagnosis.
▲ If no culture and sensitivity (C & S) results were recorded, the pathogens were assumed susceptible to nitrofurantoin and TMP/SMX.
▲ If no contraindications to use of TMP/SMX or nitrofurantoin were documented in the medical records, therapy was assumed to be indicated.

Preliminary review of these 150 charts resulted in five charts being rejected because of a diagnosis other than UTI. For the remaining 145 charts, each UTI encounter was classified as acute cystitis, complicated UTI, recurrent UTI, or pyelonephritis as defined in Table 2. A total of 35 encounters were excluded from final analysis: three for age < 18 years, 11 for age > 70 years, 19 for pyelonephritis, one for complicated UTI (anatomical defect), and one for a recurrent UTI. The remaining 110 encounters were classified as acute cystitis and were included in the final analysis.

RESULTS

Based on information documented in the patient charts, six of the 110 (5%) patients treated with fluoroquinolones showed evidence of contraindications to both TMP/SMX and nitrofurantoin. In 96 of the 110 (87%) patient charts, no contraindications to nitrofurantoin were recorded. In 63 of the
Table 4. Fluoroquinolone Dose and Therapy Duration for 110 Acute Cystitis Patients

<table>
<thead>
<tr>
<th>Drug</th>
<th>Dose (mg)</th>
<th>Total No. Patients</th>
<th>3 Days</th>
<th>5 Days</th>
<th>7 Days</th>
<th>10 Days</th>
<th>14 Days</th>
<th>21 Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ciprofloxacin</td>
<td>250</td>
<td>60</td>
<td>1</td>
<td>10</td>
<td>24</td>
<td>22</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Ciprofloxacin</td>
<td>500</td>
<td>46</td>
<td>0</td>
<td>7</td>
<td>19</td>
<td>19</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Ofloxacin</td>
<td>200</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Lomefloxacin</td>
<td>400</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Norfloxacin</td>
<td>400</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 5. Acquisition Costs for 110 Acute Cystitis Patients Prescribed Fluoroquinolones

<table>
<thead>
<tr>
<th>Drug</th>
<th>Dose (mg)</th>
<th>Cost($)/unit dose</th>
<th>Total No. Patients</th>
<th>3 Days</th>
<th>5 Days</th>
<th>7 Days</th>
<th>10 Days</th>
<th>14 Days</th>
<th>21 Days</th>
<th>Total Cost ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ciprofloxacin</td>
<td>250</td>
<td>2.705</td>
<td>60</td>
<td>16.23</td>
<td>270.50</td>
<td>908.88</td>
<td>1190.20</td>
<td>151.48</td>
<td>113.61</td>
<td>2650.90</td>
</tr>
<tr>
<td>Ciprofloxacin</td>
<td>500</td>
<td>3.131</td>
<td>46</td>
<td>219.17</td>
<td>832.85</td>
<td>1189.78</td>
<td>87.67</td>
<td>2329.46</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ofloxacin</td>
<td>200</td>
<td>3.057</td>
<td>2</td>
<td>30.57</td>
<td>42.80</td>
<td>73.37</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lomefloxacin</td>
<td>400</td>
<td>6.107</td>
<td>1</td>
<td>42.75</td>
<td>42.75</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Norfloxacin</td>
<td>400</td>
<td>2.543</td>
<td>1</td>
<td>50.86</td>
<td>50.86</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>110</td>
<td>251.94</td>
<td>423.35</td>
<td>1462.65</td>
<td>98.25</td>
<td>875.03</td>
<td></td>
<td>7514.79</td>
</tr>
</tbody>
</table>

110 (57%) patient charts reviewed, no contraindications to TMP/SMX were recorded. Contraindications to TMP/SMX and nitrofurantoin are summarized in Table 3 for the 110 patient charts reviewed.

Information regarding the dose, frequency, and duration of therapy for each specific fluoroquinolone antibacterial therapy prescribed is in Table 4. Actual prescription costs for these 110 patients could not be calculated because of unknown patient copayment amounts and deductibles that differ based on contractual agreements between CMP and employers in their service area. However, prescription costs were estimated based on average wholesale price (AWP) of the prescribed fluoroquinolones. Table 5 summarizes the fluoroquinolone prescription cost using the dosage and length of therapy data shown in Table 4.

DISCUSSION

This study demonstrated a useful technique for conducting a statistically supported DUE at an MCO. Investigators matched pharmacy and medical claims databases to compile a complete list of patients from which a representative sample could be randomly selected. This method of patient selection avoids the potential for selection bias inherent in DUEs conducted without randomization. The results of this DUE can be considered representative of the CMP patient population. About two months were required to collect and analyze the DUE data.

Of the 150 patients chosen for chart review, most excluded patients either had pyelonephritis or were older than 70 years. Pyelonephritis was excluded because nitrofurantoin is not indicated for this condition. Some of these pyelonephritis patients may have been appropriate for treatment with TMP/SMX. Patients older than 70 years were excluded because of the potential for renal impairment, allowing more latitude for physicians to determine the best therapy for treating the patient.

Of patients prescribed a fluoroquinolone for acute cystitis, 95% had no contraindications to either nitrofurantoin or TMP/SMX. This number may be inflated because of the difficulty in assessing medical histories based solely on retrospective chart review. In general, physicians do not extensively document their reasons for choice of empiric therapy or note pertinent negative findings. Consequently, we made several assumptions when no information was recorded regarding diagnosis, organism susceptibility, and contraindications to nitrofurantoin and TMP/SMX.

Although 22 charts were excluded from analysis because the medical record indicated a condition other than acute cystitis, some of the 110 qualifying charts may have lacked information indicating a condition other than acute cystitis. Based on the finding that only one patient had a pathogen nonsusceptible to both TMP/SMX and nitrofurantoin, we believe the C & S assumption was valid. The number of patients with contraindications to TMP/SMX and nitrofurantoin may have been underestimated because physicians did not ask about or record information specific to these two drugs.

As shown in Table 4, ciprofloxacin was the fluoro-
quinolone prescribed almost exclusively. An interesting finding was that 44 of the 106 (42%) ciprofloxacin prescriptions consisted of more than seven days of therapy and 46 of the 106 (43%) ciprofloxacin prescriptions were for 500 mg b.i.d. This prescribing pattern for ciprofloxacin contributed to higher prescription costs shown in Table 5.

Overall, we demonstrated that a fluoroquinolone prescription will rarely be the only therapeutic choice available for treating episodes of acute cystitis among CMP's patient population. The significance of these results to CMP is that about 600 patients per year may be prescribed a fluoroquinolone for acute cystitis when other, less expensive, clinically acceptable therapies may be appropriate. Considering the typically higher prescription costs and the impact of potential resistance, fluoroquinolones would be better reserved for treatment of serious infections rather than relatively minor infections such as acute cystitis.

CMP is conducting an educational intervention program to influence physicians to adopt the guidelines for the treatment of acute cystitis shown in Figure 1. Results from this intervention program will be reported to the managed care community as they become available.

CONCLUSION

This DUE demonstrated that 95% of CMP patients prescribed a fluoroquinolone for acute cystitis had no documented contraindications to nitrofurantoin or TMP/SMX. In addition, 500 mg/dose ciprofloxacin therapy was often prescribed longer than seven days. Prescribing clinically acceptable and less expensive therapies, such as TMP/SMX or nitrofurantoin, may significantly reduce prescription costs for acute cystitis and may help reduce the potential for continued bacterial resistance development to the valuable fluoroquinolone class of drugs.

References

Peptic Acid Disorders: Developing a Disease Management Program

Emmanuel Saltiel

OBJECTIVE:
To review peptic acid disorders and associated treatment costs while developing a disease management program for these situations.

DATA SOURCES:
Medline search and additional health care periodicals known to the author.

STUDY SELECTION:
Clinical and economic references, decision analysis.

DATA EXTRACTION:
Not applicable.

DATA SYNTHESIS
For a managed care organization, a focus on peptic acid disorders, a spectrum of illnesses encompassing peptic ulcer disease, nonulcer dyspepsia, and esophagitis, should be backed by an evidence-based approach to the medical literature.

CONCLUSION:
Patients with peptic acid disorders may suffer from peptic ulcer disease, non ulcer dyspepsia, or esophagitis. The medical literature suggests that, by managing dyspepsia with appropriate anti- H. pylori antibiotics, organizations can markedly reduce both pharmaceutical and physician organization costs. By identifying patients with erosive esophagitis, optimal acid-suppressive therapy can be used to reduce recurrences and complications of this chronic disease.

KEY WORDS:
Disease management, Dyspepsia, Peptic ulcer disease, Esophagitis, Helicobacter pylori, Cost-effectiveness, Pharmacoeconomics.

J Managed Care Pharm 1996; 2: 569-575.

Disease management has been defined as "planned care that in a systematic way is designed to improve outcomes and to lower costs for a population of patients with a given condition." Mark Zitter, president of San Francisco's Zitter Group, has defined disease management as "a comprehensive, integrated approach to care and reimbursement based...on the natural course of disease with treatment designed to address the illness with maximum effectiveness and efficiency." The focus on integration is key, since the fragmented nature of health care delivery, focusing on component care, has been identified as one reason for the failure of cost-control efforts in health care in the 1980s. Despite these and several other available definitions, however, disease management is a phrase tossed around to encompass everything from marketing strategies, designed to maximize drug use, to broad brush-stroked overcoats for otherwise thinly veiled, narrowly focused cost-cutting procedures. It has been termed "among the most abused words in the English language." According to Zitter, true disease management programs contain the following elements:

▲ Understanding of the disease state, especially cost drivers
▲ Treatment based on the disease process, rather than on reimbursement for a given therapy
▲ Patient education and compliance programs
▲ Management of treatment that cuts across the continuum of care
▲ Funding the most powerful intervention

Disease management seeks to change the focus of health care from treating acute flare-ups to managing an entire course of disease through an integrated, comprehensive approach. Such an approach can be used in the area of peptic acid diseases. The first element, understanding the disease state, is the focus of this paper.

Using the approach of evidence-based medicine (EBM), guidelines are developed based on objective examination of the literature, not on intuition and unsystematic clinical experience or pathophysiologic rationale. It represents an escape from the "in my experience" approach to medicine. The EBM approach rates literature based on its

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strength, with the highest rating given to prospective, randomized trials. Grade A evidence is based on one or more prospective, randomized, controlled trials with low potentials for false-positive and false-negative errors. Grade B evidence is based on prospective, randomized, controlled trials, but with high false-positive or false-negative error potentials. Grade C evidence is based on nonrandomized, prospective, controlled trials that compare contemporaneous patients or current and former patients, or is based on noncontrolled case studies evaluating 10 or more patients. Grade D evidence is based on a retrospective analysis. Grade E evidence is based on case reports of fewer than 10 patients, personal experience or expert opinion, or indirect evidence found in clinical trials. My institution has added categories of grades for evidence based on a meta-analysis (grade M), evidence based on a decision analysis or pharmacoeconomic analysis (grade Q), and evidence based on a summary (grade S).

PEPTIC ACID DISORDERS

For the purposes of this review, peptic acid disorders are defined as disorders whose primary pathology is associated with oversecretion of gastric acid. Because of some commonality in symptoms and similarities in treatment, three illness will be discussed, peptic ulcer disease (PUD), nonulcer dyspepsia (NUD), and esophagitis. Patients with PUD or NUD most frequently present to their physicians with complaints of epigastric pain and/or discomfort, a constellation of findings often referred to as dyspepsia.

Dyspepsia

Management of the patient presenting with dyspepsia is complicated by multiple options and a diverse differential diagnosis with widely overlapping symptomatology. The term "dyspepsia," although widely used, has escaped clear definition. It has been called "ill-defined" and "vague and misunderstood." Relevant symptoms include abdominal pain or discomfort, postprandial fullness, abdominal bloating, belching, early satiety, anorexia, nausea, vomiting, heartburn, and regurgitation.

For the purposes of this review, the definition established by Talley will be used: abdominal pain or discomfort centered in the upper abdomen.

Some 15% of Americans suffer from dyspepsia on a chronic or recurrent basis. Of those whose dyspeptic symptoms become severe enough to warrant endoscopy, approximately 24% have gastroesophageal reflux disease, 20% peptic ulcer disease, 21% gastroduodenal inflammation without ulcer, and 34% normal mucosa. About 2% have a malignancy. Dyspepsia may account for 2–5% of all visits to primary care physicians and up to 20–40% of consultations with gastroenterologists.

Despite contradictory data, most investigators have concluded that empiric treatment of the patient presenting with dyspepsia—rather than diagnostic work-up through upper gastrointestinal radiography or endoscopy—is rational and cost-effective. In fact, in a position paper, the American College of Physicians recommended an empiric approach, reserving endoscopy for patients who do not respond to initial therapy.

Peptic Ulcer Disease

Some 500,000 new cases of peptic ulcer are diagnosed in the United States each year, and 4.5 million persons experience recurrent ulcers. This illness alone accounts for one million hospitalizations annually with direct expenditures of $1.78 billion for hospital costs, $126.8 million for physician office visits, and $53 million for prescription drugs. Additionally, an estimated indirect cost of $303.8 million results from lost worktime. These figures do not include the far greater number of persons who self-treat or seek medical advice for nonspecific upper abdominal pain or dyspepsia. The frequency of this disease and its substantial fiscal impact suggests that a targeted approach may improve outcomes and reduce costs. How can these lofty goals be approached?

ROLE OF HELICOBACTER PYLORI IN PEPTIC ULCER DISEASE

Beginning with its isolation and identification in 1983, understanding of the role of Helicobacter (formerly Campylobacter) pylori in the pathogenesis of peptic ulcer disease has grown. A recent Consensus Development Conference of the National Institutes of Health recommended that patients with ulcers who also have H. pylori be treated with appropriate antibiotics targeted at the pathogen. Sound clinical and economic data support this recommendation.

The traditional approach of managing patients with antisecretory agents (histamine H₂ antagonists and proton-pump inhibitors) results in high healing rates for both duodenal and gastric ulcers. However, following a four- to eight-week regimen, recurrence is very common. In perhaps the most convincing study to date, Graham et al. demonstrated that concurrent use of antibiotics directed against H. pylori dramatically reduced recurrence rates in patients with duodenal and gastric ulcers, relative to therapy with ranitidine alone. One-year recurrence rates were 12% and 13% for duodenal ulcer and gastric ulcer, respectively, in patients treated with antibiotics, versus 95% and 74%, respectively, in patients treated with an acute regimen of ranitidine alone.

The economic benefit of H. pylori eradication can also be profound. In a noncontrolled trial, 175 patients with PUD and positive for H. pylori were treated with antisecretory therapy and antibiotics; 106 patients had effective eradication of H. pylori. This group had a lower rate of gastrointestinal hemor-
rhage than did the group of patients who remained *H. pylori*-positive. Additionally, patients in whom *H. pylori* was eradicated had a 69% reduction in expenditures in ulcer-healing medications.\(^6\) In a decision analysis, Sonnenberg and Townsend\(^7\) concluded that *H. pylori*-positive patients with endoscopically documented duodenal ulcer would have 90% lower total health care expenses over a 15-year period than similar patients treated with short-term intermittent therapy or long-term maintenance therapy with *H. pylori* antagonists.

O'Brien et al.\(^8\) performed a three-arm decision analysis for *H. pylori*-positive patients with duodenal ulcers. The first arm was immediate *H. pylori* eradication; the second arm was short-term *H2*-antagonist therapy followed by long-term maintenance therapy; the third arm was short-term *H2*-antagonist therapy followed by one of three sub-arms: (1) a second course of an *H2* antagonist; (2) a course of a proton-pump inhibitor; or (3) anti-*H. pylori* antibiotics. Total health care costs over 12 months were considerably lower with the first arm strategy (initial anti-*H. pylori* antibiotics).\(^9\) This analysis confirmed that, given a patient with a confirmed duodenal ulcer, initial treatment including anti-*H. pylori* antibiotics is a less costly strategy than waiting for recurrence before treating.

### MANAGEMENT OF PATIENTS WITH NONULCER DYSEPSIA

Nonulcer dyspepsia is dyspepsia without true ulcer disease. The management of patients with nonulcer dyspepsia is controversial. Given the chronic and nonspecific nature of NUD, a large fraction of total national expenditures of antisecretory agents is likely used for this indication.

In a recently presented randomized, placebo-controlled, double-blind trial, the futility of treating *H. pylori* in patients with NUD was clearly demonstrated. Some 53 *H. pylori*-positive patients with NUD were randomized to receive either bis-muth subsalicylate, amoxicillin, plus metronidazole, or placebo with identical appearances. The study had adequate power to detect a two-point difference in symptom score. Despite a 96% eradication rate with the antibiotics, symptom score or quality-of-life measurements at six weeks and six months did not change substantially.\(^10\) A recent editorial echoes these sentiments: “At this time, the literature simply does not support widespread treatment of patients with nonulcer dyspepsia with anti-*H. pylori* therapy.”\(^10\)

### Results Using Empiric Anti-*H. pylori* Therapy

Given the lack of value of treating *H. pylori*-positive patients with NUD with antibiotics, is there any rationale for the empiric treatment of patients with dyspepsia with antibiotics? In a recent review, Walsh and Peterson\(^11\) stated that “the best strategy for treating patients with dyspepsia and without a specific endoscopic or radiographic diagnosis is unclear....”

In a well-performed decision analysis, Fendrick et al.\(^12\) analyzed a cohort of 1,000 hypothetical patients presenting with symptoms suggestive of PUD who were not concurrently taking NSAIDs. The decision analysis consisted of five arms: 1. Immediate endoscopy with biopsy for *H. pylori*; 2. Immediate endoscopy without a biopsy (those with documented PUD were assumed to be positive for *H. pylori*, and treated accordingly); 3. Empiric *H2*-antagonist therapy; 4. Empiric *H2*-antagonist therapy plus anti-*H. pylori* antibiotics; 5. Empiric *H2*-antagonist therapy and serologic testing for *H. pylori* (those testing positive for *H. pylori* were then treated accordingly).

The model included an every-six-week assessment of each patient for the presence or absence of recurrent symptoms, *H. pylori* status, and active ulcer disease. For the three empiric arms, any patient developing recurrent symptoms was assumed to have undergone endoscopy. Serology was assumed to be 95% sensitive and specific for current or past infection with *H. pylori*. Finally, eradication of *H. pylori* in patients with NUD was assumed to offer no benefit. A large number of clinical probabilities were included from the medical literature. Among them were the following\(^22\):

- **Likelihood of active ulcer disease** (20%)
- **H. pylori** infection if ulcer is present (95%)
- **H. pylori** infection if ulcer is not present (50%)
- **H. pylori** eradication with antibiotic therapy (80%)
- **Ulcer healing with antisecretory therapy** (75%)
- **Ulcer recurrence in H. pylori**-positive patients (2.7 per 100 patient-months)
- **Ulcer recurrence in H. pylori**-negative patients (0.6 per 100 patient-months)

Cost inputs were derived from charges allowed by the Health Care Financing Administration for Medicare. The perspective was that of the payer. Sensitivity analyses were performed for all clinical variables.

The analysis demonstrated that the most cost-effective strategy was empiric antisecretory therapy combined with anti-*H. pylori* antibiotic therapy ($4,155 per ulcer healed). This strategy was followed by empiric antisecretory therapy combined with *H. pylori* serology ($4,541), and empiric antisecretory therapy alone ($4,835). All three of these strategies were far more cost-effective than the two strategies calling for initial endoscopy, $6,984 for endoscopy alone and $8,045 for endoscopy with biopsy. Analysis of total costs demonstrated the same order for the strategies, $818, $894, $952, $1,375, and $1,584, respectively\(^22\). Thus, this study demonstrated that, despite an overtreatment rate of 80% (i.e., 80% of those treated do not benefit), the strategy calling for a purely empiric approach is the least costly and most cost-effective. The study did not take into account the possible ill effects of antibiotic
overprescribing on the development of resistance. For this reason, it may be reasonable to select the serology strategy (e) as an alternative to the current practice (strategy c). The strategy of empirically treating dyspeptic patients who test positively for H. pylori is also suggested by Graham and Rabeneck.23

**Optimal Regimen for Treating H. pylori**

An optimal antibiotic regimen is simple to use, consisting of a simple dosing regimen of one or two inexpensive antibiotics with few side effects and a high cure rate. Unfortunately, no such regimen is available in the treatment of H. pylori. The classic “triple therapy,” a combination of a bismuth salt, metronidazole, and tetracycline, has consistently demonstrated high eradication rates, usually more than 90–95%. Using amoxicillin in place of tetracycline reduces the eradication rate by about 10%. A one-week course of triple therapy has been demonstrated to be as effective as the original two-week course, with a higher rate of patient compliance, 91% versus 70%.24 Although high eradication and ulcer cure rates have been demonstrated without concurrent antisecretory therapy,25 triple therapy is generally combined with an antisecretory agent to reduce pain associated with the ulcer.26

As would be expected, eradication depends on patient compliance with the regimen. In a study by Graham et al.,27 when patients took more than 60% of the total tablets of triple therapy, the eradication rate was 96%; when they took less than 60%, the eradication rate was only 69%. A recent decision analysis concluded that triple therapy would be the optimal regimen if compliance was greater than 53%, assuming a low rate of metronidazole resistance.28

Although side effects such as nausea, vomiting, and diarrhea may occur in 20–25% of patients, drop-out rates in clinical trials have been low, generally less than 8%.29 A pharmacist-based H. pylori clinic has reduced expenditures for long-term H2-receptor antagonists by identifying such patients, testing them for H. pylori, and treating those with positive results.26,29 Such a clinic could also attempt to follow-up with patients to improve compliance.

Clearly, some patients cannot or will not take triple therapy. For these patients, alternatives are needed. Additionally, metronidazole resistance is associated with a lower eradication rate.23,30 In two trials of classic triple therapy, eradication rates were 90–96% in patients with metronidazole-susceptible strains, but only 32–36% in patients with metronidazole-resistant strains.31,32 Women appear to be approximately twice as likely as men to harbor metronidazole-resistant strains of H. pylori, perhaps because of more frequent metronidazole administration.33,34 If a metronidazole-based regimen is followed by recurrence, an alternative regimen without that agent would be needed.

The initial excitement of a simple omeprazole-amoxicillin regimen has been tempered by reports of eradication rates as low as 37%. The eradication rate can be increased to 80–90% by using very high doses of the proton-pump inhibitor (e.g., omeprazole 120 mg/day),35,36 but such doses are remarkably expensive. Even a 60 mg/day dose of omeprazole when combined with amoxicillin for 10–14 days achieves an eradication of less than 40%.37

A regimen of a proton-pump inhibitor plus metronidazole and clarithromycin may be the optimal back-up to triple therapy. Using a one-week course of relatively low doses of the proton-pump inhibitor (standard doses once or twice a day),

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### Table 1. Regimens for *Helicobacter pylori*

<table>
<thead>
<tr>
<th>Description</th>
<th>Drugs and Dosing</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traditional triple therapy (BMT)</td>
<td>Bismuth subsalicylate (Pepso Bismol): 2 tablets q.i.d. plus metronidazole 250 mg t.i.d. plus tetracycline 500 mg q.i.d. for two weeks. Add H2A or PPI</td>
<td>Extensively researchedb</td>
<td>Large number of tablets (15–17/day) Complex three- and four-times daily regimens If compliance is &lt; 60%, eradication is &lt; 70%. If organism is metronidazole-resistant, eradication rate may be only 30–60%.</td>
</tr>
<tr>
<td>Omeprazole + clarithromycin (OC)</td>
<td>Omeprazole 40 mg q.d. plus clarithromycin 500 mg t.i.d. for two weeks, followed by omeprazole 20 mg q.d. for two weeks</td>
<td>Simple regimen</td>
<td>Lower eradication rate (70–85%) Expensive</td>
</tr>
<tr>
<td>RBC + clarithromycin</td>
<td>Ranitidine–bismuth citrate 400 mg b.i.d. for four weeks plus clarithromycin 500 mg t.i.d. for two weeks</td>
<td></td>
<td>Lower eradication rate (70–80%) Expensive</td>
</tr>
<tr>
<td>PPI-based triple therapy</td>
<td>Omeprazole 20 mg (or lansoprazole 30 mg) b.i.d. plus metronidazole 500 mg (or amoxicillin 1 g) b.i.d. plus clarithromycin 500 mg b.i.d. for one week</td>
<td>High eradication rate (85–95%) Moderately priced Very simple regimen</td>
<td>Less extensively studied Some experts recommend 10 days (rather than one week)</td>
</tr>
</tbody>
</table>

a Regimens using five tablets per day have also demonstrated efficacy.
b Pending FDA approval.
several investigators have produced eradication rates approaching 90%. A cost-effectiveness analysis concluded that a one-week regimen of omeprazole 20 mg/day, metronidazole 400 mg twice daily, plus clarithromycin 250 mg twice daily was associated with the greatest cost–benefit ratio.

A simpler regimen consisting of a proton-pump inhibitor plus clarithromycin has been advocated by some. However, in one prospective, randomized trial, the eradication rate associated with a one-week duration of this regimen was only 50%. In another comparative trial, 14 days of high-dose omeprazole (60 mg/day) plus 10 days of clarithromycin 1500 mg/day achieved an eradication rate of only 59%, whereas a 14-day regimen of omeprazole, clarithromycin, and amoxicillin eradicated H. pylori in 90% of cases.

Lansoprazole 30 mg twice daily has also been combined with clarithromycin and amoxicillin to achieve an eradication rate of 90%. Thus, a regimen of a proton-pump inhibitor with clarithromycin and amoxicillin might prove very useful in recurrences and in areas where metronidazole resistance is common. Another possible regimen in such a situation is bismuth subsalicylate, clarithromycin, plus tetracycline, a two-week regimen of which was associated with an eradication rate of 93.

Table 1 summarizes the regimens approved for use by our medical group.

OPTIMAL TREATMENT STRATEGY FOR ESOPHAGITIS

In developing a disease management program for acid-related disorders, strategies are required for management of patients with esophagitis. At least three patient populations must be considered, and the strategies for each may differ. First, patients with no specific reflux symptoms have endoscopy for recurrent dyspepsia and a diagnosis of esophagitis results.

Some 20% of people with recurrent dyspepsia have esophagitis. On the other extreme is the patient who presents with heartburn and regurgitation as the dominant symptoms. In these patients, a clinical diagnosis of esophagitis has a sensitivity of 78% and a specificity of 60%. Because of the high probability of the diagnosis, empiric therapy for these patients is reasonable. Third, some patients have heartburn and/or regurgitation in combination with other dyspeptic complaints, such as epigastric pain or discomfort. For them, the clinical diagnosis of esophagitis cannot be made reliably. Unfortunately, only one third of patients with complaints consistent with gastroesophageal reflux will be positively diagnosed using endoscopy. Thus, additional diagnostic work-up may be necessary.

Unlike duodenitis and gastritis, esophagitis is not associated with H. pylori, but such gastroesophageal reflux conditions require an estimated $2–3 billion of prescription and nonprescription medications annually. The incidence of this disorder is difficult to estimate, since its spectrum of presentation is diverse. Approximately 44% of the adult United States population experiences heartburn at least monthly, 18% twice weekly, and 7% daily. If esophagitis is indeed diagnosed on endoscopy, the rate of complications is not consequential, with 10–20% developing serious complications such as esophageal strictures, 10–15% Barrett's esophagitis, 2–7% esophageal ulcers, and 5–10% ultimately requiring surgical repair. These complications and the chronicity of the disease, leading to repeated physician visits, contribute heavily to the total cost of care of esophagitis.

The initial management of esophagitis includes lifestyle modifications (smoking cessation, weight loss, head elevation during sleep, elimination of caffeine and other foods and beverages that can decrease lower esophageal sphincter tone), antacid therapy, and perhaps nonprescription H2 antagonists. Unfortunately, the degree of symptomatology is not clearly correlated with endoscopic grade of esophagitis. If grade 2 or greater esophagitis (i.e., erosions) is diagnosed on endoscopy, the illness is considered a chronic one. Long-term therapy of some sort may therefore be inevitable.

Acute Treatment of Esophagitis

Studies using standard doses of H2 antagonists (e.g., cimetidine 400 mg or ranitidine 150 mg twice daily) demonstrated inadequate healing rates of 40–45%. As a result, the FDA approved a high-dose regimen, consisting of double the standard dose. Even with these higher doses, healing rates have been 68–70% at eight weeks and 57–83% at 12 weeks. On the other hand, healing rates with proton-pump inhibitors have been consistently better than with H2 antagonists, with healing rates of up to 96% at eight weeks.

Maintenance Treatment of Esophagitis

Following initial healing of a patient with erosive esophagitis, recurrence is common, with prevalence rates as high as 80% without some form of maintenance therapy. With maintenance therapy, recurrence rates are substantially diminished. Proton-pump inhibitors reduce one-year recurrence rates to 11–20%. Recurrence rates with H2 antagonists are closer to 50–75%. Given the sizable difference in recurrence rates between these two classes of drugs, a reasonable course would be to determine whether the higher cost of the proton-pump inhibitors might be balanced by the higher cost of secondary physician visits and/or examinations associated with the higher failure rates of the H2 antagonists.

Three pharmacoeconomic analyses were performed comparing the total costs of care of omeprazole versus a standard dose of an H2-receptor antagonist, a high dose of an H2-receptor antagonist, and a combination of an H2-receptor antagonist and metoclopramide. In each case, the proton-pump inhibitor was more cost-effective. A subsequent pharmacoeconomic...
nomic analysis demonstrated that the total cost of care using maintenance doses of lansoprazole would be less than that using brand-name ranitidine and only 3% more than that using generic cimetidine. The improved efficacy, likely associated with higher patient satisfaction scores so important to a managed care organization, would seem to be well worth the few additional dollars. Thus, a strong argument can be made for the use of proton-pump inhibitors in patients with endoscopically confirmed erosive esophagitis.

OPTIMAL DOSE OF PROTON-PUMP INHIBITORS

Lower-dose regimens of proton-pump inhibitors have been investigated. In a small, noncontrolled trial, a one-month regimen of omeprazole 20 mg once daily was followed by the same dose given every other day for up to three years in patients with H2-antagonist-refractory esophagitis. Symptoms were controlled in 92% of cases. A "weekend regimen," consisting of a three-day-per-week regimen of omeprazole 20 or 40 mg, has been demonstrated to suppress basal and stimulated acid secretion. However, a prospective, randomized trial of the regimen in 87 patients with esophagitis led to disappointing results. Following an acute four- to eight-week regimen of omeprazole 20 mg daily that resulted in cure, patients were randomized to receive omeprazole 10 mg daily or 20 mg three times weekly for a period of six months. Relapse rates were 21% and 54%, respectively. In another trial, 159 patients with healed esophagitis were randomized to receive omeprazole 20 mg daily, omeprazole 20 mg three times weekly, or ranitidine 150 mg twice daily. The rates of continued remission at 12 months were 89%, 32%, and 25%, respectively. Thus, proton-pump inhibitors are substantially more effective than H2 antagonists at preventing recurrences, and a three-times weekly regimen of a proton-pump inhibitor is less effective than a daily regimen. A reduced-dose regimen given daily may be satisfactory, but it requires further study.

CONCLUSION

Managed care organizations can and should take the lead in developing and implementing guidelines for peptic acid diseases with consideration given to the following points:

- Peptic ulcer disease not associated with NSAID therapy is curable; only the small minority of patients who are not cured by one or two appropriate antibiotic regimens should receive long-term therapy.
- H. pylori regimens with high eradication rates should be highly promoted. Consideration can be given to a pharmacist-run clinic or some sort of case manager to follow-up patients to assure compliance.
- Primary care practitioners can use the model of Fendrick et al. by seriously considering serology to identify those patients presenting with epigastric pain who have H. pylori.
- Even though many of these patients will have nonulcer dyspepsia and will likely not benefit from antibiotic therapy, the model demonstrates that this strategy is cost-effective.
- Patients with erosive esophagitis are clinically and economically best treated with proton-pump inhibitors. Serious consideration should be given to endoscopy for patients with symptoms suggestive of esophagitis, so that those who need these agents can be treated appropriately and those with negative results may be considered for a trial of H2 antagonists.

References

21. Walsh JH, Peterson WL. The treatment of Hel-
OBJECTIVE:
To define critical pathways and to provide examples of critical pathways being developed and applied in hospitals and health systems.

DATA SOURCES:
Data for this article were obtained via a Medline review (1986–1996) and a manual review of the last three years of Hospital Case Management, a monthly 15–20 page newsletter on hospital-based planning and critical paths, published by American Health Consultants.

STUDY SELECTION:
Citations that focused on specific process changes and/or outcomes were included for this review.

DATA EXTRACTION:
Not applicable.

DATA SYNTHESIS:
Critical pathways are being developed to address reductions in reimbursement to hospitals. They are most frequently developed for high-frequency and/or high-cost procedures or diagnoses. Defined as multidisciplinary treatment plans established over a projected length of stay for a specific illness or procedure, pathways can be viewed as a collection of clinical practice guidelines incorporating care from before admission to after discharge. As employers begin insisting upon incorporation of certain guidelines or goals for lengths of stay, managed care pharmacists must become familiar with pathways and their roles and responsibilities for development and implementation.

CONCLUSION:
Many hospitals have demonstrated remarkable savings and reductions in lengths of stay and readmission rates. Pharmacists can be involved in many steps of development and implementation of these valuable tools. Critical pathways are another vehicle through which pharmacists may demonstrate their expertise and value to a health care system.

KEY WORDS:
Critical pathways, Practice guidelines, Care maps, Clinical pathways, Community-acquired pneumonia, Total knee arthroplasty, Total hip arthroplasty, Congestive heart failure, Oncology.

J Managed Care Pharm 1996; 2: 576–582.

DEFINING CRITICAL PATHWAYS

Critical pathways—also known as care maps, multidisciplinary actions plans, collaborative care tracks, and clinical pathways—are defined as multidisciplinary treatment...
plans established over a projected length of stay for a specific illness or procedure.\(^4\) The pathways delineate appropriate pharmacologic and nonpharmacologic therapies, diagnostic procedures and tests, use of services such as physical therapy, other activities, and outcomes to be achieved throughout the patient's hospitalization, from preadmission through discharge and, in some cases, postdischarge. Pathways, by providing a standardized approach to the management of patients, can decrease the variances in care provided by multiple physicians and reduce costs overall. Diagnoses or procedures that are high volume, high risk, or high cost lend themselves to a standardized approach to patient management. Thus, in contrast to drug-use evaluations, which only focus on one component of care, the critical pathway is a comprehensive approach to disease management developed after evaluating information about current practices, scientific evidence, and benchmarks in similar institutions. Although pathways were first conceived to assist in the management of acute episodes of care within the hospital setting, they are under development for other settings as well. Indeed, by design, critical pathways should work best in the framework of an integrated delivery system.\(^5\) For example, Daniel Freeman Hospitals in southern California uses "beyond-the-walls" case management as part of its critical pathway program to try to reduce the rate of recidivism in high-risk persons.\(^6\) Goals of critical pathways are listed in Table 1.

In some ways, critical pathways are similar to practice guidelines, with which pharmacists have long been involved. Both are developed by expert groups, generally after multidisciplinary input; both require a thorough and critical review of the medical literature and are increasingly used to improve patient care while reducing costs. In fact, critical pathways can be thought of as a collection of guidelines under a common disease or procedure. For example, as part of a deep-vein thrombosis pathway, a health system could develop guidelines for the following:

1. Patient triage for inpatient or outpatient (with low-molecular weight heparin treatment) care
2. Dosing and monitoring of intravenous heparin
3. Dosing and monitoring or warfarin
4. Appropriate laboratory work-up of the thrombosis
5. Patient education

Pharmacists can be involved at many points of at least four of the above guidelines. Roles for pharmacists in the development and implementation of critical pathways are summarized in Table 2 and discussed in detail in several of the examples below.

Success stories of critical pathways abound. By using an interdisciplinary team with extensive physician input, allowing for physician preferences throughout the pathway, using task forces for guideline development, and including pharmacist input, Sioux Valley Hospital (South Dakota) experienced a system-wide cost avoidance of $4.4 million and an overall length of stay reduction of 1,275 days over two years.\(^6\) Following a careful analysis of variance, clinicians at St. Luke's Episcopal Hospital in Houston were able to eliminate slow operating room turnover, surgical delays, and instrumentation problems. Use of a standardized surgeon preference card has effectively reduced excessive supply costs. By applying these steps into perioperative pathways across all surgical procedures, the hospital was able to achieve savings of almost $2 million per year in supply costs alone, while reducing operating room turnaround time from 67 to 24 minutes and improving on-time rates from 30% to 80%.\(^7\) Table 3 summarizes some of the benefits of critical pathways and, selectively, areas wherein pharmacy has been involved.

Discussed in this article are several examples of diseases for which critical-pathway development have been reported in the clinical literature.

### COMMUNITY-ACQUIRED PNEUMONIA

Approximately four million cases of community-acquired pneumonia (CAP) occur each year in the United States, contributing to 600,000 hospitalizations per year.\(^8\) Pneumonia is the sixth leading cause of death in the United States and the leading infectious cause.\(^9,10\) The fiscal impact of hospitalized patients with CAP is substantial. In 1985, the total direct health care costs of treating pneumonia exceeded $14 billion,\(^11,12\) and the figure likely exceeds $23 billion today.\(^8\)

At Toledo (Ohio) Hospital, a CAP pathway was implemented in January 1995. Based in large measure on the American Thoracic Society guidelines, patients were stratified into one of three categories\(^13\):

- Hospitalized, younger than 60 years, no comorbid illnesses
- Hospitalized, older than 60 years or with any comorbid illness

### Table 1. Goals of Critical Pathways\(^a\)

- To increase predictability of demand for patient services
- To clarify expectations and responsibilities of health care providers
- To facilitate communication between members of the health care team
- To promote the development of better measures of quality of care by strengthening the process-outcome link
- To decrease documentation time
- To reduce expenses

\(^a\) From references 3 and 15.

### Table 2. Roles for Pharmacists in Critical Pathways\(^a\)

- Providing recommendations on drug selection, dose, route, and timing (initiation time, duration, timing of switch from parenteral to oral therapy), and monitoring of medications
- Performing drug-use evaluations (using claims data and/or diagnosis codes) to examine variances in practice patterns
- Critically evaluating medical literature on the drugs in question
- Benchmarking with similar institutions or systems
- Offering innovative solutions to help implement guideline strategies
- Educating the medical staff or group providers
- Assisting in critical pathway implementation by intervening or by serving as a primary-care provider in a pharmacist-run clinic

\(^a\) From reference 15.
CONGESTIVE HEART FAILURE

Congestive heart failure (CHF) represents the most common indication for hospitalization in adults over the age of 65 years in the United States. Between 2.3 and 3 million Americans suffer from CHF; with 400,000 new cases diagnosed annually. Total costs exceed $8–10 billion per year, a figure that includes $5.45 billion apportioned by Health Care Financing Administration (HCFA) for hospitalization alone in 1991. This latter figure exceeds the total amount spent by HCFA for all cancers plus for acute myocardial infarction. A leading contributor to total health care costs is rehospitalization. Rates of 30-day readmission have ranged from 10% to 23%; 90-day readmission rates have ranged from 22% to 42%.

At Central Maine Medical Center (Lewiston, Maine), a successful critical pathway for CHF focuses on three elements:

- Extensive patient education, including a video and handbook
- Multidisciplinary effort, including pharmacists
- One-month post-discharge follow-up telephone call

Within seven months of implementation, LOS was reduced from 7.2 to 5.6 days, 30-day readmission rates were lowered from 18% to 7%, and charges decreased by $1,000 per patient.

Through use of a CHF pathway, North Suburban Medical Center (Thornton, Colorado) experienced a 49% reduction in LOS and Good Samaritan Hospital (Lebanon, Pennsylvania) reduced its readmission rate from 10% to 5% and reduced costs by over $4,500 per patient. At Toledo (Ohio) Hospital, pharmacists review CHF patients’ medication records thoroughly, making appropriate recommendations. Patients undergo a compliance check, and discharge planning begins on the first day of inpatient hospitalization. LOS was reduced by almost two days, and costs decreased by $1,200 per case.

At Cedars–Sinai Medical Center, pharmacists are working with case managers to identify CHF pathway patients who may be at high risk for readmission because of noncompliance or adverse drug reactions. Follow-up telephone calls will be initiated.

ONCOLOGY

Under DRG 410, nonleukemic patients hospitalized for chemotherapy have a recommended LOS of 2.6 days. In 1989, Barnes Hospital (St. Louis) had a mean LOS of 6.7 days for such patients. A project team focused on a critical pathway process by establishing guidelines that called for chemotherapy orders to be written before hospitalization and a chemotherapy satellite pharmacy to be located in close proximity to the nursing station. As a result, LOS decreased to 4.0 days in 1990, 3.3 days in 1992, and 3.2 days in 1993. Ancillary costs, including pharmaceuticals, decreased 64% and total costs were reduced by $600 per case in one year. Barnes is now using its critical pathway as a marketing tool to health-maintenance and preferred-provider organizations in its area.
Table 3. Results Reported in Published Studies of Selected Critical Pathways

<table>
<thead>
<tr>
<th>Pathway (Reference No.)</th>
<th>Hospital</th>
<th>Description of processes</th>
<th>Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vaginal delivery (1)</td>
<td>Vassar Brothers Hospital, Poughkeepsie, NY, with Community Health Plan of NY</td>
<td>Negotiated between hospital and MCO. An account of CHPs set as a condition of account that practice guidelines and DRG goals be used.</td>
<td>Cost avoidance of $4.4 million and overall LOS reduction of 1,275 days over two years.</td>
</tr>
<tr>
<td>All pathways (5)</td>
<td>Daniel Freeman Hospitals, Inglewood, CA</td>
<td>Beyond-the-wall case management to try to reduce rate of recidivism in high-risk patients such as Medicare recipients.</td>
<td>Savings of almost $2 million in supply costs in one year. On-time rate improved from 30% to 80%. Reduced operating room turnaround time from 67 minutes to 24 minutes. Reduced LOS by 1.8 days within one month of implementation.</td>
</tr>
<tr>
<td>All pathways (6)</td>
<td>Sioux Valley Hospital, Sioux Falls, SD</td>
<td>Administrative support; task force; involvement of physicians; allowance for physician preferences; interdisciplinary teams; pharmacist input.</td>
<td>Reduced LOS by 25%.</td>
</tr>
<tr>
<td>Perioperative pathways for all surgeries (7)</td>
<td>St. Luke’s Episcopal, Houston</td>
<td>Careful analysis of variance, eliminating slow room turnover, surgical delays, and instrumentation problems. Use of standardized surgeon preference card to reduce excessive supply costs.</td>
<td>Reduced LOS by 27%, from 6.4 to 4.7 days; reduced costs by almost $2,000 per patient. LOS reduced by 1.7 days. Total charges reduced by $896,000.</td>
</tr>
<tr>
<td>Pneumonia (13)</td>
<td>Toledo Hospital, Ohio</td>
<td>Medication profile, based on American Thoracic Society guidelines included in path; instructions for switching i.v. to p.o. antibiotics; broad interdisciplinary input.</td>
<td>Reduced LOS from 7.2 to 5.6 days within seven months of introduction; 30-day readmission rate reduced from 18% to 7%; charges reduced by $1,000 per patient. Reduced readmission rate from 10% to 5%; average costs reduced by $4,732.</td>
</tr>
<tr>
<td>Hip and knee replacement (19)</td>
<td>St. Luke’s Episcopal Hospital, Houston</td>
<td>Extensive physician input.</td>
<td>Reduced LOS by 49%.</td>
</tr>
<tr>
<td>Hip and knee replacement and hip fracture (20)</td>
<td>Hackley Hospital, Muskegon, MI</td>
<td>Same-day exubations; shortened length of time between catheterization and surgery to 24–48 hours; streamlined standing orders; changed type-and-cross to type-and-screen.</td>
<td>Reduced pharmacy costs (highest cost center for CHF) by $12 per case, overall costs by $1,200 per case, reduced LOS by almost two days.</td>
</tr>
<tr>
<td>CABG (22)</td>
<td>Four hospitals in Chicago</td>
<td>Extensive patient education, using booklet and video; multidisciplinary approach, including pharmacists; one-month post-discharge phone calls.</td>
<td>Improved physician buy-in; savings of $200,000, with goal of $600,000 predicted. LOS reduced by two days.</td>
</tr>
<tr>
<td>CHF (25)</td>
<td>Central Maine Medical Center, Lewiston, ME</td>
<td>Patient education; early assessment of patient’s post-hospital needs and extension of case management home setting.</td>
<td>ED stay was at least three hours for 25% in 1991; in 1993, only 9% stay for three hours, and most stay for 1.5–2 hours.</td>
</tr>
<tr>
<td>CHF (26)</td>
<td>Good Samaritan Hospital, Lebanon, PA</td>
<td>Physician reviews medical record thoroughly, makes recommendations, compliance assessment, day 1 discharge planning.</td>
<td></td>
</tr>
<tr>
<td>CHF (27)</td>
<td>North Suburban Medical Center, Thornton, CO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHF (28)</td>
<td>Toledo Hospital, Ohio</td>
<td></td>
<td></td>
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<tr>
<td>CHF (29)</td>
<td>Malcolm Grow Medical Center, Andrews Air Force Base, Adelphi, MD</td>
<td></td>
<td></td>
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<tr>
<td>CABG (40)</td>
<td>Methodist Hospital, Memphis and University Community Hospital, Tampa</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asthma, education (ED) focus (40)</td>
<td>Health One Unity Hospital, Fridley, MN</td>
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<td></td>
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<tr>
<td>Chest pain, ED focus (40)</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Table continued on next page
Table 3. Continued

<table>
<thead>
<tr>
<th>Pathway (Reference No.)</th>
<th>Hospital</th>
<th>Description of processes</th>
<th>Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mastectomy (41)</td>
<td>Sioux Valley Hospital, Sioux Falls, SD</td>
<td></td>
<td>Range of LOS from 24 to 72 hours, to hopeful of 24 hours with follow-up nursing visits. Reduced LOS between 1992 and 1993 for adult depression (11.1 to 8.9 days), Los reduced from 3.5–4 days to 2.7 days.</td>
</tr>
<tr>
<td>Depression, schizophrenia (42)</td>
<td>Center for Mental Health, EMS Good Samaritan Hospital, Downers Grove, IL</td>
<td>Early discharge planning, inter-shift communication on clinical pathway progress, variance reporting, adolescent depression (14.8 to 10 days), schizophrenia (17.2 to 14.6 days)</td>
<td></td>
</tr>
<tr>
<td>Chemotherapy for malignancies (30)</td>
<td>Sarasota Memorial Hospital, Florida</td>
<td>Improved preadmission testing, oral hydration at home, chemotherapy orders faxed to nursing station. Pharmacist sees patient at pre-admission to look at plans for home medications, daily rounds, reviews patient emesis diaries.</td>
<td></td>
</tr>
<tr>
<td>Trauma (43)</td>
<td>St. Luke's Hospital, Kansas City, MO</td>
<td></td>
<td>Reduced LOS from eight (1992) to five (1995) days. Total hospital days reduced by 24% from 1992 to 1995. Reduced LOS by three days within seven months of initiating the pathway. Reduced LOS from 11 to seven days.</td>
</tr>
<tr>
<td>Trauma (43)</td>
<td>Tucson Medical Center, Arizona</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stroke (44)</td>
<td>Northwest Covenant Medical Center, Denville, NJ</td>
<td>Individualized two aspects of care.</td>
<td></td>
</tr>
<tr>
<td>Stroke (44)</td>
<td>William Beaumont Hospital, Royal Oak, MI</td>
<td>Early speech therapy.</td>
<td></td>
</tr>
<tr>
<td>Myocardial infarction (45)</td>
<td>Winchester Hospital, Massachusetts</td>
<td>&quot;Teaching pathway&quot; dovetailed into clinical pathway throughout the five-to-six-day hospitalization, which started ED earlier.</td>
<td></td>
</tr>
<tr>
<td>Transurethral resection of the prostate (46)</td>
<td>Crawford Memorial Hospital, Van Buren, AR</td>
<td>Earlier removal of catheter (MN on day of admission); clear discharge criteria.</td>
<td></td>
</tr>
<tr>
<td>Delivery (47)</td>
<td>Meriter Hospital, Madison, WI</td>
<td>Focused on reduced incidence of inappropriate cesarian sections; physician input; extensive distribution of reminder cards urging documentation of facts pertinent to cesarian section.</td>
<td></td>
</tr>
<tr>
<td>Laparoscopic cholecystectomy (7)</td>
<td>Kaiser Permanente, Bellflower, CA</td>
<td>Carbon dioxide expulsion at the end of the case before removing the trochar.</td>
<td></td>
</tr>
<tr>
<td>Stroke (19)</td>
<td>St. Luke's Episcopal Hospital, Houston</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diabetic ketoacidosis (48)</td>
<td>Mercy Hospital, Toledo, OH</td>
<td>Case management.</td>
<td></td>
</tr>
<tr>
<td>Asthma (49)</td>
<td>Evangelical Health System, Trinity Hospital, Chicago</td>
<td>Adoption of NIH guidelines; earlier conversion of i.v. to p.o. theophylline; improved patient education; peak flow monitoring</td>
<td></td>
</tr>
<tr>
<td>Psychiatric case (50)</td>
<td>Conemaugh Memorial Hospital, Johnstown, PA</td>
<td>Case management.</td>
<td></td>
</tr>
</tbody>
</table>

At Connecticut's Hartford Hospital, a pharmacist helped to develop cancer pain guidelines in an oncology critical pathway. At St. Luke's Episcopal Hospital (Houston), a pharmacist assisted with guidelines for pain management and anti-emetic therapy in oncology pathways. At Sarasota (Florida) Memorial Hospital, a pharmacist reviews each patient's medications and emesis diaries. Several process changes, including improved preadmission testing, preadmission oral hydration, and faxing chemotherapy orders from the nursing station, have contributed to a LOS reduction from 3.5–4 days to 2.7 days.

**CORONARY ARTERY BYPASS GRAFT SURGERY**

Coronary artery disease affects 1.5 million Americans, killing almost 1 million people per year. More than 300,000 coronary-artery-bypass graft (CABG) surgeries are performed in the United States annually, a figure that exceeds that of the rest of the world. At Methodist Hospital of Memphis and University Community Hospital of Tampa, Florida, use of physician report cards helped reduce LOS by two days; savings of $200,000 per year have been achieved with a projected $600,000 expected overall. The use of physician report cards
Table 4. Barriers to Acceptance of Clinical Practice Guidelines

1. Currency
Are the guidelines maintained up-to-date by vigilant review of the medical literature?

2. Outcomes
Are the guidelines linked to outcomes data, rather than to process data? Are the outcomes being measured meaningful to those who would pose barriers to their implementation?

3. Development site
Were the guidelines copied from national standards or developed locally? Were the guidelines endorsed by a local group of practitioners whose expertise is acknowledged among the users of the guidelines?

4. Behavior theory
Is behavior modification, in the way of feedback, being used? Is performance being reported relative to some standard? Is an educational component included in guideline implementation? Are users of the guideline invited to be active participants in its development and maintenance?

5. Liability issues
Does the existence of guidelines have a positive or negative effect on physician liability? What are the attitudes of the physicians?

6. Transition from quality assurance to continuous quality improvement (CQI)
Has the CQI principle of interdepartmental cooperation been used in the development, dissemination, and implementation of the guidelines?

7. Conflicting guidelines
What are the attitudes of the physicians to the often conflicting nature of national, state, or regional guidelines? Has consensus been obtained about specific aspects of the conflicting sections?

8. Physician characteristics
Have physician characteristics, such as year of residency, gender, severity of patient illness, and faculty status been taken into account in implementation?

9. Patient compliance
Have the guidelines taken into account patient preferences for alternative therapies for a particular condition? Have factors that could contribute to nonadherence been factored into the guidelines?

10. Stakeholders
Have appropriate stakeholders (including nonphysician health care providers) been included in the development and implementation of the guidelines?

11. Reimbursement
Has the dominant reimbursement system for the group (capitation, fee-for-service) been taken into account?

12. Mode of practice
Similar to the reimbursement factor, has the setting (e.g., public health clinic, private office) been taken into account?

13. Population differences
Have sociocultural factors associated with the patient population involved been taken into account? Have the guidelines been extrapolated from a racially or socially different group, and, if so, is the extrapolation valid?

is a strategy embraced by the managed care industry in which specific measures of use of physicians within a group or a specialty are compared. Sharing interphysician variances, both in-house and via a computerized database set up by the Volunteers Hospitals of America (VHA) using data from 22 other institutions was felt to be a key step in overcoming physician resistance. A group of four hospitals in Chicago worked together and developed pathways, which streamlined several processes and implemented same-day extubations. LOS was reduced by 1.7 days, and a total of $896,000 was saved. At Crawford Long Hospital of Emory University (Atlanta), LOS was reduced from 10.2 to 7.9 days, and at Mercy and Unity Hospital (Minneapolis), mean costs were reduced from $17,000 to $11,000.

At Cedars-Sinai Medical Center, pharmacy involvement in the CABG pathway led to standardizing pancuronium as the neuromuscular blocker of choice and fentanyl as the intraoperative opioid of choice, and hetastarch as the colloid of first choice. Aminocaproic acid is given prophylactically to patients felt to be at high risk of postoperative bleeding complications. Antibiotic prophylaxis is standardized, with cefazolin being given as a single dose pre-operatively and on a routine schedule for 24 hours after surgery.

BARRIERS TO GUIDELINE IMPLEMENTATION

In 1994, a distinguished group of educators and researchers met under the aegis of the National Academy of Sciences and concluded that implementation of clinical practice guidelines has met with little success. The Institute of Medicine identified desirable attributes of clinical guidelines under two broad categories, content needs and process needs. "Content needs" of guidelines deal with their components and accompanying details. "Process needs" address the "how" of guidelines development, focusing on procedures and other management issues. Validity, reliability, clinical applicability, and flexibility are the key contents needs. A multidisciplinary approach, documentation of evidence, and capacity for revision are among the key process needs. An evidence-based practice approach helps to satisfy many of these needs.

Chodoff and Crowley enumerate 13 barriers to implementing clinical practice guidelines (Table 4). Among those pharmacists need to appreciate most are the need to do the following:

- Update guidelines as new medical literature appears
- Link guidelines with outcomes data meaningful to physicians
- Obtain local endorsement of the guidelines
- Provide feedback to physicians (e.g., via report cards)
- Develop a team approach using continuous quality improvement techniques in the development and amendment of the guidelines
- Take patient-specific preferences into account

CONCLUSION

Critical pathways provide clinical practice guidelines for a singular disease state or procedure. Pathways have been demonstrated to reduce care variance and costs while maintaining or improving quality of care in many health care settings. Pharmacists can serve many roles during development, dissemination, and implementation of critical pathways, but—along with the pathway team—they must be conscious of potential barriers to their implementation. Critical pathways can be viewed as another vehicle in which pharmacists may demonstrate their expertise and value to a health care system.
Pharmacists working in ambulatory managed care could also be involved in several areas, including formulary management issues about drug selection, compliance assessment and enhancement, and review of prescription records in assisting with use of physician report cards.

**References**

CRITICAL PATHWAYS: A PRIMER FOR MANAGED CARE PHARMACISTS

LEARNING OBJECTIVES

After studying this article, the reader should be able to:
1. Define critical pathways and clinical practice guidelines.
2. List five goals attainable through development of critical pathways.
3. List six roles pharmacists can play in development and implementation of pathways.
4. List six disease states for which critical pathways have successfully reduced costs and hospital lengths of stay.
5. List 10 barriers to implementation of clinical practice guidelines and critical pathways, and discuss strategies to overcome those barriers.

SELF-ASSESSMENT QUESTIONS

For each item, select the one best answer and mark it on the answer sheet on page 584.

1. Which of the following statements about critical pathways is not true?
   a. Pathways are designed to provide a standardized approach to the management of patients.
   b. The standardized approach associated with pathways often results in reduced variances in practice and reduced costs of care.
   c. Pathways represent a comprehensive approach to disease management.
   d. Pathways' activities are confined to the period of time between hospital admission and discharge.
   e. Pathways may be developed by expert consensus, critical literature review, and benchmarking, or by a combination of these processes.

2. In a critical pathway for community-acquired pneumonia:
   a. Literature support for stratification to low-risk versus high-risk could result in earlier conversion to oral antibiotics and earlier discharge.
   b. It may prove useful to stratify patients into those less than 60 years of age with no comorbid diseases, those 60 years of age or older or with comorbid disease, and those who are critically ill, in making empiric antibiotic recommendations.
   c. Conversion to oral antibiotics, as early as day 2 of inpatient hospital stays, can be included on the pathway itself.
   d. Alternatives b and c are both correct.
   e. All of the above alternatives are correct.

3. Within the structure of a total hip arthroplasty critical pathway, pharmacists can play which of the following roles?
   a. Make recommendations on thromboprophylaxis based on clinical and economic data in the medical literature.
   b. Offer to provide a pharmacist-based warfarin dosing service.
   c. Make recommendations on postoperative pain management based on national guidelines by the Agency for Health Care Policy and Research.
   d. Alternatives b and c are both correct.
   e. All of the above alternatives are correct.

4. Which of the following is true about congestive heart failure?
   a. It represents the fifth most frequent cause of hospitalization among persons over the age of 65 years.
   b. Expenditures by the Health Care Financing Administration for congestive heart failure hospitalization are less than those for acute myocardial infarctions.
   c. 90-day readmission rates for congestive heart failure have exceeded 40% in the literature.
   d. All of the above alternatives are correct.
   e. None of the above alternatives is correct.

5. Critical pathways for congestive heart failure have resulted in which of the following?
   a. Reduced total health care costs.
   b. Reduced readmission rates.
   c. Reduced lengths of stay.
   d. Reduced pharmacy costs.
   e. All of the above alternatives are correct.

6. In developing a critical pathway for nonleukemic chemotherapy, one hospital has been able to:
   a. Reduce length of stay.
   b. Reduce ancillary costs (including pharmaceuticals).
   c. Contract with HMOs.
   d. All of the above alternatives are correct.

7. Which of the following are potential roles for pharmacists in the development of critical pathways?
   a. Providing recommendations on drug selection and dosing for clinical practice guidelines within the pathway.
   b. Performing drug-use evaluations and examining interphysician variances in practice.
   c. Benchmarking practices with those of other respected institutions.
   d. All of the above alternatives are correct.

8. Which of the following may represent obstacles to the implementation of critical pathways?
   a. Lack of linkage to outcome data meaningful to the user.
   b. Lack of local endorsement of reproduced national guidelines.
   c. Lack of use of behavior modification during development and imple-
d. Competing national guidelines.
e. All of the above alternatives are correct.

9. Which of the following is not a behavior-modification technique to encourage acceptance of the pathway or guideline into practice?
   a. Include users as active participants in the development of the pathway.
   b. Mandate adherence to the pathway with no exceptions.
   c. Provide users with feedback.
   d. Report users' performance relative to an accepted standard.
   e. Incorporate an educational component to the pathway.

10. Which of the following steps can reduce hospital length of stay and costs in CABG patients?
   a. Use of physician report cards, sharing interphysician variances in-house.
   b. Use of physician report cards, sharing interphysician variances relative to others in a buying group and/or other local institutions.
   c. Implementation of a same-day extubation policy.
   d. Change "type and cross" to "type and screen."
   e. All of the above alternatives are correct.

**Demographic Information (not for scoring)**

11. In what type of setting do you work (leave blank if none of the below responses applies)?
   a. HMO.
   b. PPO.
   c. Indemnity insurance.
   d. Pharmacy benefits management.

12. Did this program achieve its educational objectives?
   a. Yes.
   b. No.

13. How many minutes did it take you to complete this program, including the quiz (fill in on answer sheet)?

14. Did this program provide relevant or practical insights into yourself or your work?
   a. Yes.
   b. No.

15. Please rate the quality of this CE article.
   a. Excellent.
   b. Good.
   c. Fair.
   d. Poor.

**INSTRUCTIONS**

This quiz affords 1.0 hour (0.1 CEU) of continuing pharmaceutical education in all states that recognize the American Council on Pharmaceutical Education. To receive credit, you must score at least 70% of your quiz answers correctly. To record an answer, darken the appropriate block below. Mail your completed answer sheet to: Academy of Managed Care Pharmacy, 1650 King Street, Suite 402, Alexandria, VA 22314. Assuming a score of 70% or more, a certificate of achievement will be mailed to you within 30 days. If you fail to achieve 70% on your first try, you will be allowed only one retake. The ACPE Provider Number for this lesson is 233-000-96-006-H04. This offer of continuing education credits expires September 30, 1997.

**Participant Identification: Please type or print**

Social Security #
For Identification Purposes Only

Name
[ ] Last [ ] First [ ] Middle

Company

Address
Street (with Apt. No.) or P.O. Box
City
State
Zip

State and Lic. No.
[ ] State
[ ] No.

Member Type: [ ] Active [ ] Supporting Associate [ ] Student [ ] Nonmember

Signature

Date

584 Journal of Managed Care Pharmacy  JMCP  Sep/Oct 1996  Vol. 2, No. 5
MANAGING CARE

ACADEMIC DETAILING: METHODS AND SUCCESS STORIES IN IPA-MODEL HMOS

What causes physicians' practice patterns to change? This is of particular importance today, because a fundamental goal of the emerging managed care paradigm is not only to influence the cost of health care, but also the patient's health status and quality of life. Both under-use and over-use of pharmaceutical therapy can result in poor patient outcomes as well as increased costs. Avorn and Soumerai have found that, in the ambulatory setting, inappropriate prescribing decisions result in under-use of effective agents for treatable diseases. By influencing physician prescribing practices, Avorn and Soumerai have proven enhancements in safety, therapeutic effectiveness, and resource utilization.

Relevant outcomes include drug effectiveness, side effects, and cost. A prescriber's choice of agent will be influenced by therapeutic outcomes (either perceived or measured). The physician's belief in the outcome (i.e., anecdotal evidence) and the outcome's probability (i.e., published scientific experience) together form a justification for prescribing a particular drug. The prescriber's confidence in his ability to accomplish a task (i.e., change a patient's therapy successfully) and perception of how much control he or she has over the decision also influence the adoption of a treatment modality.

Some authors believe physicians' prescribing patterns are mainly influenced by the scientific literature, but commercial sources of information—such as advertisements, and interactions with pharmaceutical industry detail personnel—play a major role, as do awareness and peer influence. Ideally, dissemination of information through published medical research and their presentation in continuing education programs would lead to changes in prescribing behavior. However, the roots of behavior change lie deep within each physician's underlying personality traits and knowledge, combined with fear of malpractice, societal concerns of cost and outcome, patients' perceived and real demands, and financial incentives. Clearly, changing prescribing behavior is more difficult than transmitting information.

Academic detailing programs are tools for improving the appropriateness and cost-effectiveness of medication prescribing. The overriding principle is to provide physicians with up-to-date, evidence-based information to encourage the use of optimal drug therapy. This provision of information has the objective of achieving the best patient outcomes in the most cost-effective manner. Academic detailing should be proactive, educational, and non-punitive in nature; it should reinforce positive changes in prescribing behavior.

The two case studies described briefly in this article demonstrate how we approached separate therapeutic categories with some or all of the above objectives in mind. The ACE inhibitors case simply focuses on achieving cost savings through therapeutic interchange between agents with similar expected outcomes but considerably different costs. The HMG CoA reductase inhibitor case looks at improving patient outcomes through proper drug therapy, monitoring for safety, and providing care in the most cost-effective manner possible. A detailed description of each intervention follows a review of the literature.

ACADEMIC DETAILING: COMPONENTS DESCRIBED PREVIOUSLY

The merits of face-to-face provider education, or academic detailing, have been well documented.

Avorn and Soumerai described the ideal academic detailing program as one that:

- Provides objective, unbiased, up-to-date information
- Uses clinical pharmacists to provide two-way, face-to-face communication with physicians
- Highlights and repeats essential messages
- Includes specific recommendations for alternative treatments
- Provides positive reinforcement to improved practices at follow-up visits

In a review of studies that document the use of nonregulatory measures to improve physician performance, Soumerai et al. summarized the effectiveness of different strategies in changing prescription decision making. Mailing educational materials and providing computerized drug-use profiles of individual patients alone did not affect prescribing habits. Simple "secretarial reminders," such as computerized messages, were effective when they solved errors of omission rather when they tried to correct physician beliefs. One-on-one outreach visits by either clinical pharmacists or physicians were responsible for practical and clinical improvements in prescribing patterns.

Davis et al. performed a meta-analysis of 102 trials of interventions designed to assist health care professionals in providing services more effectively and efficiently. Educational interventions includ-
ed the following:

- Educational materials
- Continuing medical education programs
- Outreach visits including academic detailing and/or counterdetailing
- Local opinion leaders or educational influencers
- Patient-mediated interventions (patient education materials)
- Audit with feedback
- Reminders

Of 160 separate interventions, 99 interventions (62%) showed an improvement in at least one major outcome in physician performance or health care; 53 (33%) failed to demonstrate improvement. Multifaceted interventions (using three or more educational strategies) were proven more effective (79% positive) in changing health care outcome, as compared with the two-method and the single-method interventions (64% and 60% positive, respectively). Fox et al. also supported multifaceted interventions, stating that learning and change take place through a series of “impactors.”

According to Green et al., the most successful interventions for changing performance and health care outcomes are those using the following:

- Office facilitators
- Patient education
- Reinforcement methods (feedback or reminders)
- Predisposing or disseminating strategies

In a pilot program of 20 physicians and 15,000 patients, Miller demonstrated a 6.2% decrease and a 17.3% decrease in per-member per-month costs in a mixed commercial and Medicare-risk program, respectively. This program utilized the following components:

- Graphic prescriber report cards
- Chart reviews
- One-on-one visits between clinical pharmacists and physicians
- Therapeutic conversion protocols

ADDITIONAL SUGGESTED PROGRAM COMPONENTS

Through experience and review of published material, we include the following elements in an academic-detailing campaigns for our IPA-model HMOs.

1. Introductory correspondence on program from medical director and/or pharmacy director
2. Identification of target therapeutic areas
3. Identification of literature-based, preferred treatment option(s)
4. Analysis and trending of providers with patients falling outside preset clinical parameters
5. Educational letter to relevant physicians with patient profiles
6. Response card with educational letter asking for feedback and determining whether further follow-up is required
7. Follow-up telephone appointments and office appointments (with providers ranking highest in patient-care improvement opportunities)
8. Providing these materials during visits: Handout or newsletter (one to two pages; colorful; graphic); summary slides (10–15) highlighting essential messages and criteria (laptop computer detailing or hard copy slides); patient profiles with adequate detail; and supporting references and literature articles.
9. Measurement and tracking of results, such as those that (a) monitor changes in key indicators over time (e.g., therapeutic class PMPM, product market share, therapeutic class cost/prescriptions, patient and physician specific tracking) and (b) analyze physician-specific product conversion or other therapy changes.

In addition to these program elements, we have also begun to use follow-up co-marketing efforts with partnering pharmaceutical companies. This additional reminder system was used in our HMG CoA reductase inhibitors case.

Of the above components, we believe the most critical ones are the patient-specific profiles and face-to-face conversations with the prescribing physician. In addition, another major factor in our success has been with repetitive interventions—the same message delivered to selected providers in several different ways. Finally, as an overall program theme, we view our role as one of improving physicians’ awareness of evidence-based, clinically appropriate, cost-effective drug therapy. Therefore, our messages are information and nonthreatening. Hence, they are viewed by physicians as the tools to make the best drug therapy decisions.

CASE STUDY 1: ACE INHIBITORS

Using this intervention strategy, WellPoint Pharmacy Management implemented an ACE inhibitor conversion academic detailing program at a 200,000-member IPA HMO in December 1994. The campaign focused on converting plan members who had received Vasotec (enalapril), Capoten (captopril), or Prinivil (lisinopril) to Accupril (quinapril), Zestril (lisinopril), Monopril (losinopril), Altace (ramipril), or Lotensin (benazepril).

Methods

Claims files were reviewed for third quarter 1994 to identify those members affected. A total of 479 letters were mailed to physicians in December 1994. An additional letter was sent to these same physicians in April 1995 to correct identified claim reporting errors. In addition, to ensure data validity, 29,000–member months (and the claims associated with those member months) were not included in the fourth quarter 1994 claim data because of the attrition of these members before the measurement period of sec-
Table 1. ACE Inhibitor Patient Conversion Analysis

<table>
<thead>
<tr>
<th>Time Period</th>
<th>Total Patients Converted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Third quarter 1994 versus first quarter 1995</td>
<td>146</td>
</tr>
<tr>
<td>New patient starts on preferred agents first quarter 1995</td>
<td>35.7%</td>
</tr>
</tbody>
</table>

and quarter 1995. Finally, members joining the plan after the intervention began were not included in the study.

A total of 84 provider responses were received from the enclosed reply cards (a response rate of 18%), of which 79 were positive and 5 were negative. Individual interventions were completed using three methods of provider contact: telephone calls, written correspondence, and office visits.

Patient conversions were tracked from fourth quarter 1994 through first quarter 1995. Table 1 demonstrates that there were 146 actual conversions from nonpreferred agents to preferred agents. In addition, Figures 1 and 2 demonstrate that, by shifting use to more cost-effective agents, a cost savings of $56,124 in savings per quarter was realized by the HMO.

CASE STUDY 2: HMG COA REDUCTASE INHIBITORS

Using the same type of intervention method as the ACE inhibitor case study, WellPoint Pharmacy Management implemented an HMG CoA reductase inhibitor academic detailing program in October 1995 for the same 200,000 member HMO. The focus of this program was twofold; it differs from the study reported in the March/April 1996 Journal of Managed Care Pharmacy by Baran et al. 13

The primary objective of our study was to raise provider awareness of recent literature regarding secondary prevention for hyperlipidemia and how drug therapy with HMG CoA reductase inhibitors can slow the progression of atherosclerosis and reduce the incidence of cardiovascular events. The number of patients treated for hyperlipidemia based on LDL levels and risk status using the 1993 National Cholesterol Education Program Guidelines 14 was therefore expected to increase as a result of this intervention with the intention of reducing cardiovascular morbidity and mortality within the HMO population.

In addition, the campaign sought to promote the use of the most cost-effective HMG CoA reductase inhibitors and decrease the use of the health plan’s nonpreferred HMG CoA reductase inhibitor, lovastatin (Mevacor). Safety was also advocated with physicians selected for face-to-face visits by recommending appropriate liver-function monitoring. A total of 365 physicians received the intervention letter in addition to 40 follow-up detailing visits (Table 2). Once our clinical pharmacist detailing was completed, reminder detailing using a mutually agreed upon detail aid was implemented with one partnering drug company.

The results of this program are shown in Tables 3 and 4. A total of 72 patients were converted between the third quarter 1995 and the first quarter 1996. Additionally, 70% of new patients beginning therapy in the first quarter of 1996 received preferred therapy.

The results of this case study clearly indicate an increase in the number of patients being treated for hyperlipidemia (Table 3), as well as an increase in the use of more cost-effective agents (Table 4). The study objectives were met.

We attribute the successful results of these programs primarily to the following basic principles:

▲ Clinical staff involvement
▲ Sound claims data to translate into useful information
▲ Supportive, informative and repetitive feedback to physicians
▲ Appropriate tracking, measurement, and follow-up

STUDY LIMITATIONS

Although tracking and measurement methods have not been perfected or statistically validated, they indicate that academic detailing is an evolving science and that both clinical and economic changes in practice patterns can be achieved with non-punitive efforts. We did not have access to medical chart

Continued on page 593 ▶
Table 2. HMG CoA Reductase Inhibitor detailing program Intervention Summary

<table>
<thead>
<tr>
<th>Intervention Description</th>
<th>Quantity in Fourth Quarter 1995</th>
</tr>
</thead>
<tbody>
<tr>
<td>HMG CoA letter to physicians prescribing Mevacor to encourage use of more cost-effective formulary agents</td>
<td>365</td>
</tr>
<tr>
<td>Total responses to HMG CoA letter</td>
<td>36 (10%)</td>
</tr>
<tr>
<td>No positive responses</td>
<td>34 (94%)</td>
</tr>
<tr>
<td>Follow-up academic detailing visits</td>
<td>40</td>
</tr>
</tbody>
</table>

Table 3. HMG CoA Reductase Inhibitor Use Analysis

<table>
<thead>
<tr>
<th>Drug</th>
<th>Third Quarter 1995</th>
<th>First Quarter 1996</th>
<th>Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mevacor</td>
<td>2,348</td>
<td>2,224</td>
<td>-5</td>
</tr>
<tr>
<td>(nonpreferred)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lescol (preferred)</td>
<td>840</td>
<td>1,330</td>
<td>58</td>
</tr>
<tr>
<td>Zocor (preferred)</td>
<td>1,100</td>
<td>1,872</td>
<td>70</td>
</tr>
<tr>
<td>Pravachol (preferred)</td>
<td>1,914</td>
<td>2,430</td>
<td>27</td>
</tr>
<tr>
<td>Total</td>
<td>6,202</td>
<td>7,896</td>
<td>27</td>
</tr>
</tbody>
</table>

or ICD-9/CPT-4 data; therefore, our results and conclusions are based solely on drug therapy changes as opposed to measured patient care outcomes (e.g., cardiovascular morbidity and mortality) and total health care costs. We did not use a control group in either study, which limits our ability to determine whether prescribing changes measured resulted from the intervention or other market forces (e.g., the release of various secondary prevention trials in hyperlipidemia, direct-to-consumer advertising, continuing medical education). The results of our own intervention letter and follow-up detailing are difficult to separate from the detailing of our partnering drug company. In future interventions, we plan to add a control group to our method to assist in elucidating results.

CONCLUSION

An effective academic-detailing program reduces drug therapy costs in IPA-model HMOs. In addition, others have demonstrated that such programs can also improve drug prescribing through enhancing safety and therapeutic effectiveness. By tracking our hyperlipidemia program, we hope to take this one step further and show that patient outcomes can also be improved through interventions that improved pharmacotherapy.

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References


THE PHARMACIST CLINICIAN: PRESCRIPTIVE AUTHORITY IN NEW MEXICO

In New Mexico, a pharmacist clinician is a registered pharmacist with advanced training in the areas of physical assessment and pharmacotherapy who practices with prescriptive authority under the supervision of a physician. The creation of the pharmacist clinician through the Pharmacist Prescriptive Authority Act (Section 61-118-3 NMSA 1978) was originally designed to address the concern of providing quality health care to the underserved rural population of New Mexico. New Mexico is the fifth largest state in land mass; however, its population is less than two million. Given the rural nature of the state, a large population suffers from lack of readily accessible health care services.

The first problem in a rural setting is a population too small to justify a full-time physician. Slightly larger communities may have an overworked physician serving a patient population too large for one physician—but too small to justify a second physician. The pharmacist clinician may act as a physician extender in both circumstances, alleviating the excessive physician workload. The second problem is that the community may not be large enough to support a pharmacy based on prescription volume alone. Pharmacist clinicians may supplement their income by providing reimbursable patient-care services. Pharmacist clinicians practicing in communities without a physician may eliminate the need for patients to travel to receive care for minor ailments or minor adjustments in medications for chronic diseases.

Allowing pharmacists in long-term care facilities to adjust medication regimens eliminates unnecessary physician visits, delays in refilling prescriptions, or clinical problems avoidable by changing prescription medications. In managed care facilities, a pharmacist's management of chronic disease states allows an increase in interval between patient visits to physicians. In addition, responsible drug selection by pharmacists can minimize the expense of unnecessary, duplicative, or excessive pharmacotherapy to the health care system. In these situations, pharmacist prescribing can only be justified if quality of care is maintained or improved.

All pharmacists possess extensive knowledge of drug products, indications, and adverse effects. However, few pharmacists have received advanced training in physical assessment and monitoring of pharmacotherapy for positive or negative outcomes. Further, responsible prescribing requires an advanced knowledge of therapeutics. Pharmacist clinicians are not intended to serve as physician replacements, nor should they duplicate the services of nurse practitioners (NPs) or physician assistants (PAs). Instead, the rationale for the role of pharmacist clinician is expertise in drug therapy, as a "physician enhancer" who can fine-tune complex drug regimens.

DEVELOPMENT OF THE PHARMACIST PRESCRIPTIVE AUTHORITY ACT

Recognizing the potential for pharmacists to provide expanded patient-care services, the New Mexico Pharmaceutical Association (NMPhA) sought to obtain prescriptive authority for New Mexico pharmacists. Through diligent lobbying efforts of its executive director, Dale Tinker, NMPhA was successful in obtaining legislative support. In April 1993, the Legislature of the State of New Mexico enacted The Pharmacist Prescriptive Authority Act, which granted prescriptive authority to pharmacist clinicians. The act required that these clinicians have additional training "...at least equivalent to the training received by a physician assistant." Specific regulations were required to be adopted by the Board of Pharmacy in consultation with the Board of Medical Examiners and the New Mexico Academy of Physician Assistants. The Board of Pharmacy has been very responsible in assuring that certified pharmacist clinicians possess the advanced skills required for prescriptive authority.

On April 18, 1995, the New Mexico Board of Pharmacy finalized four methods by which a New Mexico pharmacist can become a pharmacist clinician. Pharmacists may qualify through any one of four options:

▲ Option 1: The applicant is an actively licensed pharmacist, and has achieved national certification as a physician assistant.

▲ Option 2: Satisfactory completion of an academic curriculum that includes a minimum of sixty (60) hours of physical assessment training followed by nine (9) months of supervised clinical experience involving assessment skills.

▲ Option 3: Satisfactory completion of a 60-hour physical assessment course approved by the Board and a 150-hour, 300-patient contact preceptorship supervised by a physician and approved by the Board, and achievement of a passing score as defined by the Board on an appropriate examination approved by the Board.

▲ Option 4: The applicant is certified by the Indian Health Service's Pharmacist Practitioner Program, documenta-

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tion of 600 patient contacts within the past two years as a pharmacist practitioner, accompanied by a supporting affidavit from the supervising physician.

Initially, the only examinations that have been approved for qualification under option 3 are the Board of Pharmaceutical Specialties (BPS) examinations. Pharmacists qualifying by passing the Pharmacotherapy Specialty Examination are not restricted in their scope of practice. Since other BPS examinations certify pharmacists in a more narrow scope of practice, pharmacists who qualify by passing these examinations have their practice restricted to the area certified by the specific examination.

After the pharmacist clinician is found qualified and is certified, he/she may apply for prescriptive authority by submitting protocols signed by a physician or group of physicians who agree to supervise the clinician’s prescriptive authority. Protocols are a collaborative agreement between the pharmacist clinician and the supervising physician authorizing the scope of practice for the pharmacist clinician.

CURRENT STATUS OF THE PHARMACIST CLINICIAN

A physical assessment course has been developed at the University of New Mexico College of Pharmacy to assure that all doctor of pharmacy graduates qualify for certification as pharmacist clinicians under option 2. In addition, the syllabus for this course has been shared with community colleges, Indian Health Service facilities, and groups of pharmacists throughout the state, so that interested pharmacists may acquire the skills needed to be certified under option 3.

Currently, two pharmacists have qualified under option 2, based on training received in a previous post-B.S. Pharm.D. program at the University of Tennessee. The other three clinicians qualified under options 1, 3, and 4, respectively. Four of the five clinicians had previous prescriptive authority in the Indian Health Service. Two of the clinicians are board-certified pharmacotherapy specialists. Of the five recent Pharm.D. graduates from the University of New Mexico, three are expected to apply for certification. The other two graduates are in residency training out of state. Several pharmacists throughout the state have completed the physical assessment course and are now in preceptorship training. With the lessening of rigorous standards concerning the board-approved examinations for qualifying under option 3, these pharmacists are expected to submit applications for certification within the next two months.

In fall semester 1996, the University of New Mexico College of Pharmacy will offer a nontraditional Pharm.D. program for alumni and pharmacists who are residents of New Mexico. While physical assessment is not a requirement of the nontraditional program, several potential nontraditional Pharm.D. students plan to complete the course to qualify for pharmacist clinician certification.

CONCLUSION

The Legislature of New Mexico has enacted a Pharmacist Prescriptive Authority Act. Board of Pharmacy regulations assure that certified pharmacist clinicians possess the advanced skills needed for rational prescribing. These regulations serve as a good model for other states considering prescriptive authority for pharmacists.

We live in an exciting time of change for the practice of pharmacy. However, we must also realize that change, albeit necessary, brings forth its own share of dangers. Expanded roles for pharmacists have evolved through intensive communications efforts with other health care professionals. We must guard against the development of pharmacist clini-

References
1. Section 61-11B-1 through 61-11B-3 NMMA 1978.
2. New Mexico Board of Pharmacy Regulation No. 4, Amendment No. 4, Section 180.
The concept of managed care has evolved as an approach to administering health care that can, among other goals, effectively control skyrocketing health care costs. It can also reduce the possibility of disappointingly unsatisfactory health care outcomes (which, of course, can increase health care costs). At times, this cost-reduction aspect of managed care has been emphasized more than the quality improvement aspect. When a managed care organization (MCO) fails to control costs, hard questions follow about what went wrong, and the organization is held accountable for failing to achieve its financial objectives.

But what about bad therapeutic outcomes? Can the "bottom line" relate to quality as well as costs? Does it make sense to hold an MCO accountable for the malpractice of a participating physician who has rendered subpar services to a person enrolled in the organization's managed care program?

**NONEMPLOYEE PROVIDERS: AGENTS OR NOT?**

Until recently, courts have been reluctant to rule that MCOs can be held liable for harm caused by the malpractice of a nonemployee health care provider. One reason for this reluctance has been the threat of pre-emption of state law by the federal statute ERISA (Employee Retirement Income Security Act of 1974). Under ERISA, state laws are preempted if a claim is to recover “benefits due under the terms of an employee benefit plan, to enforce rights under the terms of the plan, or to clarify rights to future benefits under the terms of the plan.” Since malpractice law is state law, claims for malpractice against MCOs have been ruled to be pre-empted by ERISA.

In 1995, however, at least two United States circuit courts of appeal departed from precedent and rejected ERISA pre-emption as applied to a malpractice claim brought against an MCO. Both courts of appeal ruled that an MCO can be sued for the malpractice of a nonemployee participating physician. This new approach to resolving claims is not based on primary liability of the managed care organization for failing to conduct appropriate utilization review or negligently selecting health care providers to render services under the plan. Rather, the two courts ruled that MCOs can be held liable under vicarious liability, or secondary liability, for malpractice by individuals who appeared to be agents of the MCO.

**VICARIOUS LIABILITY**

A principal can be held liable for negligent conduct of its agent, provided that a relationship existed between the principal and agent and the negligent conduct was within the scope of the relationship. Most such cases of this well-established legal doctrine of vicarious liability, also known as respondeat superior ("let the master answer"), arise from an employer–employee relationship, although other relationships may also suffice to impose liability on a faultless principal for the misconduct of its agent. Despite the seeming unfairness of holding the principal liable when the principal was not itself at fault, vicarious liability is often justified because:

- The principal has some level of control over the agent.
- The principal selected the agent.
- This is the price one must pay for the privilege of having another do one's work.
- The principal is more likely to have available assets with which to compensate the injured party.

Vicarious liability is most commonly applied to charge an employer with the negligence of its employee, even when the employer has played no part in the negligence. Traditionally, an employee has been defined as a type of agent whose physical conduct in the performance of a service is subject to the "right of control" by the principal. Within such an employment relationship, the employer is held accountable for negligent conduct of the employee, if the negligent conduct was within the "scope of employment."

However, the employer–employee relationship is not mandatory for one party to be held liable for the negligence of another party. A situation of "ostensible agency" may arise, when there is no actual authority, but there is apparent authority of the agent to act on behalf of the principal. Apparent authority can be based on words spoken by the principal or actions taken by the principal, that would lead one to believe that there is an employer–employee relationship when, in fact, there is none.

**CASE 1: SERIOUS HANDICAP**

One recent case in which new law was made arose from the dismissal of a claim made by an Illinois man against an MCO in that state. In Rice v. Panchal, the plaintiff was enrolled in a managed care plan provided by his employer. The plaintiff sought treatment from a physician who was a provider under the plan. The plaintiff became seriously handicapped and brought a medical malpractice action against the physician. In the lawsuit against the physician, he also alleged that the MCO was liable for the medical malpractice of the physician under the doctrine of respon-

*Continued on page 600*
deat superior. The case was dismissed by the trial judge based on ERISA pre-emption and the unavailability of any remedy under ERISA.

The United States Court of Appeals for the Seventh Circuit reversed the ruling of dismissal and ordered that the case be remanded to state court for further proceedings against the physician and the MCO. The court reasoned that the claim for malpractice was not a lawsuit to recover benefits, determine future benefits, or enforce rights under the terms of the plan. In fact, the plaintiff insisted that his right to hold the MCO liable for the medical malpractice of the physician arose from the state law of negligence, not from the plan itself. The court agreed that the plaintiff had not rested his claim on the terms of the plan.

This ruling does not mean that the plaintiff will win the case against the MCO. But a substantial barrier to success by the plaintiff has been removed, and the case will be resolved on its merits under traditional state malpractice law.

CASE 2: WRONGFUL DEATHS

A separate case, Dukes v. U.S. Healthcare,1 consolidated the claims of two patients against this MCO in Pennsylvania. The allegations of liability are similar to those of the patient in Illinois.2 One Pennsylvania patient's claim, brought by the surviving spouse on his behalf, was that the physician should have ordered a blood test that would have disclosed hypoglycemia and that the malpractice in not ordering the test was the cause of the patient's death. The second claim was brought by the parents of a child who was stillborn, allegedly as the result of the malpractice of the mother's obstetrician to appropriately treat symptoms typical of pre-eclampsia. Both claims alleged that the MCO was liable for the malpractice of its participating physician under ostensible and actual agency theories. Both claims were dismissed by the trial court based on a holding of ERISA pre-emption.

The Third Circuit Court of Appeals reversed dismissal of the MCOs from the cases, ruling that the claims brought were not pre-empted by ERISA. Nothing in the lawsuits indicated that the patients were complaining about their ERISA plans' failure to provide benefits due under the plan. The court distinguished between a claim based on the quantity of benefits under a plan and a claim based on the quality of benefits under a plan. The court concluded: "The plaintiffs here simply do not claim that the plans erroneously withheld benefits due. Nor do they ask the state courts to enforce their rights under the terms of their respective plans or to clarify their rights to future benefits." As a result, the claims fell outside ERISA, and they were remanded back to state court for further proceedings.

CONCLUSION

The result of these two cases is to defer to state courts the question of whether an MCO can be held liable for the malpractice of a participating physician who is not an employee of the MCO. The implications of these cases are serious for a variety of reasons, not the least of which is that there could be increased incentives for MCOs to use pharmacists and other health care providers to monitor medical malpractice as a way to reduce exposure of the MCO to liability. If malpractice of a participating physician can lead to liability of an MCO, then decreasing malpractice by participating physicians would be a positive risk-management step.

But for pharmacy, this threat to managed care could be an opportunity. The approach of using pharmacists to monitor for potential problems is entirely consistent with the precepts of pharmaceutical care. It is also consistent with the goals of managed care: to prevent problems rather than treat them after they occur. Removing ERISA pre-emption gives back to the states the authority to determine the scope of responsibilities in health care, and this determination can be made based on decades of well-developed principles relating to professional responsibility.

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The University of Florida
Gainesville, FL 32610-0496

References
2. 65 F3d 637 (7th Cir. 1995).
3. 57 F3d 350 (3rd Cir. 1995).
4. 57 F3d at 336.
Two recent initiatives by the Academy of Managed Care Pharmacy illustrate AMCP's continuing commitment to promoting the practice of quality pharmaceutical care. One is the adoption of a new position statement supporting the electronic transmission of prescription data between the prescriber and pharmacist. The other is AMCP's effort to form a Quality Council to develop performance measurements and professional pharmacist standards aimed at documenting the quality of care being provided by pharmacists regardless of practice setting. Let's look at the background information and details on these initiatives.

**AMCP'S POSITION STATEMENT ON THE ELECTRONIC TRANSFER OF PRESCRIPTIONS**

AMCP's new position statement states the Academy's support for the electronic transmission of prescriptions from the prescriber to the pharmacist, and for allowing managed care organizations to have access to those transmissions for appropriate purposes. AMCP's Board of Directors approved the document on June 7.

AMCP's adoption of the position statement comes in the midst of growing debate about who should access electronic prescription information—and for what purposes. Several organizations already have mounted efforts to try to limit managed care's access to prescription information vital to the delivery and management of good pharmaceutical care.

Opposition to managed care access to electronic prescription information by groups such as NARD had delayed adoption of the SCRIPT standard by the National Council for Prescription Drug Programs (NCPDP). NCPDP in May finally agreed to adopt SCRIPT, a voluntary national set of standards for the electronic transmission of prescription information. SCRIPT does not address who may or may not access electronic prescription information. NARD earlier this year threw its support behind a rival set of standards, MEDPRE, developed by the American Society for Automation in Pharmacy (ASAP). The MEDPRE standards "contain no extraneous information segments that would be of use to those other than prescribers and pharmacists." The only information included in MEDPRE are fields such as payer ID, payer name, cardholder ID, and other information "that PBMs need to be involved in the process," according to ASAP.

The National Association of Boards of Pharmacy (NABP) also has taken action to limit third party access to electronic prescription data. An NABP task force has recommended that NABP revise its model state pharmacy regulations to "prevent any review or alteration of an electronically transmitted prescription drug order from the time it leaves the prescriber's office until it reaches the patient's pharmacy," according to NABP.

The full text of AMCP's Position Statement is in the box on the following page.

**AMCP TO SPEARHEAD QUALITY COUNCIL ON PHARMACEUTICAL CARE**

Six pharmacy organizations have expressed an interest in working with the Academy of Managed Care Pharmacy to explore ways to develop new pharmacy performance measurements and professional pharmacist standards.

Earlier this spring, AMCP extended formal invitations to other professional pharmacy organizations to join AMCP in this effort to document the quality of care being provided in pharmacies across the country. Organizations responding favorably include the American Pharmaceutical Association, American Society of Health-System Pharmacists, American Society of Consultant Pharmacists, American College of Clinical Pharmacy, National Association of Chain Drug Stores, and NARD.

AMCP's initiative comes at a time when many patients and purchasers are increasingly concerned about the value of the health care they receive and pay for. More than ever, consumers, employers, and others want evidence of that value through so-called "report cards" on health plan performance, and accreditation by outside organizations, such as the National Committee for Quality Assurance (NCQA).

For pharmacy to respond effectively to this growing quest for quality data, "the profession must come together to agree on what measures and standards are feasible, illustrative, and in users' best interests," AMCP Executive Director Judith Cahill stated in a letter inviting other pharmacy groups to join the initiative. "If pharmacy is to be acknowledged as a constructive element in total patient care, it must have a presence in the measurement and documentation of quality through the institution of both accreditation standards and outcomes measures."

AMCP's efforts to spearhead formation of a Quality Council to look into this area is the latest example of several initiatives the Academy has taken in recent months to promote and foster quality in the pharmaceutical care arena. Earlier this year, the Academy submitted three proposed pharmaceutical care quality performance measures to NCQA for possible inclusion in the next version of the Health Plan Employer Data and Information Set, HEDIS. NCQA notified
the Academy that it would not be able to include these measures in the next HEDIS document, but encouraged AMCP to consider submitting more proposed measures in the future, and provide comments on the draft HEDIS 3.0 document (it was released in July). Cary Sennett, M.D., NCQA’s architect of HEDIS 3.0, met with AMCP’s Task Force on Quality Initiatives in June in Kansas City.

AMCP also has developed many of its educational programs around the quality theme. In September, AMCP hosts Linkages for Quality: Information Management for Managed Care Pharmacy, in Chicago. The conference will look at how pharmacists, medical managers, and information specialists can work together using new information tools to improve the quality of pharmaceutical care and services.

AMCP envisions that the Quality Council will meet quarterly, although work groups most likely would meet more frequently to make progress in certain areas. AMCP will assign staff and volunteer liaisons to the Council, who would work closely with AMCP’s Task Force and Quality Initiatives and the Board of Directors.

POSITION STATEMENT ON THE ELECTRONIC TRANSFER OF PRESCRIPTIONS

Position: The Academy of Managed Care Pharmacy (AMCP) supports the electronic transmission of prescriptions from the prescriber to the pharmacist, and supports allowing managed care organizations to have access to that electronic transmission for appropriate purposes (see discussion below).

Electronic prescription transmission: The use of electronic prescriptions benefits patients, prescribers, and pharmacists. It’s the patient, however, who benefits most by being assured of an error-free prescription for which payment already has been authorized under a prescription benefit plan. For the patient, the electronic transmission of prescriptions optimizes the quality of care, the level of service the patient receives, and the outcomes of drug therapies.

Electronic data are consistent, legible, accessible, and easily stored and analyzed. Electronic transmission decreases prescribing errors caused by illegible handwriting, misspellings, and the use of inappropriate abbreviations in written orders. Physicians have on-line access to important background patient information such as past drug-utilization history and prospective drug-utilization reviews—which lists precautions to be taken, and includes warnings on potential drug interactions and side effects—again reducing the likelihood that patients will become ill from taking medications.

Electronic prescriptions also help in the area of formulary administration, which managed care organizations use for improving patient outcomes and decreasing patient drug costs. Physicians can quickly access information about a drug’s formulary status and/or cost-effectiveness on-line, freeing up more of their time to spend with patients. Pharmacists, aided by the on-line accessibility of specific prescription information, can spend more time on other drug therapy management activities such as patient counseling, drug monitoring, and other professional services.

In short, the Academy believes this movement toward automating the exchange of health care information is the logical step toward improving patient drug therapy, enhancing the collection and analysis of patient data, increasing operational efficiencies for pharmacists, managed care plans, and physicians, and optimizing health care outcomes.

Managed care organizations access to electronically transmitted prescriptions: The Academy of Managed Care Pharmacy supports allowing managed care organizations access to prescription transmissions during the entire prescription transmission and dispensing process. Such access contributes to improving patient care by allowing both prescribers and pharmacists to share the practical information the managed care organization maintains regarding how the prescribed drug can either benefit or harm the patient because of potential drug interactions, similarity with prescription items the patient may already be taking, or prior allergic reactions. This information helps the physician and pharmacist make informed decisions about whether or not a particular medication is appropriate for a particular patient and whether or not that medication is covered by the patient’s health plan. The Academy believes only the prescribing physician should be allowed to authorize changes in prescriptions based on the shared information.

Maintaining patient confidentiality: The Academy of Managed Care Pharmacy does not believe that the appropriate use of electronically transmitted prescription data by managed care organizations compromises the confidentiality of patient medical data. Managed care organizations and providers recognize and respect patient confidentiality as a desirable and firmly established principle. The Academy supports steps that managed care organizations and providers now take to protect patient privacy regarding their medical records, including using computer passwords and secure networks. The Academy further believes that managed care organizations and providers must not release personally identifiable data without the prior knowledge and consent of the patient.
PHASE II/II

▲ Phase II clinical trials of injectable interferon alfa-n3 (Alferon N, Interferon Sciences, Inc.) have begun for the treatment of chronic hepatitis C. The drug is being studied for HIV treatment and has been cleared by FDA for treatment of certain types of genital warts.

PHASE III

▲ Amgen began the first clinical trials of glial cell-derived neurotrophic factor for safety and tolerability in Parkinson's patients. GDNF is the fifth drug Amgen has sent to clinical trials this year.

▲ Phase III trials of iso-fylline (Cell Therapeutics) have begun in patients with advanced hematologic malignancies undergoing allogeneic bone-marrow transplantation from sibling donors.

▲ Data from Phase III clinical trials of Ergoset (generic name unavailable) indicate improved control of glucose, triglycerides, cholesterol, and free fatty acids in some 500 type II diabetic patients. Ergo Science hopes to file an NDA during 1997.

POSTMARKETING

▲ Wyeth-Lederle Vaccines and Pediatrics is awaiting FDA licensure of a supplement to Acel-Immune (diphtheria and tetanus toxoids and acellular pertussis vaccine adsorbed) to expand its use to include infants at 2, 4, and 6 months of age. Acel-Immune is currently indicated for the fourth and fifth doses in the five-dose DTP immunization series for children at approximately 15–24 months and four to six years of age.

▲ Gilead Sciences entered into a marketing pact with Pharmacia & Upjohn on August 8. P&U will market cidofovir (Vistide) in Europe when the product is approved there for CMV retinitis in AIDS patients. Cidofovir was approved in June for U.S. sales.

▲ Biogen has signed two agreements for marketing of interferon beta 1a (Avonex) in Europe. Astra AB will market in the Nordic countries, while Schering-Plough acquired the rights to the Spanish market.

▲ Eli Lilly and Company's new brand of quick-acting insulin is now on pharmacy shelves. Humalog [insulin lispro injection (rDNA origin)] is available in 10-mL vials; injection-pen cartridges will be available soon.

Humalog mimics the body's natural insulin response after eating a meal, allowing injection up to 15 minutes before eating. Its duration of action is shorter than that of other insulins, necessitating combination use with longer-acting products in patients with insufficient basal insulin secretion.

▲ NicoDerm CQ hit retail shelves on August 17 as a nonprescription agent. The American Cancer Society has endorsed the SmithKline Beecham nicotine patches in a partnering arrangement.

MEDIA

▲ Emron, Inc. has released Managing the Pharmacy Benefit (Robert Navarro and Albert I. Wertheimer, ed.s). Among the topics discussed are benefit design and reimbursement, formulary and product selection, of-label and experimental treatments, quality assurance and outcomes research, performance measurement of pharmacy benefit programs, managed care implications of Rx-to-OTC product switching, worldwide review of benefit controls, pharmacoeconomic applications, and growing importance of informatics and integrated health care delivery. The 376-page book also includes a glossary of terms, an appendix of sample reports and forms, as well as suggested reading and reference lists at the end of each chapter. For more information, call 908/647-8080.

▲ Franklin Electronic Publishers will offer pharmacists three portable drug references—Trissel's Handbook of Injectable Drugs, Pocket Guide to Injectable Drugs, and Guidelines for Administration of Intravenous Medications to Pediatric Patients—under an agreement with ASHP.


▲ Glaxo Wellcome and Oxford Molecular Group have set up an online library allowing users access to software and databases of genetic information.

▲ Micromedx is providing its Healthcare Series to all Columbia/HCA hospitals. The knowledge bases cover drugs, acute care treatment protocols, toxicology, and patient education. Call 908/713-1267.

▲ The GERD Information Resource Center is now on the Web courtesy of Astra Merck. Address: www.astramerck.com.

▲ Information about National Pharmacy Week (October 20–26) is available on the Web at www.bells.hsi/pharmacy.htm. To order materials, call 800/822-1923.

▲ Medical Drug Reference for Canada has been released by Parsons Technology of Hiawatha, Iowa. The software gives instant access to critical information on more than 8,000 prescription and nonprescription drugs. Other features include full database text-searching capabilities, room for personal lists of medications, and compatibility with Windows or Macintosh.