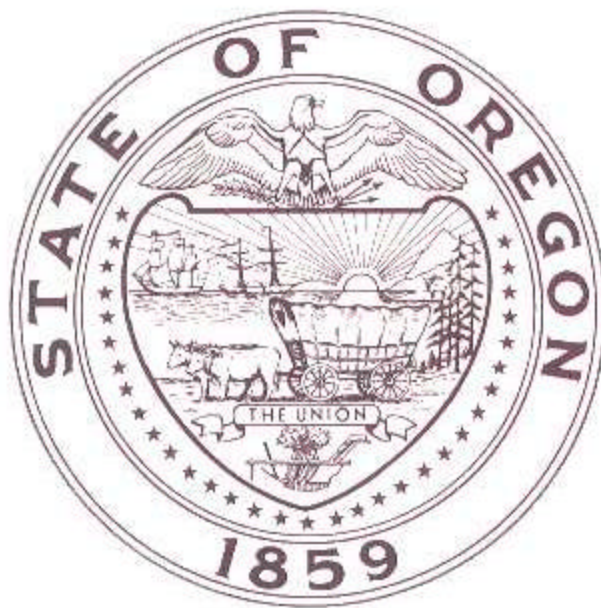


SUMMARY OF PRESCRIPTION DRUG ISSUES



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SUMMARY OF PRESCRIPTION DRUG ISSUES

Statement of the Problem/Opportunity: The effectiveness and cost of prescription drugs are increasing at a pace that intensifies the importance of careful resource allocation.^{1,2,3} Because prescription drug costs are consuming a larger share of public and private payer health care budgets, payers are focusing on the efficient use of scarce resources.⁴ In addition, variation in prescription drug therapy implementation effectiveness challenges existing approaches to disease management.

Perspectives: There are a number of perspectives on these issues. A review of the literature identifies the following:

- Increases in the proportion of the population eligible for a prescription drug benefit and the proportion of the population who use and need prescription drugs;⁵
- Expansion in the scope of prescription drug coverage;⁶
- An aging population, which increases the risk of many medical conditions (heart disease, arthritis, cancer) that require more drugs;⁷
- Introduction of new drugs for treatment of diseases that were previously untreatable (drug therapy-intensive disease management), and which increase the life span of people with life-long prescription drug needs such as HIV and transplants;
- Introduction of new drugs that can improve the quality of life of the patient and are taken for decades to “smooth the rough edges of life more than to eradicate disease”;⁸
- Direct marketing to consumers, which creates a demand for specific, newly emerging, and oftentimes expensive pharmaceutical products, and which can also cause confusion and anxiety;^{9,10,11,12,13,14}
- Purchasers are less able to negotiate favorable discounts for preferred drugs because patient demand for advertised drugs is reducing preferred drug prescription volume;
- Access to Internet-based information, which creates more sophisticated patients;
- Cost-sharing benefit designs, which insulate consumers from actual prescription drug costs;¹⁵
- An accelerated Food and Drug Administration approval process;^{16,17}
- Manufacturer pricing to recover research and development expenditures that are increasing because of drug development time, number of clinical trials conducted, number of patients participating in clinical trials, drug failures, and interest costs;^{18,19}
- A disproportionate share of pharmaceutical research and development costs being allocated to United States purchasers;
- Patents that delay introduction of competitively priced generic drugs;^{20,21}
- Prescription drug reimbursement methods that are predominantly fee-for-service;

- Inability of payers to achieve strong bargaining power in regions where there is a limited supply of pharmacies per capita;²²

Mechanisms Affecting Resource Allocation for Prescription Drugs: The literature also identifies a number of mechanisms employed to moderate resource use for prescription drugs. These include, but are not limited to, the following:

- Benefit Design and Patient Cost Sharing
 - Reducing or eliminating the prescription drug benefit from the benefit package, or significantly increasing patient cost-sharing related to drugs;^{23,24}
 - Using a drug formulary and tiered cost-sharing benefit design that provides incentives to patients to select less costly but equivalent generic or therapeutic drugs over more expensive brand name drugs;^{25,26,27,28}
 - Using incentive-based cost sharing arrangements that encourages patients to comply with drug regimes that have significant health and financial consequences if regimes are not followed;²⁹
 - Using a reference price system for therapeutic drug categories (especially where alternatives exist) and charging the patient the difference between the reference price and the actual drug cost;³⁰
 - Using brand name drugs when determined to be more effective in terms of overall medical costs, patient compliance and health outcomes;
 - Placing limits on selected drugs, limiting the number of prescriptions available to some patients, and limiting high quantity prescriptions;³¹
 - Excluding drugs that are prescribed for preventive or cosmetic treatments;³²
- Drug Supply and Licensing
 - Limiting introduction of new drugs to those that can demonstrate an advantage over existing products;³³
 - If new drugs cannot be shown to be cost effective, requiring that the drug be priced equal to or less than existing products;³⁴
- Delivery System
 - Using pharmacists as quality reviewers in dispensing payer-preferred drugs;
 - Using mail order pharmacies to distribute drugs;³⁵
 - Dispensing drugs through one's own pharmacy to attain a higher substitution rate;^{36,37}
 - Using a preferred provider system;³⁸
 - Using telepharmacy to improve access to pharmacy care, increase pharmacist productivity, provide patient medication counseling, etc.;³⁹

- Using a pharmacy benefit management company to manage the pharmacy network, develop and manage the formulary, negotiate prices with manufacturers, adjudicate claims, and monitor drug prescribing and utilization;⁴⁰
- Communication, Education and Prescribing Guidelines
 - Educating patients, pharmacists and physicians via written materials, face-to-face contact, phone calls, and telepharmacy to assure that patients are taking medications properly and to increase the use of payer-preferred drugs or compliance with the formulary;^{41,42}
 - Providing technical assistance to help physicians develop their own list of preferred medications;⁴³
 - Providing prescribing guidelines that include average prescription volume for each medical specialty by therapeutic use and drug category;^{44,45}
 - Providing counter-detailing support to prescribing physicians through provision of written materials that described the negative consequences of heavily advertised prescription drugs, which can be given to patients;
- Prior Authorization and Utilization Review⁴⁶
 - Using large medical databases (demographic, diagnostic, pharmacy and laboratory data) to identify patients at risk for specific diseases that if left untreated or under-treated would result in more costly care;⁴⁷
 - Using a drug utilization review program to control the use of specific drugs and identify provider activities considered inappropriate and requiring concurrent or prior consent for therapeutic substitution;⁴⁸
 - Supplementing the drug utilization review program with face-to-face contact and telephone calls to pharmacies seeking their help in altering inappropriate prescribing and drug use;⁴⁹
 - Profiling pharmacy dispensing patterns to identify potential opportunities for improvement;
 - Profiling physician prescribing practices and providing them with information comparing their prescribing patterns to those of their peers (weighted by patient age, gender and frequency of consultation);^{50,51,52,53}
- Reimbursement and Risk Sharing
 - Controlling prices directly;⁵⁴
 - Using purchasing power to negotiate for rebates or lower prices from pharmaceutical manufacturers or taking advantage of volume purchasing practices by large pharmaceutical companies;^{55,56,57}
 - Decreasing amounts paid for ingredients, drug acquisition, inventory management and dispensing for non-preferred drugs and increasing them for preferred drugs;

- Regulating profits of pharmaceutical manufacturers or negotiating prices that take into consideration company characteristics and expected benefits to the economy;⁵⁸
- Sharing prescription drug risk with manufacturers, physicians, and/or hospitals through capitation, reductions in reimbursement, and assessment;^{59,60,61,62}
- Penalizing financially providers who prescribe drugs in high quantities;⁶³
- Fraud and Abuse
 - Auditing claims to detect program compliance discrepancies and overcharges;
 - Strengthening fraud and abuse activities;
- Wastefulness
 - Placing limits on the amount of pharmaceutical research and development to help eliminate duplication of drugs already on the market and to encourage companies to invest more judiciously in new products;⁶⁴

Issues to Consider in Preserving the Effectiveness of Prescription Drugs:

- Quality of Care Issues
 - Formulary development is not subject to a private accreditation program;⁶⁵
 - Information used by Pharmacy and Therapeutics (formulary) Committees in the formulary decision-making process is often supplied by manufacturers and is not always useful given its complexity;⁶⁶
 - Pharmacoeconomic data used to assess new drugs and their utility in the health care system is untimely (available two to three years after needed);⁶⁷
 - Literature reviewed as part of the formulary decision-making process may not be applicable to a specific situation or meet quality criteria requiring the reader to use guidelines developed for the purpose of evaluating study results;⁶⁸
 - Not all generics contain the same inactive ingredients or delivery systems and their use can result in adverse reactions⁶⁹ when a patient is switched between products of different manufacturers;^{70, 71}
 - Multiple formularies confuse patients, physicians and pharmacists;
 - Changing prescriptions between brand name and generic drugs confuses patients who often take both;
 - On-call physicians may not have access to formulary information applicable to a specific patient;
 - Patients are often unavailable to discuss the consequences of drug substitutions when the physician is considering such based on a call from the pharmacy;
 - Requiring physicians to follow drug preauthorization protocols reduces the amount of time available for patient care;

- Physicians must be allowed to override the formulary, when medically appropriate;
 - Time spent on non-clinical activities (such as assuring compliance with health plan formularies and preauthorization protocols) can be reduced by providing physicians with easy-to-use prescribing guidelines, which help them select drugs that best meet the clinical needs of the patient;
 - Compliance with drug therapy is influenced by the patient's ability to pay his or her share of prescription drug costs;⁷²
- Financial Issues
 - Overly restrictive formularies sometimes have the negative consequence of increasing total health spending;^{73,74}
 - Restrictive formularies and prior authorization may increase administrative costs;
 - With costs increasing rapidly, it may be difficult to establish an equitable pharmaceutical capitation rate;
 - Many health plans have existing financial agreements with physicians, pharmacists and manufacturers that will not necessarily match a statewide financial arrangement;
 - Pricing methodologies applied to large pharmacies may not work for smaller, independent pharmacies;
 - Regulation of pharmaceutical manufacturer profits may provide incentives that result in waste;⁷⁵
 - In an environment of direct price controls it is necessary to monitor pricing of other countries to avoid cross-subsidization;⁷⁶
 - Access to Services Issues
 - The system designed to deliver pharmacy services must recognize the transportation constraints facing patients;
 - Reductions in reimbursement must be balanced with maintaining adequate pharmacy capacity;
 - Legal Issues
 - Restrictions on the physician's drug of choice or allowing pharmacists to make substitutions may result in patient injuries that are considered negligent and create liability issues;
 - "Programs implemented by manufacturers that pay pharmacists or the managed care organization to substitute or switch a drug product present a significant legal risk."⁷⁷
 - A potential conflict of interest occurs when a pharmacy benefit management company is acquired by pharmaceutical manufacturing companies.

Glossary⁷⁸

Capitation: A method of reimbursement in which payments are made in advance on a per-member-per month (PMPM) basis to a health care provider for providing specified services during a specified period of time to enrolled members of a managed care organization.

Cost Sharing: An amount paid by the insured person toward health care services received. It can take the form of a deductible, copayment (a fixed fee), or coinsurance (a percent of the total charge).

Disease Management: A philosophy toward the treatment of the patient with an illness (usually chronic in nature) that seeks to prevent recurrence of symptoms, maintain high quality of life, and prevent future need for acute and more costly medical interventions by using an integrated, comprehensive approach to health care; pharmaceutical care, continuous quality improvement, practice guidelines, and case management all play key roles in this effort, which (in theory) will result in decreased health care costs and improved patient outcomes.

Drug Utilization Review: An authorized, structured and continuous program that reviews, analyzes, and interprets drug-prescribing patterns against predetermined standards. It can occur in a prospective or retrospective manner.

Formulary: A list of drugs that are approved for use by a hospital, health plan, or other health care organization and that will be dispensed through participating pharmacies to an insured person. It can be designed as an open, closed or managed formulary.

Generic Drug: A chemically equivalent copy of a brand name drug with an expired patent that is typically less expensive and sold under a chemical name.

Maximum Allowable Cost: A maximum price that retail pharmacies in health plan networks may be paid for certain generic drugs.

Pharmacoeconomics: The description and analysis of the costs and consequences of drug therapy to health systems and society.

Pharmacy and Therapeutic Committee: A hospital or medical staff committee that oversees all decisions or policies regarding the use of any therapeutic agents. The committee reviews old and new therapies approved by the Food and Drug Administration in terms of safety, efficacy, ability to achieve desired medical results, substitutability, and cost.

Pharmacy Benefit Management Company: A company that designs, implements and administers outpatient drug benefit programs for employers, managed care organizations, and other third party payers. The four core functions that the company performs for its clients are claims processing and adjudication; pharmacy network management; formulary development and management; and rebate negotiation and contracting with pharmaceutical manufacturers.

Prescribing Guidelines: Treatment procedures arrived at and agreed upon by a medical committee or group for certain common medical conditions. A guideline provides the clinician with specific treatment options or steps when faced with a particular set of clinical symptoms, signs, or laboratory data.

Profiling: An analytical tool that uses epidemiologic methods to compare practice patterns of providers on the dimensions of cost, service use, and/or quality of care. The provider's pattern of practice is expressed as a rate, aggregated over time, for a defined population of patients.

Rebates: A sum of money given to an organization by a drug manufacturer in exchange for inclusion of the manufacturer's drug product on the formulary or, more recently, in exchange for moving market share of a particular drug or combination of drugs.

Reference Price System: A system where a reimbursement price is set for a therapeutic category of drugs and patients pay the difference between the cost of the product and the reference price. The reference price may be the average price of drugs in a category, the lowest priced drug, or the lowest priced generic drug plus some amount.

Telemedicine: The use of electronic information and communications technologies to provide and support health care when distance separates the participants. Telemedicine technologies include videoconferencing, telephones, computers, the Internet, fax, radio and television. The potential advantages of telemedicine include improved access to care, greater efficient in diagnosis and treatment, higher productivity, and marking positioning for the coming century.

Telepharmacy: The use of telemedicine in the provision of pharmaceutical care.

End Notes

¹ The *Arkansas Business Publishing Group* reports that a study conducted by the National Institute for Health Care Management shows newer drugs cost more than twice that of older drugs and that insurers attribute health insurance premium increases to rising pharmacy costs.

² Landis reports that Novartis' survey of HMOs concerning pharmacy issues found that while average per member per month (PMPM) utilization remained stable, the average PMPM drug expenditure increased almost 11% from the prior year. N.T. Landis, "Report shows decline in health plan pharmacy coverage, steady prescription use, rising costs," *American Journal Health System Pharmacy*, December 15, 1999, Vol. 56, p. 2513.

³ The *American Journal Health System Pharmacy* reports that a prescription drug analysis by Express Scripts of its plan membership (7.2 million in 1997 and 8.8 million in 1998) found costs increased by about 16% per year, with slightly smaller increases occurring for managed care plans. The analysis showed that these costs increased by almost 67% between 1994 and 1998 with that half of this increase coming from new drugs. J.L. Miller, "Pharmacy benefit costs continue upward trend," *American Journal Health System Pharmacy*, September 1, 1999, Vol. 56, pp. 1702, 1705.

⁴ Per *HealthLine* (1/21), lawmakers in 29 states will make prescription drug costs a top priority in 2000.

⁵ The *American Journal Health System Pharmacy* reports that a recent survey of HMOs by Novartis found that while health plan enrollment grew in 1998, the percent of members with a pharmacy benefit declined.

⁶ Alan Lyles reports that patient out-of-pocket expenses for ambulatory prescription drugs were 96% in 1960, but only 33.9% in 1996. Alan Lyles et al, "The Effect of Managed Care on Prescription Drug Costs and Benefits," *Pharmacoeconomics*, February 15, 1999, pp. 129-140.

⁷ *Clinical Therapeutics* reports that older Americans represent 13% of the U.S. population but consume about 1/3 of drugs prescribed. David J. Gross, "Prescription Drug Formularies in Managed Care: Concerns for the Elderly Population," *Clinical Therapeutics*, Vol. 20, No. 6, 1998, pp. 1277-1291

⁸ Scott Hensley, "Prescription costs – Providers and payers get a big dose of reality with explosive spending and patient demand for new drugs," *Managed Healthcare*, August 23, 1999, p. 31.

⁹ Leslie Werstein Hann, "A Dose of Control: Insurers are finding new ways to manage one of the last frontiers of health coverage – drug costs", *Best's Review Magazine Life/Health Edition*, February 1998. This article reports that spending for consumer advertising of prescription drugs increased from \$12 million to almost \$600 million from 1989 to 1996.

¹⁰ *Medical Economics* reports that a survey conducted by The Journal of Family Practices (*The Journal of Family Practice*, Vol. 48, No. 6, June 1999, p. 448) found that 70% of family practice physicians complained that direct-to-consumer (DTC) advertising "pressures them to prescribe drugs that they might not ordinarily recommend". *Medical Economics* also reports that Scott-Levin found that "DTC spending rose from \$372 million in 1995 to nearly \$1.1 billion in 1998." Robert Lowes, "Doc, I saw this great new drug on TV...", *Medical Economics*, April 26, 1999, pp. 71-76.

¹¹ *Managed Healthcare* (August 23, 1999) reports that there is heavy direct-to-consumer advertising for drugs aimed at non-life-threatening conditions. It also reports that consumer ad spending is estimated to grow by 50% in 1999.

¹² "Recent Price Increases for Prescription Pharmaceuticals in the PPI," *Producer Price Indexes*, Bureau of Labor, August 14, 1998.

¹³ Robert A. Bell et al, "Advertisement-Induced Prescription Drug Requests: Patients' Anticipated Reactions to a Physician Who Refused," *The Journal of Family Practice*, June 1999, Vol. 48, No. 6, p. 446.

¹⁴ Robert A. Bell, "Direct-to-Consumer Prescription Drug Advertising and the Public," *Journal of General Internal Medicine*, November 1999, Vol. 14, p. 651-657.

¹⁵ A study conducted by the National Institute for Health Care Management found that private third party spending for prescription drugs increased by 123% between 1992 and 1997, while consumer out-of-pocket spending only

increased by 13%. Jon Parham, "Rx Prices Send Health Insurance Soaring: New Drugs, Advertising Increase Demand," *Arkansas Business*, January 21, 2000.

¹⁶ Thomas D. Musco, *Prescription Drugs: Cost and Coverage Trends*, Health Insurance Association of America, September 1999.

¹⁷ *Managed Healthcare* reports that the Food and Drug Administration has reduced its approval time, on average, by 19.6 months. In 1998, approvals were received in 11.7 months. Scott Hensley, "Prescription costs – Providers and payers get a big dose of reality with explosive spending and patient demand for new drugs," *Managed Healthcare*, August 23, 1999, pp. 30-34.

¹⁸ *Arkansas Business* says that the Pharmaceutical Researchers and Manufacturers of America point to a survey conducted by IMS Health that claims less than 5% of the 1997 U.S. pharmaceutical expenses came from increased prices.

¹⁹ *Managed Healthcare* (August 23, 1999) reports that newly introduced arthritis pain relievers cost 20 times more than their predecessors.

²⁰ PCS HealthSystems reports that generic drugs are introduced at prices ranging from 20% to 50% less than those of original brand name drugs.

²¹ The *American Journal Health System Pharmacy* reports that a recent survey of HMOs by Novartis found that while the generics make-up the same portion of total prescriptions written but that their percentage of total pharmacy costs has decreased by 2%.

²² John M. Brooks et al, "Factors Affecting Bargaining Outcomes Between Pharmacies and Insurers," *Health Services Research*, April 1999, Part II, pp. 439-451.

²³ *Business & Health*, July 1999, p. 48 reports that Pharmacy Benefit Management Institute surveys show that average copayments have risen for all drugs regardless of whether they are purchased through the mail or from a retail pharmacy. From 1995 to 1998, average copayments have risen from 6.8% to 31.6%, with the largest increases occurring for mail-order drugs.

²⁴ *Managed Healthcare* reports that Highmark Blue Cross and Blue Shield (Pittsburgh) "is considering implementing copayments calculated as a percentage of drug costs, perhaps as much as one-third".

²⁵ *Business & Health*, July 1999, p. 48 reports that Pharmacy Benefit Management Institute surveys indicate that generic drugs are required except when the doctor requests a brand name drug (37%), except when the patient or doctor requests a brand name drug (34%), and always (29%).

²⁶ The *American Journal Health System Pharmacy* reports that a recent survey of HMOs by Novartis found that the most frequently mentioned copayments for formulary brand name products, generics, and nonformulary brand name products were \$10, \$5 and \$15, respectively.

²⁷ *Modern Healthcare* reports that Health Net and United Healthcare of California are getting around state prohibition of formulary deletions by replacing their current formularies with a three-tiered program that lets employers and employees choose what level of prescription benefit they are willing to pay for. Chris Rauber, "Drug wars – Health plans blast California regulators for requiring them to retain medications on their formularies," *Modern Healthcare*, May 10, 1999, p. 74.

²⁸ Alan Lyles reports that in 1996 about 70% of HMOs required generic substitution which resulted in 44% of prescriptions being filled with generics; 18% of HMO permitted therapeutic interchange; 86% of HMOs used drug formularies with 89% of prescriptions filled with formulary items; and average copayments per prescription for brand name drugs was \$7.59 and for generic drugs was \$5.49. Alan Lyles et al, "The Effects of Managed Care on Prescription Drug Costs and Benefits," *Pharmacoeconomics*, February 15, 1999, p. 131.

²⁹ *Managed Care* reports the following options for incentives: drug copayment rebates after one year of compliance with specific drug regimes; low first fill copayments and higher refill copayments; coinsurance plan where the plan pays the highest percentage for acute and maintenance generic drugs and much less for wellness drugs. Michael Dalzell, "Pharmacy Copayments: A Double-Edged Sword," *Managed Care*, August 1999, pp. 26-31.

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- ³⁰ Karen Bloor et al, "Lessons from international experience in controlling pharmaceutical expenditure III: regulating industry," *British Medical Journal*, July 6, 1996.
- ³¹ South Carolina and Texas limit the number of monthly prescriptions available to Medicaid recipients.
- ³² *Business & Health*, July 1999, p. 48 reports that Pharmacy Benefit Management Institute surveys show that many employers are excluding appetite suppressants (81%), smoking cessation products (61%), fertility drugs (55%), oral contraceptives (36%), and viagra (36%).
- ³³ Karen Bloor et al, "Lessons from international experience in controlling pharmaceutical expenditure III: regulating industry," *British Medical Journal*, July 6, 1996.
- ³⁴ *Ibid.*
- ³⁵ Alan Lyles reports that in 1996 about 71% of HMOs used mail order pharmacy, which composed 3.8% of prescriptions and 9.9% of drug expenditures. Alan Lyles et al, "The Effects of Managed are on Prescription Drug Costs and Benefits," *Pharmacoeconomics*, February 15, 1999, p. 131.
- ³⁶ Deborah Epstein, "Utilization of Generics: A Managed Care Failure?" *Managed Care*, May 1997.
- ³⁷ Alan Lyles reports that in 1996 HMOs in-house pharmacies filled 66% of prescriptions. Alan Lyles et al, "The Effects of Managed are on Prescription Drug Costs and Benefits," *Pharmacoeconomics*, February 15, 1999, p. 131.
- ³⁸ Alan Lyles reports that in 1996 about 89% of HMOs used contract pharmacies. Alan Lyles et al, "The Effects of Managed are on Prescription Drug Costs and Benefits," *Pharmacoeconomics*, February 15, 1999, p. 131.
- ³⁹ David M. Angaran, "Telemedicine and telepharmacy: Current status and future implications," *American Journal of Health System Pharmacy*, July 15, 1999, Vol. 56, pp. 1405-1426.
- ⁴⁰ Helene L. Lipton et al, "Pharmacy Benefit Management Companies: Dimensions of Performance," *Annual Reviews of Public Health*, 1999, Vol. 20, pp. 361-401.
- ⁴¹ David M. Angaran, "Telemedicine and telepharmacy: Current status and future implications," *American Journal of Health System Pharmacy*, July 15, 1999, Vol. 56, pp. 1405-1426.
- ⁴² Karen Bloor et al, "Fortnightly Review: Lessons from international experience in controlling pharmaceutical expenditure II: influencing doctors," *British Medical Journal*, June 15, 1996.
- ⁴³ *Ibid.*
- ⁴⁴ *Ibid.*
- ⁴⁵ Alan Lyles reports that in 1996 about 4% of HMOs used prescription drug practice guidelines. Alan Lyles et al, "The Effects of Managed are on Prescription Drug Costs and Benefits," *Pharmacoeconomics*, February 15, 1999, p. 131.
- ⁴⁶ *Business & Health*, July 1999, p. 48 reports that Pharmacy Benefit Management Institute surveys show employers are using a number of methods to control prescription drug costs, including concurrent drug utilization review (76%), retrospective drug utilization review (67%), and prior authorization (61%).
- ⁴⁷ John M. Kessler, PharmD, "Lipid-lowering drugs, cost-effectiveness data, and the formulary system: A health systems perspective", *American Heart Journal*, May 1999, Vol. 137, No. 5, p. S111.
- ⁴⁸ Alan Lyles reports that in 1996 about 81% of HMOs used drug utilization review programs. Alan Lyles et al, "The Effects of Managed are on Prescription Drug Costs and Benefits," *Pharmacoeconomics*, February 15, 1999, p. 131.
- ⁴⁹ Vaughn L. Culbertson et al, "Positive Impact of a Follow-Up Phone Call to Community Pharmacies in a Medicaid Drug Utilization Program," *The Annals of Pharmacotherapy*, May 1999, Vol. 33, pp. 541-547.
- ⁵⁰ John Kessler reports that this information can be used to identify physicians with high prescription volumes and costs so that follow-up analyses can be done to quantify longitudinal patient outcomes and health care costs. "Lipid-lowering drugs, cost-effectiveness data, and the formulary system: A health systems perspective," *American Heart Journal*, May 1999, Vol. 137, No. 5, p. S113.

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- ⁵¹ *HealthLine* (1/19) indicates that the *Journal of American Medical Association* reports prescribing patterns are influenced by interactions between physicians and drug company sales representatives.
- ⁵² Karen Bloor et al, "Fortnightly Review: Lessons from international experience in controlling pharmaceutical expenditure II: influencing doctors," *British Medical Journal*, June 15, 1996.
- ⁵³ Russell Jackson reports that the benchmark range for DUR investment should be \$1 spent to \$1.50-\$300 saved. Russell Jackson, "Physician Profiling Alone Inadequate to Trim Pharmacy Risk," *Executive Solutions for Healthcare Management*, May 1999, pp. 11-14.
- ⁵⁴ Karen Bloor et al, "Lessons from international experience in controlling pharmaceutical expenditure III: regulating industry," *British Medical Journal*, July 6, 1996.
- ⁵⁵ *Ibid.*
- ⁵⁶ Kessler also reports that bundled contracts make it difficult to assess the effect of these negotiations. *Ibid.*
- ⁵⁷ Alan Lyles reports that in 1996 about 79% of HMOs has rebate or charge-back programs. The article also states that in 1994 rebates to all Medicaid programs amount to \$1.8 billion of \$9.5 billion in outpatient prescription drug payments. Alan Lyles et al, "The Effects of Managed care on Prescription Drug Costs and Benefits," *Pharmacoeconomics*, February 15, 1999, pp. 131, 133.
- ⁵⁸ Karen Bloor et al, "Lessons from international experience in controlling pharmaceutical expenditure III: regulating industry," *British Medical Journal*, July 6, 1996.
- ⁵⁹ Karen Bloor et al, "Fortnightly Review: Lessons from international experience in controlling pharmaceutical expenditure II: influencing doctors," *British Medical Journal*, June 15, 1996.
- ⁶⁰ *Managed Care Quarterly* recommends to physicians that per member per month rates be trended forward and then be increased by an actuarial estimate to cover the cost of new drug technology and risk of the cohort covered. Patrick Aberle, "Pharmacy Risk: Is It In Your Future?" *Managed Care Quarterly*, Spring 1999, pp. 1-5.
- ⁶¹ Alan Lyles reports that in 1996 about 27% of HMOs used risk pools and/or withholds for prescription drugs. Alan Lyles et al, "The Effects of Managed care on Prescription Drug Costs and Benefits," *Pharmacoeconomics*, February 15, 1999, p. 131.
- ⁶² Deborah A. Grandinetti, "Drug costs could come out of your pocket: A growing number of physician groups and IPAs are taking on pharmacy risk – many of them unwillingly. Here's why this type of capitation is spreading, and why doctors don't like it." *Medical Economics*, April 12, 1999, p. 182.
- ⁶³ Karen Bloor et al, "Lessons from international experience in controlling pharmaceutical expenditure III: regulating industry," *British Medical Journal*, July 6, 1996.
- ⁶⁴ Kathleen Day, "Report Attacks Drug Industry Research and Development," *The Washington Post*, Vol. 113, No. 9, February 26, 1993.
- ⁶⁵ David J. Gross, "Prescription Drug Formularies in Managed Care: Concerns for the Elderly Population," *Clinical Therapeutics*, Vol. 20, No. 6, 1998, p.1288.
- ⁶⁶ John J. Schrogie, MD, "Health system perspective regarding glycoprotein IIb/IIIa inhibitor therapy," *American Heart Journal*, May 1999, Vol. 137, No. 5, p. S127.
- ⁶⁷ Christopher A. Lewandowski, "Economics and cost-effectiveness in evaluating the value of cardiovascular therapies: A health system perspective on thrombolytic therapy for acute myocardial infarction," *American Heart Journal*, Vol. 137, No. 5, pp. S94-S96.
- ⁶⁸ Lisa A. Sanchez, "Applied pharmacoeconomics: Evaluation and use of pharmacoeconomic data from the literature," *American Journal of Health System Pharmacy*, August 15, 1999, Vol. 56, pp. 1630-1640.
- ⁶⁹ Dr. Bates reports that adverse drug events can be reduced significantly using a physician computer order entry system. David W. Bates, MD et al, "Effect of Computerized Physician Order Entry and a Team Intervention on Prevention of Serious Medication Errors," *Journal of American Medical Association*, October 21, 1998, Vol. 280, No. 15, pp. 1311-16.

⁷⁰ “Legal Aspects of Generic Interchange with Narrow Therapeutic Index Drugs, Program No. 424-000-98-003-H03,” Power-Pak Communications, p. 3.

⁷¹ FDA Medical Bulletin, U.S. Food and Drug Administration, Summer 1997, Vol. 27, No. 2.

⁷² Gillian Currie and Norma Nielson, “The Impact of Cost-sharing on Prescription Drug Usage,” American Risk and Insurance Association, 1999.

⁷³ *Policy, Utilization, Costs and Program Structure Issues in the Texas Vendor Drug Program*, Tonn & Associates, Austin, 1998, p. 12.

⁷⁴ Bloor reports that withdrawal of drugs from a formulary can result in an increase in total prescriptions due to substitutions. Karen Bloor and Nick Freemantle, “Lessons from international experience in controlling pharmaceutical expenditure. I: influencing patients,” *British Medical Journal*, June 8 1996, Vol. 312.

⁷⁵ Karen Bloor et al, “Lessons from international experience in controlling pharmaceutical expenditure III: regulating industry,” *British Medical Journal*, July 6, 1996.

⁷⁶ *Ibid.*

⁷⁷ Richard R. Abood, R.Ph., J.D., “Cut Pharmaceutical Costs, But Mind the Legal Dangers,” *Managed Care Magazine*, August 1997.

⁷⁸ Most of the definitions were taken from “Pharmacy Benefit Management Companies: Dimensions of Performance,” *Annual Review Public Health*, 1999, pp. 361-401.