Innovations in Physician Prescribing

Prepared by Protocare Sciences
October 2001
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Prepared for:
CALIFORNIA HEALTHCARE FOUNDATION

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Acknowledgments

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The key to influencing prescribing behavior is to make information or decision support available to the physician at the time a prescription is written.

Growing concern about rising drug costs, inappropriate prescribing, and an increasing awareness of medication errors has led to a significant interest in health care initiatives aimed at altering physician prescribing behavior. There is also increasing interest in the rapidly growing area of computerized prescribing (particularly with hand-held devices) and the expanding role of the patient, as both consumer and advocate of his or her own care. These factors are positioned to significantly influence physician prescribing, presently and in the future.

To identify and evaluate interventions that influence physician prescribing, Protocare Sciences carried out primary and secondary research and conducted in-depth interviews with executives from health plans, medical groups, pharmacy benefit management (PBM) firms, and other organizations, such as pharmaceutical companies. To highlight programs offering the greatest promise for influencing appropriate drug selection, Protocare also conducted in-depth interviews on selected innovative programs among the group.

Findings

The key to influencing prescribing behavior is to make information or decision support available to the physician at the time a prescription is written. This is what differentiates successful, innovative prescribing initiatives from less effective efforts—whether or not technology is used. The following are examples of technology-based information delivery that drive drug selection at the point of care:

- Hand-held technology, such as personal digital assistants or PDAs that contain information regarding a drug’s formulary status, appropriate dosing, drug interactions, and alternative therapies
- PC-based clinical information systems that enable physicians to efficiently access information about the patient (laboratory results, radiology results, current prescription medications, allergies), as well as drug information databases containing prescribing information
- PC-based administrative information systems that provide physicians with real-time information about prescribing trends and drug utilization.
Non-technological methods of providing objective information to influence drug selection include:

- Drug formulary management that provides support for drug selection decisions
- Reports to physicians regarding their prescribing patterns (feedback reports) and physician-pharmacist team counseling about drug selection options
- Restrictions on distribution of drug education by pharmaceutical company representatives (pharmaceutical detailing)

Interviewees report that feedback reporting, academic detailing, and patient copayments are among the most effective of these interventions in changing prescribing behavior.

**The wave of the future** Technology continues to play an important role in facilitating drug selection. Emerging initiatives include expanded point-of-care capabilities, such as online prescribing and transmission of prescriptions, and access to reference guides (drug formularies or guideline information) and patient histories at the point of prescribing.

**Innovative programs** Some organizations have incorporated traditional interventions into innovative, multi-faceted prescribing programs, which focus on either technology or combinations of non-technological processes to bring interventions closer to the prescribing process.

- Kaiser Permanente, headquartered in Oakland, California, is focused on the use of high-tech approaches to influence prescribing. Kaiser is building a comprehensive clinical information system that will virtually eliminate the need for traditional patient medical charts. Desktop computers located in every physician office, clinic, and floor within its hospitals will give physicians access to the patient-specific information needed for prescribing decisions. Physicians already have access to a regional patient database that provides real-time information about prescribing trends and drug utilization.

- Allscripts, Inc. in Libertyville, Illinois, delivers point-of-care prescribing tools and decision support to office-based physicians through its Internet-based software application and wireless, hand-held device. At the time of prescribing, these tools provide physicians with information ranging from the formulary or co-pay status of a given drug, to alerts of potential drug interactions or need for dosing modification.
Harriman Jones Medical Group in Long Beach, California, employs a “non-high tech” approach to influence prescribing, combining formulary management with feedback and one-to-one counseling from the medical director. A full-time pharmacist, employed by the medical group, is responsible for collecting and analyzing data used to support these efforts. The group also enforces restrictions on pharmaceutical detailing.

**Keys to success**  Regardless of the health care setting or type of intervention(s) employed, several factors must be considered to help ensure success:

- **Alignment of incentives.** Prescribing initiatives are most effective when participating parties are similarly aligned in their desire to deliver quality care. Newer initiatives are more likely to impact physician prescribing behavior as the focus moves from being punitive to cooperative, and not solely based upon financial issues.

- **Physician commitment and involvement.** Visible support and involvement of key physicians (especially from medical leadership) during the development and implementation of these initiatives are essential to providing the credibility and “teeth” needed to change prescribing behavior.

- **Availability of financial and staffing support.** Initiatives that revolve around the use of technology will likely require substantial financial investment in capital equipment, as well as adequate staffing resources to train and implement these systems. These efforts could be hampered by the current shortage of pharmacists and nurses.

- **Objective and consistent “counter-detailing” education.** DTC advertising and pharmaceutical detailing are powerful influencers of prescribing. Almost all the programs reviewed use some means to provide objective, consistent information to physicians regarding appropriate choices for medications.

**Outcomes**  Programs have demonstrated a positive impact in terms of:

- Cost savings per prescription resulting from use of hand-held prescribing tools
- Decrease in per member, per month (PMPM) drug costs after use of a combined intervention approach
- Overall reductions in drug spending due to enhanced prescribing of generics.

These reported outcomes highlight a need for additional assessment of these programs to link financial outcomes with clinical outcomes.

Newer initiatives are more likely to impact physician prescribing behavior as the focus moves from being punitive to cooperative, and not solely based upon financial issues.
I. Goals and Methodology

Prescription drug expenditures are projected to increase at a rate of 11 percent to 15 percent in 2001.

Current and projected rises in drug costs, inappropriate drug utilization, and medication errors provide enormous incentives to improve physician prescribing behavior:1,2

- Prescription drug expenditures are projected to increase at a rate of 11 to 15 percent in 2001.  
- Fifteen-hundred new products and indications are slated for FDA approval within the next three years.  
- Prescription drug sales in the U.S. will reach $243 billion by 2008.  
- Within a ten-year period, medication errors alone will account for 7,000 deaths annually, representing a 2.57-fold increase.

Health care organizations that would effectively alter physician prescribing patterns must begin by answering several questions:

- What are the incentives for changing physician prescribing behavior?
- What influences physician prescribing behavior—and what are the major obstacles preventing change?
- What are the most common prescribing interventions employed to influence prescribing behavior in the California marketplace and how effective are they?
- What innovative prescribing initiatives are being pursued in both the California and national markets? What is their potential for widespread implementation?
- What are the key success factors in implementing prescribing initiatives?

To explore these questions, the California HealthCare Foundation commissioned Protocare Sciences to undertake this report.
Methods

Protocare Sciences combined primary and secondary research as well as in-depth interviews to identify and evaluate various interventions and initiatives that influence physician prescribing.

Secondary research Protocare carried out an extensive clinical and business literature review of interventions and programs designed to affect physician drug prescribing. On the clinical side, we selected approximately 150 abstracts (1990-2000) from Medline via Internet Grateful Med. To identify commercial and vendor-based sources of initiatives, we reviewed health care industry trade journals and periodicals. (Appendix A lists the publications reviewed, beginning with July 2000 issues and extending back approximately one to three years.)

Primary market research To supplement the secondary research, Protocare conducted 35 primary market research interviews during September and October, 2000:

- 26 structured telephone interviews with 13 medical directors from health plans, eight medical group directors, four pharmacy benefit management firm (PBM) pharmacy directors, and one clinical director from a national skilled nursing facility. (Appendix B lists their titles and organization names.)
- Five non-structured interviews with senior management-level executives from large U.S. pharmaceutical companies
- Four interviews with representatives from other organizations—a drug wholesaler, national pharmacy retail chain, medical association, and employer benefits consultant.

In-depth interviews From initial market research, Protocare selected multi-intervention programs that appeared to offer the greatest promise for influencing appropriate drug selection. To assess the generalizability of these programs for widespread implementation in different settings, we conducted a series of in-depth interviews, on-site or via telephone, with representatives of seven health care organizations, during December 2000 and January 2001. All of these interviewees had a “hands on” role in the development and/or operation of their programs.

From these seven interviews, three organizations (an HMO, a point-of-service technology provider, and a medical group) are profiled within this report (see Table 1).

<table>
<thead>
<tr>
<th>Name of Organization</th>
<th>Interviewee Title</th>
<th>Headquarters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kaiser Permanente</td>
<td>Medical Director</td>
<td>Oakland, CA</td>
</tr>
<tr>
<td>Allscripts, Inc.</td>
<td>Vice-President, Marketing</td>
<td>Libertyville, IL</td>
</tr>
<tr>
<td>Harriman Jones Medical Group</td>
<td>Manager, Clinical Pharmacy Services</td>
<td>Long Beach, CA</td>
</tr>
</tbody>
</table>
II. What Are the Incentives for Changing Physician Prescribing Behavior?

Physicians fail to select the appropriate drug because they are overwhelmed by the number of drug choices and lack knowledge about suitable alternatives.

Suboptimal drug selection and utilization along with rising drug costs are key factors driving health plans, medical groups, and PBMs to change physician prescribing behavior—an issue interviewees representing all of these organizations rate as highly important (see Table 2).

Table 2. How Important Is It to Change Physician Prescribing Behavior?

<table>
<thead>
<tr>
<th>Type of Organization</th>
<th>Average Importance Rating*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Plan (n=13)</td>
<td>9</td>
</tr>
<tr>
<td>Medical Group (n=8)</td>
<td>8</td>
</tr>
<tr>
<td>PBM/SNF (n=5)</td>
<td>10</td>
</tr>
</tbody>
</table>

*Scale of 1 to 10: 1 = not important at all, 10 = extremely important

Although much attention is focused on rapidly rising drug costs, there is also a deeper concern that drugs are not prescribed appropriately. Drug choice decisions resulting from inappropriate, irrational, and unnecessary prescribing can lead to serious drug-related problems (such as potentially dangerous drug interactions and incorrect dosages) and poor patient outcomes. “Inappropriate” drug selection results in a drug that is either clinically suboptimal (not the drug of choice for a given condition) or financially suboptimal (not the most cost-effective drug available) or both.

Concerns about drug prescribing focus on the following problematic practices:

- Use of drugs with low benefit-to-risk ratios in place of safer alternatives
- Use of ineffective or marginal therapies for treatable conditions
- Use of excessive numbers of medications in vulnerable populations
- Use of high-cost agents instead of less expensive, equally effective alternatives
Inappropriate Drug Selection
Physicians fail to select the appropriate drug because they are overwhelmed by the number of drug choices and lack knowledge about suitable alternatives. Few consistently follow established drug use guidelines. Suboptimal drug selection choices occur in each of the following areas:

**Dosage** Physicians do not prescribe the most effective dosage (instead they may prescribe dosages higher than approved labeling or subtherapeutic dosages).

**Frequency** Physicians do not prescribe the most effective regimen (for example, drugs that should be given on a scheduled basis are prescribed “as needed”).

**Duration** Physicians prescribe drugs (such as proton pump inhibitors) beyond the time necessary for effective treatment.

**Variation by site of care** Physicians prescribe drugs differently in the inpatient and outpatient settings even though the indications and dosages/duration should be the same, regardless of site of care.

**Patient compliance** Patients are noncompliant in taking their drugs, and physicians, because they often do not investigate noncompliance as a reason for treatment failure, end up unnecessarily prescribing alternate medications.

Increasing Drug Costs
The increasing pharmacy budget is another key driver for changing physician prescribing behavior. Interviewees attribute physicians’ failure to prescribe cost-effectively to a host of factors, among them:

- Physicians are generally unaware of drug costs and therefore do not factor relative costs into their drug selection decisions. Physicians who are at financial risk for drugs are more keenly aware of cost and formulary compliance issues compared to those with little or no risk involvement.

- There are mounting external pressures on physicians from patients and the pharmaceutical industry to prescribe newer, more expensive agents even though these drugs may have little added benefit over existing therapies.

- Physicians who are contracted with multiple health plans (using multiple drug formularies) may receive conflicting information about drug selection choices. The same drug that is cost effective in one health plan may not be cost effective in another plan solely because of differences in contractual arrangements.

Drug Safety Issues
Several respondents point out that physicians do not always check for adverse drug reactions, drug-drug interactions, and duplicate prescriptions. Among the reasons for these problems, according to respondents, are lack of physician education, fragmentation within the health care system, and the fact that patients do not always give the physician accurate information about the drugs they are taking.
III. What Influences Physician Prescribing Behavior?

Variations in prescribing practices can, to a certain extent, be attributed to differences among physicians’ medical education and training, specialization, and relative youth.

A variety of internal and external factors influence prescribing behavior.4,5,6,7

**Physician training and experience** Variations in prescribing practices can, to a certain extent, be attributed to differences among physicians’ medical education and training, specialization, and relative youth. The literature suggests, for example, that specialists are more likely than generalists to prescribe diagnostic tests and disease-specific drugs.4

**Colleagues and opinion leaders** Physicians initially become familiar with medical information through journal articles and input from colleagues. Adoption of medical practices is influenced considerably by the involvement of local opinion leaders—highly trained, well-respected physicians in the community.7,8 For example, disseminating clinical guidelines through opinion leaders is a more effective strategy for altering physician practices than simply introducing guidelines through publication.9 Peer pressure, professional leadership, and group styles of practice also influence how information is utilized.

**Pharmaceutical companies** Pharmaceutical detailing can be an initial source of information about new therapies for many physicians and has led to more rapid prescribing of new drugs and decreased prescribing of generic drugs.5,6

**Health plans and other payers** Payers directly influence prescribing through formulary management, treatment protocols, and prescribing restrictions. Degrees of effectiveness vary depending on the relationship between the organization and prescribers. The involvement of physicians in the development and implementation of prescribing interventions is key to enlisting support for such initiatives.

**Patients** Patients are a powerful and increasingly influential factor because of the growth in direct-to-consumer (DTC) promotion, medical information from the Internet, and cost-sharing via multiple-tiered copayment systems. Persuasive advertising coupled with increased consumer activism has fueled the demand for treatment. Nowhere is this more apparent than in the prescribing of oral antibiotics, which account for 12 to 14 percent of all drugs prescribed by office-based physicians.10 In a survey of physicians treating pediatric upper respiratory infections, parental influence was found to be a significant driver in the prescribing of antibiotics.11
Obstacles

Regardless of strategy, change in physician prescribing behavior is not easily accomplished because of real and perceived notions about physicians. Interviewees offer the following opinions on this issue:

Physician attitudes  Physicians are perceived as strong-willed, lacking interest, and, in general, not responsive to change.

External pressures  Pressure from DTC advertising and pharmaceutical company detailing is increasingly influential in the prescribing of heavily promoted drugs.

Lack of resources for making drug decisions  There appears to be a lack of usable and current information to support physicians in making appropriate drug decisions, yet physicians feel overwhelmed with the sheer amount of drug information.

Adoption of medical information is influenced considerably by the involvement of local opinion leaders—highly trained, well-respected physicians.
While interviewees often disagree about the extent to which physician behavior can be changed, all believe that it is possible to modify physician behavior. Interventions used to influence prescribing behavior can be classified into four strategic areas: administrative interventions, education, feedback, and financial incentives.7,9

### Administrative Interventions

Health care organizations attempt to influence drug selection and utilization by creating barriers to undesired practices or reducing barriers to desired practices at a system level. Examples include formulary management and prescribing restrictions.

**Formulary management**, which determines what specific drug products are included under the health plan’s coverage and at what cost to the patient, tends to be most effective when developed as a collaborative effort with prescribers. Interviewees from health plans indicate that their formularies are leaning toward a multi-tiered structure tied to patient copayments. A large managed care organization on the East Coast, moving from a two-tier (generic and all other drugs) to a three-tier (generic, preferred, non-preferred) formulary realized huge savings in drug costs. Under this formulary structure the health plan, provider, and member were aligned in the promotion of efforts to support cost-effective prescribing.

**Prescribing restrictions** may be as narrow as placing a drug on nonformulary or restricted status or limiting its use to a credentialed prescriber or specific medical specialty.4 Prior authorization and utilization management programs monitor the types and numbers of drugs prescribed. The majority of health plans, as well as PBMs and large medical groups holding pharmacy risk, have implemented these programs, directing them at high-cost lifestyle drugs.
**Education**

Educational interventions take a number of forms: printed educational materials, continuing medical education (CME), clinical guidelines, pharmaceutical detailing, and academic detailing.

**Educational materials and continuing medical education** are commonly used methods for inducing change. The dissemination of printed educational materials has demonstrated little effect on prescribing practices when used alone. However, these materials can be useful adjuncts to face-to-face education and other interventions.

Health plan interviewees view CME as one of the oldest methods of changing physician prescribing behavior. Most health plans and medical groups conduct CME programs on a sporadic basis and target them at a specific prescribing problem. In most organizations, the effectiveness of these programs is not measured consistently, and therefore, not really known. At least one study shows that CME, traditionally delivered in the form of written materials or conferences, has little impact on changing physician performance.

**Clinical guidelines** are primarily intended to assist in physician decision making and eliminate or reduce variation in practice. Treatment guidelines are broadly implemented in health plans, medical groups at risk for prescription drugs, and PBMs. According to interviewees, guidelines are generally written for a specific disease state, and often include high-level recommendations for specific drug selection and utilization. However, publication of guidelines is not enough to effect a change in clinical management—dissemination through local opinion leaders facilitates their adoption.

**Reminder systems** are only effective as long as the reminders continue.

**Academic detailing**—face-to-face educational outreach visits typically conducted by clinical pharmacists or opinion leaders—provides unbiased education to physicians. Academic detailing is one of the few interventions that has demonstrated positive changes in reducing inappropriate prescribing when used alone. Such efforts have resulted in 12 to 49 percent reductions in inappropriate prescriptions. In general, the impact of education on prescribing behavior varies with the presentation method. Interventions that combine academic detailing with feedback techniques (that also include specific recommendations for medication use) are more successful than either alone.

The majority of interviewees utilize academic detailing—usually performed by pharmacists affiliated with the organization—to support their efforts to alter physician prescribing behavior. A large managed care organization in the Northwest attributes the effectiveness of its staff model program to the presence of on-site pharmacists who interact with physicians, providing education, therapy recommendations, and problem-solving expertise before the physician writes a prescription.

**Pharmaceutical company interventions** include interactions with pharmaceutical representatives that influence prescribing behavior by creating awareness and preference of branded drugs. This can lead to irrational prescribing, more rapid prescribing of new drugs, and decreased prescribing of generic drugs. It is not surprising to find that pharmaceutical companies invest substantial resources to support their sales forces. Pharmaceutical companies supplement personal selling efforts with seminars, meetings, promotional materials, and speakers.
As physicians increasingly view both traditional CME offerings and representative detailing as a time burden and nuisance, pharmaceutical companies believe that more physicians will turn to the Internet as a means of obtaining up-to-date drug information in a more time efficient manner. Use of the Internet offers another option for pharmaceutical companies to communicate with prescribers. However, “personal selling is still the single most effective way of influencing physician prescribing behavior,” according to a senior executive from a large pharmaceutical firm.

In addition to information about specific drugs, pharmaceutical firms are attempting to influence physicians with more practical information. A number of companies are collecting patient satisfaction and work productivity information, either during clinical trials or through studies conducted by health plan or PBM partners, to demonstrate the added value of their products.

Feedback and Reminders

Regular feedback to physicians about how their practices or patient outcomes compare with those of other physicians or with an external standard has been effective in reinforcing messages related to improving prescribing quality. Feedback reporting usually involves a summary of clinical performance over a specified period of time, with or without recommendation for action, and is obtained from information derived from medical records, computerized databases, or observation. Feedback that includes not only a report of current practice, but also specific recommendations for change in the use of medications can improve practice.

Interviewees agree that feedback reports, especially if combined with targeted education, are effective in capturing the attention of prescribers. They also point out that efforts to collect data, communicate results, and monitor for ongoing effectiveness require substantial support from the pharmacists, medical director, and administrative and information system personnel.

Drug utilization evaluation methods target inappropriate use of drugs at a systemwide level. Most health plans and PBMs generate drug utilization reports at least quarterly. Usually, pharmacists in these organizations analyze drug utilization data to identify physician prescribing problems and develop intervention programs. Results from these analyses are then communicated back to the prescribers.

Benchmarking, which establishes a standard for comparison, takes advantage of the discomfort of physicians who are associated with practice patterns that vary significantly from those of their colleagues. The major advantage of benchmarking is peer pressure among the physicians as well as a physician’s individual desire to perform effectively against other physicians. According to interviewees, health plans and PBMs are the primary users of benchmark data.

Reminders notify physicians of opportunities for making a change in the prescribing process. These can be as simple as stickers on charts or as sophisticated as computerized prompts. Reminder systems are only effective as long as the reminders continue; in the long term, their impact on behavior is likely to be minimal.
Financial Incentives

Health care organizations have established payment systems that make physicians’ incomes or reimbursement contingent on their performance to a certain standard. Patient pressures, malpractice concerns, and physician practice beliefs can counter the effects that financial incentives may have on prescribing decisions. Organizations are moving away from financial incentive programs to those based on quality of care, using such indicators as patient satisfaction and compliance with clinical guidelines as a basis for rewarding physician performance.

Pharmacy risk contracting, or management of prescription drug benefit dollars at the provider level, generates a financial incentive to promote cost-effective prescribing behavior. Profitability for the organization may be tied to physician performance on formulary drug compliance, generic drug compliance, utilization rates, and expenditure targets. Medical groups with pharmacy risk contracts often tie the physician’s total compensation to drug utilization performance, although the number of medical groups participating in such arrangements is dwindling because of difficulties in managing financial risk under the current per-member, per-month (PMPM) rates paid by the health plans.

Patient copayments can play a significant role in driving use and selection of prescription medications in settings where physicians bear no financial risk for pharmacy services. Higher copayments are perceived to be a disincentive toward drug use. A California health plan medical director predicts that “push-back costs to members through three-tier copay will be increasingly influential in changing physician prescribing behavior.” Most copayment systems are determined by the formulary status of a given drug. In one more advanced initiative, the patient’s copayment is determined by sophisticated systems that utilize a sliding scale based on illness and perceived importance of the drug.

Bonus programs can offer an innovative approach to influencing drug selection. One health plan uses a drug purchase rebate pool to reward physicians for making cost-effective choices within targeted high-cost drug classes. This organization is in the unique position of being able to purchase drugs directly and therefore become eligible for rebates. They transformed the rebate pool into a bonus pool with payback based on performance in three targeted areas: utilization of gastrointestinal drugs, selection of specific cholesterol-lowering drugs, and prescription of antidepressants.

Program effectiveness is reflected in increased prescribing of generic drugs, reduction in PMPM rates, or increased market share of formulary drugs.
Which Interventions are Most Effective?

Demonstrating clinical improvements in patient outcomes is the most challenging aspect of programs designed to impact physician prescribing behavior. Because of the focus on cost effectiveness (and in many instances, cost containment) in today’s health care environment and the difficulties in obtaining clinical data across a large population, interviewees tend to measure program effectiveness by such indicators as increased prescribing of generic drugs, reduction in PMPM rates, or increased market share of formulary drugs as outlined in Table 3.

In general, interviewees agree that feedback reporting, academic detailing, and patient copayments are effective interventions in changing prescribing behavior (see Table 4).

Although specific methods have demonstrated varying degrees of success on their own, multiple interventions appear to be most effective.7,12,20

Table 3. Methods for Measuring Program Effectiveness

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Health Plan</th>
<th>Medical Group</th>
<th>PBMss</th>
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<tbody>
<tr>
<td>Generic versus brand name drug usage</td>
<td>×</td>
<td>×</td>
<td>×</td>
</tr>
<tr>
<td>Targeted drug utilization</td>
<td>×</td>
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<td>×</td>
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<tr>
<td>Physician prescribing trends</td>
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<tr>
<td>Drug costs on a PMPM basis</td>
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<td>×</td>
<td></td>
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<tr>
<td>Formulary compliance rate</td>
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Table 4. Interventions Most Effective In Changing Physician Prescribing Behavior

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Health Plan</th>
<th>Medical Group</th>
<th>PBMss</th>
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</thead>
<tbody>
<tr>
<td>Feedback reporting</td>
<td>×</td>
<td>×</td>
<td>×</td>
</tr>
<tr>
<td>Academic detailing</td>
<td>×</td>
<td>×</td>
<td>×</td>
</tr>
<tr>
<td>Patient co-payments</td>
<td>×</td>
<td>×</td>
<td>×</td>
</tr>
<tr>
<td>Financial incentives</td>
<td>×</td>
<td>×</td>
<td></td>
</tr>
<tr>
<td>Prescribing restrictions</td>
<td>×</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hand-held devices</td>
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<td></td>
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</tr>
<tr>
<td>Formulary compliance</td>
<td>×</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Restricted sales company detailing</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Disease management programs</td>
<td>×</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pharmacist-based recommendations</td>
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</tbody>
</table>
Computerized prescribing can make updated guidelines or formulary-compliant drug choices immediately available to physicians.

The use of computer technology as a means of integrating many of the interventions described in the last section is a rapidly growing area of innovation. Computerized decision-support systems in health care are promoted for their ability to synthesize and integrate patient-specific information, perform complex evaluations, and present results to clinicians in a timely fashion. Online prescribing, according to one author, creates “the opportunity to influence the prescriber and the prescriber’s thought process during the act of prescribing.”

The use of computerized systems can:

- Enhance drug selection by making information such as updated guidelines or formulary-compliant drug choices immediately available
- Provide access to electronically available patient information (such as medication profiles), clinical data (lab results), and online resources for health care information at the point of prescribing
- Prevent and monitor adverse drug effects by establishing links between pharmacy and clinical information databases
- Reduce the risk of medication errors with improved legibility of prescriptions and decreased time spent by both pharmacists and physicians in clarifying illegible prescriptions.

Limitations and Barriers

Dependence on the reminders frequently embedded in prescribing software programs can limit the effectiveness of computerized prescribing in altering physician prescribing behaviors. Although continuous computerized reminder systems

Table 5. Interventions with the Most Promise for Changing Physician Prescribing Behavior

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Health Plan</th>
<th>Medical Group</th>
<th>PBM</th>
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<td>Hand-held devices</td>
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<tr>
<td>Patient co-payments</td>
<td>✗</td>
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<td>Financial incentives</td>
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<tr>
<td>Electronic medical record</td>
<td>✗</td>
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<td></td>
</tr>
<tr>
<td>Feedback reporting/report cards</td>
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</table>
do prevent omission of care, they remain effective only as long as the reminders continue. An overload of information or too many false-positive alerts may deter physicians from paying attention to the information and result in prescriber indifference to truly important warnings.

A number of barriers stand in the way of widespread acceptance and implementation of computerized prescribing programs, including the financial resources required to develop, implement, and support these systems. Failure to elicit input from clinicians during software development and concerns about security and patient confidentiality further limit acceptance of computerized systems. Access to computers and the need to change processes of care to accommodate the new technology are also major challenges.

Advances in Technology
Integrating consensus-based clinical input with technological advances in electronic prescribing can bring about expansion in physician prescribing. Advances in hand-held devices and decision-support programs have enabled computerized systems to be more effectively implemented in office-based and ambulatory care settings. The use of wireless, cellular mobile devices and Internet connectivity, which drives the transfer and flow of information allows physicians to prescribe while they move between multiple sites of practice.

Hand-held devices coupled with decision-support tools and other computer technology offer the greatest promise for changing physician prescribing behavior. These technologies, although still in development, can incorporate traditionally effective interventions such as formulary controls and reminders.

Finally, interviewees predict that the integration of prescribing devices with electronic medical records will help motivate physicians to re-engineer their office processes.

Current Level of Use
While there is a heightened awareness of hand-held devices among interviewees, with PBMs demonstrating the most interest, only a small number of health plans and medical groups are piloting these devices. One of the key obstacles to implementing hand-held devices is the cost of the device itself plus service fees. Another obstacle is the amount of time it takes to use the device (up to three minutes per patient, according to one interviewee). One PBM’s pilot of a computerized order entry program with 1,000 prescribers failed because physicians were reluctant to order prescriptions online. Some companies are redesigning their software to reduce physician interaction time.

Many pharmaceutical company interviewees expect the most significant innovation influencing physician prescribing to be decision-support tools at the point of care—specifically, hand-held devices or other means of providing “just-in-time” information at the point of prescribing. A number of companies are involved in this arena. Despite such interest, some pharmaceutical company interviewees believe that payers will ultimately drive initiatives promoting hand-held devices, since they will gain the most from effective and broad use of these devices.

In general, interviewees predict that—along with hand-held devices and computer technology—patient copayments, financial incentives, and feedback reporting will continue to play a role in influencing physician prescribing behavior.
VI. How Have Prescribing Interventions Been Implemented?

Combined academic detailing and benchmark reporting interventions applied to the use of generic NSAIDs resulted in a cost savings of $100,000 per year for one health plan.

Programs that attempt to improve prescribing practices have been implemented in a variety of health care settings, though much of the information regarding these initiatives and their outcomes has been documented in hospitals. No single type of intervention has been shown to successfully alter prescribing patterns for a sustained period of time. The following initiatives, as reported in the literature, demonstrate that successful programs employ multiple strategies.

Health Plans

Although different interventions are employed by health plans to impact physician prescribing, the underlying incentive is the same across organizations: to manage drug costs. Formulary management guided by the health plan’s pharmacy and therapeutics (P&T) committee provides the basis for drug selection. However, formulary management alone is not effective in altering prescribing practice or driving cost-effective prescribing.

Group Health Cooperative of Puget Sound (now part of Group Health Cooperative) in Seattle, Washington, managed its antimicrobial formulary by forming a P&T subcommittee responsible for usage criteria development, treatment algorithms, and drug utilization evaluations. These efforts led to reductions in pharmacy inventories and drug expenditures. For example, a treatment algorithm for otitis media saved an estimated $200,000 per year.24

Harvard Community Health Plan (now part of Harvard Pilgrim Health Care) in Boston, Massachusetts, a large mixed-model HMO, examined the effectiveness of a combined physician education (educational materials and prescribing tools), feedback (peer prescribing rates), and voluntary therapeutic re-evaluation program in influencing providers to prescribe preferred H2-receptor antagonists. Total H2-receptor antagonist costs were reduced by $1.06 million in the first year of the program.25
HealthPartners in Minneapolis, Minnesota, combined academic detailing and benchmark reporting interventions to control pharmaceutical costs. HealthPartners disseminated physician-endorsed information about preferred agents or first-line treatment options to physicians and medical group directors. Benchmarked data generated from prescription claims offered comparisons of prescribing patterns among medical groups or clinics and individual physicians. Usage of generic nonsteroidal anti-inflammatory drugs (NSAIDs) increased from 88 to 91 percent during the year, resulting in a cost savings of $100,000.26

United HealthCare Corporation, which manages locally based managed care plans in a number of states, used both patient and physician financial incentives to control costs in a managed care environment. A study of the effects of patient cost sharing and physician financial incentives on prescribing practices in both IPA and HMO models demonstrated that higher pharmacy copayments were associated with significantly lower spending on prescription drugs in IPA plans, but had little effect in network plans.18

There is no single “best” strategy for changing physician prescribing behavior. Successful programs employ multiple strategies.

Hospitals and Hospital Systems

The use of technology as a means of influencing physician prescribing, particularly physician order entry, has been in place in hospital settings since the early 1980s. Computerized adaptations to physician order entry systems include online prompts—driven by hospital-based administrative interventions such as formulary decisions and drug usage evaluation programs—that guide the prescriber toward appropriate drug selection and utilization. Hospital systems, because they have access to integrated data, are capable of creating physician order entry systems that integrate administrative, financial, and clinical databases. These systems, while costly to develop and maintain, have been effective in improving drug selection and utilization, and reducing costs and medication errors. Some programs are also able to demonstrate improved patient outcomes.

LDS Hospital in Salt Lake City, Utah improved the use of anti-infectives with a computerized decision-support program linked to computer-based patient records. The program displayed suggested agents, dosing regimens (including dosing adjustments based on laboratory data), and rationale for treatment; it also performs checks for allergies and drug-drug interactions. Outcomes include a significant reduction in the number of orders reflecting excess drug dosages, antibiotic-susceptibility mismatches, and adverse events. Drug costs and length of stay were also significantly reduced for patients who received computer-suggested regimens compared to those who did not.27
Physician Group Practices

Group practices utilize a variety of effective interventions including the display of real-time drug cost information and small-group consensus, as well as academic detailing and feedback reporting.

A family physician group practice in South Carolina conducted a study to determine the impact on prescribing of real-time cost information in a computerized patient record system. Investigators hypothesized that providing drug cost information at the time of prescribing would decrease drug costs to patients by eliminating the prescription of unnecessary or marginally beneficial medications or by promoting less expensive alternatives. However, after one year, they found that the provision of cost information did not affect overall prescription drug costs to patients, perhaps because the cost information was not displayed until after the physician had selected the drug.31

Easton Hospital in Easton, Pennsylvania, improved antimicrobial prescribing by linking pharmacy and laboratory information through a computer interface. The linked databases were capable of identifying potential incompatibilities between antimicrobial therapies and culture and susceptibility test results. Pharmacists provided therapy recommendations to the physicians resulting in an acceptance rate of 83 percent and improved patient outcomes in 93 percent of affected patients.28

Brigham and Women’s Hospital in Boston, Massachusetts, evaluated its comprehensive order entry system in the prevention of serious medication errors during hospitalization. This system incorporates a dose selection menu and drug-allergy and drug-drug interaction checking, requires complete order entry information (route and frequency), and reduces the need for translating and transcribing illegible orders (which can lead to medication errors). Use of the system prevented more than half of serious medication errors.29

Good Samaritan Regional Medical Center in Phoenix, Arizona, set out to prevent adverse drug reactions by using information derived from integrated patient demographic, pharmacy, radiology, and laboratory databases as the basis for a computer alert system that provides patient-specific information to clinicians. During a six-month period, true-positive alerts occurred in 53 percent of triggered alerts, a rate of 64 per 1000 admissions. Physicians failed to recognize 44 percent of these alerts prior to notification.30

Thirteen primary care group practices in the New York area employed a combination of techniques to facilitate adoption of established influenza vaccination guidelines. They used education provided by a physician expert, multi-step group discussion involving feedback reporting and guideline implementation, and small-group consensus. The small-group consensus process increased physician vaccination rates by 34 percent compared with controls.32
A group of clinic-based practices participating in risk-sharing contracts in Minnesota designed a combination education and feedback program to help primary care physicians control drug and total health care costs. Interaction between physicians and participating pharmacists involved discussions about therapy options, prescribing data, and cost information. Feedback reporting included comparisons of prescribing patterns with other physicians within the clinic. Participating clinics demonstrated lower PMPM costs—total mean PMPM decreased from $12.07 to $10.13 the following year.33

Primary care physicians randomly selected from linked administrative databases in Canada received confidential feedback via mail about their individual prescribing data as compared to peer group data. The program also provided guidelines-based educational bulletins, which, in combination with the feedback reports, were found to improve drug selection and stabilize drug costs among participating physicians.34

Pharmacy Benefits Manager

Merck-Medco Managed Care, LLC, a PBM and provider of retail and mail pharmacy services, developed a computerized online criteria-based intervention integrated with one-to-one telephone educational outreach. A computerized database generated criteria-driven alerts—based on age, disease, and maximum daily dose—when potentially unsafe drugs were prescribed in elderly patients who used the mail-service pharmacy. Educational outreach involved a phone interaction between a Merck-Medco pharmacist and the prescribing physician to discuss the alert, possible therapeutic alternatives, and applicable withdrawal recommendations. Of the total number of alerts triggered during the course of the one-year study period, physicians were able to be contacted in regards to 56 percent of these alerts. Contacted physicians who opted to change the therapy at a subsequent time did so in more than 90 percent of targeted patients. Authors suggest that efforts to provide alerts to physicians at the point of care would bring about even greater changes in prescribing practices.35

A group of primary care practices increased physician vaccination rates by 34 percent using a small-group consensus process.
Even though physicians are free to override the formulary, Kaiser’s formulary compliance is assessed at a remarkable 98 percent.

THE FOLLOWING CASE STUDIES OF THREE HEALTH care organizations with innovative prescribing initiatives—Kaiser Permanente in Oakland, California; Allscripts, Inc. in Libertyville, Illinois; and Harriman Jones Medical Group in Long Beach, California—illustrate the use of both high tech and non-high tech approaches that bring interventions closer to the prescribing process. High tech programs involve the use of information systems or other technologies (such as handheld prescribing devices or computers); non-high tech programs emphasize in-person interactions (such as physician feedback and one-on-one counseling). Although these initiatives include the use of interventions that are considered traditional or conventional, (such as formulary management, physician education, feedback reporting, and financial incentives), the innovation is in the manner in which they are implemented.

Kaiser Permanente, Oakland, California

Kaiser Permanente (KP) is an integrated health care delivery system that uses technology and computer systems to bring patient-specific and other types of information (such as reports of prescribing patterns of a peer group and access to drug information) to the point of care.

The KP drug budget increased from 5 to 11 percent of the total program budget in California in the period from 1990 to 1999. California represents two-thirds of the total budget for the entire organization, so interventions aimed at improving prescribing behavior and optimizing cost-effective use of pharmaceutical costs have a high priority within the organization. In addition, KP physicians are increasingly feeling the influence of DTC advertising.

Program overview KP’s innovation lies in its sophisticated information systems, which allow physicians to access combined feedback and decision-support information at the time they generate prescriptions. KP has long recognized the value of shifting patient data to an IT-based database to better support physician decision making about patient care. Patients’ pharmacy records, X-ray results, and laboratory information are available electronically.
KP physicians in northern California facilities also have access to electronic patient information to assist in decision support at the point of prescribing. Clinical information related to specific diagnoses is collected from patients during each visit and entered into an electronic database. To determine the appropriateness of therapy for a specific patient, physicians apply evidence-based drug use algorithms to this database.

The KP computer system uses the resulting data to generate reports to physicians describing their prescribing trends and drug utilization patterns based on their patient demographics, with a comparison to the norm. These reports, which also include educational information such as drug therapy recommendations and cost, are faxed to the physician. At the time of prescribing, physicians can access this information to see how their colleagues typically treat patients with similar diagnoses and demographics. Such feedback reporting, with comparison to peers and/or benchmarks, is a powerful behavior change tool.

The next level of IT development for KP involves bringing patient medical records online and determining how physicians make decisions about patient care. For this most recent initiative, KP facilities in Colorado served as a pilot site for a comprehensive national clinical information system intended to eliminate the need for medical charts. Computer connectivity was established through mainframe terminals located in every examination room and personal computers installed in physician offices with access to the Internet. Implementation on a larger scale is scheduled for Southern California in 2001, followed by Northern California in 2002.

**Impact** The prescribing program in northern California is still relatively new and KP has not yet reported the impact on clinical or financial outcomes. However, the physician practice pattern feedback system and online availability of drug information appears to be an efficient means of bringing key information to the physician at the time prescriptions are generated, and it clearly has the potential to enhance quality of medication use.

**Next steps** KP will continue to add to its technological solutions to influence prescribing, including:

- A prescribing tool for physicians that allows for electronic (paperless) transmission of prescriptions to the pharmacy
- A computerized chart that electronically captures clinical information for the patient database, which will further increase access to patient information needed for appropriate prescribing decisions.

**Implications for other organizations** In terms of the adaptability of KP’s program to other settings, the following challenges exist:

- **Cost considerations.** KP has made a huge investment in developing a sophisticated, integrated information system that, in addition to many other functions, supports the prescribing program. Additional development over the next three years has been budgeted at $2 billion. While this magnitude of investment may represent a barrier for other organizations, it is possible that a less sophisticated information system may be sufficient to support a similar prescribing program.
Need for data integration. As an integrated health care delivery system, KP possesses the information it needs internally. For many other organizations, the same information may reside outside of the organization (for instance, pharmacy data may reside with a contracted pharmacy benefits manager, laboratory data with the clinical laboratory vendor) and may not be easily integrated at a patient-specific level.

Resources. Because KP had the existing infrastructure (IT staff, existing hardware/platforms) into which to “drop” its program to improve physician prescribing, it was able to leverage significant clinical and IT resources across multiple initiatives. For organizations seeking to implement only a prescribing program, the resources required for program development and implementation may not be as readily available.

Resistance. Because of the close relationship between the health plan and medical group, local KP opinion leaders/specialists are directly involved in developing the formulary and guidelines. As a result, KP achieves a high degree of physician buy-in throughout the organization. Even though physicians are free to override the formulary, KP formulary compliance is assessed at a remarkable 98 percent. In other organizations with more loosely affiliated physician networks, incentives may be necessary to gain cooperation and buy-in.

Allscripts, Inc., Libertyville, Illinois

Allscripts is a provider of point-of-care technology with an electronic prescribing product. Allscripts uses hand-held, wireless devices, and web-based capabilities to bring information—such as formulary status, drug-drug interactions, duplicate therapies, and generic alternatives—to the physician at the time he or she is generating the prescription.

The company’s primary clients are physicians in office-based practices. Medical groups seeking to manage pharmacy risk pools more efficiently are turning to point-of-care technology to increase formulary compliance and generic drug utilization. Other clients are PBMs seeking to influence prescribing practices among physicians who care for their members.

Program overview Allscripts offers an innovative approach to influencing prescribing by bringing information and decision support online, at the point of care. The Allscripts hand-held prescribing tool enables physicians to create and electronically transmit prescriptions, linking patient, diagnosis, and medication.

Using the device, linked to an on-site server, the physician selects a patient from a downloaded list of those scheduled to be seen that day, then selects the appropriate ICD-9 diagnosis from a list of diagnostic codes that he or she has previously written prescriptions for. A list of drugs the physician has commonly prescribed for the specific ICD-9 code appears on the screen. The program differentiates drugs that are on the patient’s insurance plan, including generic alternatives, from nonformulary choices by the use of a green symbol. After the physician selects the drug, he or she may choose the standard instructions for administration (amount, frequency, and duration of therapy), which the screen displays, or create a custom prescription. A review of
previously downloaded patient allergies, and prior history of adverse drug reactions, inappropriate dosing, and potential drug-drug interactions also appears on the screen.

Once the prescription has been created, an electronic version can be transmitted to a retail, mail-order, or online pharmacy for fulfillment or printed as a hard copy for the patient to take directly to a pharmacy.

**Impact**  A financial impact study independently prepared for Allscripts showed a savings of $0.75 to $3.20 per prescription generated from use of the prescribing tool compared to the cost of writing a paper prescription. Study investigators concluded that the savings came from two areas: increased prescribing of generic medications and enhanced formulary compliance. The difference in generic prescribing rates between physicians using and not using the device was 55 percent and 43 percent, respectively.

**Next steps**  Allscripts recently completed three acquisitions to extend its product offerings beyond electronic prescribing, which will allow physicians to:

- Prescribe, dictate, capture charges, and provide patient education using hand-held, and wireless technology
- View laboratory and diagnostic results, as well as edit transcripts and search for clinical references from a laptop or desktop computer
- Create a personalized Web page for each patient containing detailed care instructions, a medication history, and the capability for communication between patient and physician.

**Implications for other organizations**  Adaptability of this technology to multiple sites of care is linked to the availability of financial resources, integration with existing health care infrastructures, and physician acceptance.

**Cost considerations.**  Costs to implement and maintain electronic prescribing devices can be substantial. Implementation costs include an installation fee as well as a monthly fee that includes hardware, software, an office-based server, and radio frequency office network connectivity. The physician’s office is required to have access to the Internet and a dial-up connection for system software upgrades and other maintenance. Although various health care entities stand to benefit from this technology—physician users, health plans, PBMs, and pharmaceutical companies—it is yet to be clearly defined as to who will bear these costs.

**Need for data integration.**  Interfaces may be required to link Allscripts technology with existing information systems. The need to build and maintain the patient database may also be a challenging effort unless an existing database is readily available and easily integrated. Although electronic transmission of prescriptions is possible, very few pharmacies are actually capable of receiving prescriptions in this manner and need to rely on traditional faxed or hard copy documents.

**Resources.**  The financial outlay for installation and ongoing maintenance can be substantial. Additionally, initial physician and office staff training as well as input of patient information into a database can be time consuming and can undermine physician confidence in the routine use of these prescribing tools. Integration of these systems into existing office infrastructures, which may initially disrupt office practices and workflow, will also likely deter user acceptance.

**Resistance.**  Electronic prescribing may appear to be time consuming and cumbersome to physicians accustomed to writing prescriptions in a matter of seconds.
Harriman Jones Medical Group, Long Beach, California

To influence prescribing practices, Harriman Jones Medical Group (HJMG) relies on a combination of non-high tech interventions (such as feedback reports and counseling) generally delivered as in-person visits or contacts with physicians, as well as formulary management and restricted pharmaceutical detailing. A full-time clinical pharmacist coordinates and enforces interventions to more effectively manage pharmacy risk.

HJMG assumed risk for drug benefits between 1993 and 1994, and sustained a six-figure loss to one health plan alone after the first year. Forced to re-evaluate its ability to manage pharmacy risk contracts, the medical group hired a full-time pharmacist to facilitate meeting its financial targets. By 1997, HJMG had achieved a positive turnaround and in the subsequent year, a profit was realized.

Program overview A combination of physician feedback and one-on-one counseling with the medical director is a key intervention. To support this effort, the clinical pharmacist collects and analyzes prescribing data from health plan pharmacy claims reported on a physician-specific basis. Reports contain prescription information on a per-patient and per-visit basis, including drug cost, generic utilization, target drug comparison, and a listing of all prescribed medications by cost. With support from the medical director, the pharmacist evaluates these reports and prepares physician report cards two or three times per year that compare individual performance with peers and highlight opportunities for improvement. These report cards are shared with the appropriate department chairperson. The pharmacist also attends the group’s staff meetings, an effective forum for providing reminders to physicians.

An internally developed formulary supported by the HJMG P&T Committee promotes the use of generic medications and preferred agents. In selecting formulary drugs, the committee gives priority to agents represented on 80 percent or more of health plan formularies, and uses clinical effectiveness as the criterion to differentiate drugs represented on 60 to 70 percent of health plan formularies. If no clinical advantage between agents is evident, average wholesale price (AWP) becomes the deciding factor. The committee also promotes over-the-counter drugs, when clinically appropriate, to reduce drug utilization expenses.

Improvements in appropriate prescribing have also come from restricting access to pharmaceutical representatives at HJMG. Pharmaceutical representatives are allowed entry only to meet with the pharmacist or to sponsor on-site health care related programs for patients and approved physician education programs. Similar motivations are behind the restriction on storage and distribution of medication samples at HJMG.

Impact Over a four-year period, HJMG began with PMPM costs similar to the health plan network average and ended in 1999 with PMPM costs $5.00 below the network average. This accomplishment was attributed to:

- Changes in physician attitudes
- Strong physician leadership
- Promotion of clinically appropriate care
- Review of risk contracts.
Next steps  HJMG plans continued vigilance of pharmacy risk contracts to ensure that they are aligned with the financial goals of the organization, while maintaining clinically appropriate prescribing practices.

One area that offers significant opportunities for improvement is the use of injectable medications. Injectable drugs are estimated to account for 10 to 20 percent of the pharmacy budget and HJMG is 100 percent at risk for their use. However, utilization information is lacking; existing reporting systems provide only product descriptions and do not have the ability to capture prescriber information.

Implications for other organizations
HJMG is structured as a controlled environment, in terms of physical plant, medical leadership, and access to physicians. This environment facilitates the implementation of interventions that require in-person interactions such as counseling and education. The presence of an on-site pharmacy also helps promote the group’s clinical programs by reinforcing prescribing of preferred drugs and generic products. Similar efforts may be more difficult to maintain in a less organizationally and physically cohesive setting. For example, restricted access to pharmaceutical representatives is more easily achieved in a single-site facility such as HJMG’s where the number of building entrances is limited.

Cost considerations. Implementation costs are not available, although the reliance on in-person interactions and delivery of information in hard-copy format could be expected to impact staffing and supply resources. There may also be expenses associated with the collection and reporting of prescribing data; HJMG recently outsourced its data report generation.

Need for data integration. Access to pharmacy data is through the health plan, although these data are not integrated across health plans/PBMs. Data analyses and verification for accuracy is completed by the pharmacist, a time consuming and labor-intensive process that occasionally falls short of quarterly reporting goals.

Resources. Challenges include managing the pharmacist resources needed to support the analysis of pharmacy claims data, verification of the accuracy of physician reports, and completion of the report process on a quarterly basis. Report accuracy and timeliness is essential to the credibility and relevance of the prescribing information presented. Direct patient care activities are coordinated by yet another clinical pharmacist. Given the present shortage of pharmacists, implementation of pharmacist-based programs may be challenging for some health care organizations.

Resistance. Physician involvement and support at all levels of the organization is critical to the implementation of these interventions. One-on-one interactions between physicians and the medical directors to discuss feedback reports and report cards have been effective in bringing home messages about desired prescribing practices. Such leadership involvement may be more difficult to achieve in a more loosely organized medical group or network of medical groups.
VIII. Key Success Factors

Regardless of differences in organizational infrastructure, operational processes, and health care focus, there are common factors that contribute to the success of initiatives directed at influencing prescribing patterns. Table 6 reviews these key factors and shows how they have been incorporated into innovative programs.

Table 6. Key Factors of Innovative Programs

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<thead>
<tr>
<th>Key Factors</th>
<th>How Key Factors Are Incorporated into Innovative Programs</th>
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<tr>
<td><strong>Alignment of Incentives</strong></td>
<td>■ Programs are based on a clinical foundation established by a medical staff-driven P&amp;T committee, which usually is charged with drug efficacy and safety issues foremost, and financial issues secondarily.</td>
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<tr>
<td>An emphasis on “doing the right thing” and selecting “the right drug for the right patient” drives the success of these initiatives. Physicians, through a process of education, access to decision-support tools, and empowerment to make decisions based on their clinical judgment, are more likely to comply with measures aimed at influencing prescribing behavior.</td>
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■ Innovations focus on effective and efficient means of bringing clinical information (both general drug education as well as patient-specific information) closer to the point of the drug selection decision.

| **Physician Buy-in**          | ■ For a number of the innovative programs, particularly those developed at the medical group level, local physicians were highly visible during the development and/or implementation process, often delivering education messages and feedback to prescribers. This face-to-face interaction is a far more effective intervention than letters or telephone messages from a distant entity. |
| Enlisting support from physicians—rather than using a “hammer” approach to unilaterally dictate drug selection—facilitates the acceptance and adoption of these initiatives. Physicians need to feel a part of the process and have a stake in its success by engaging in activities such as developing and approving formularies. Buy-in is also based on an awareness of the financial impact resulting from inappropriate prescribing. Successful programs feature a high visibility role for key physicians. |
| ■ Other innovative programs achieved physician buy-in by developing processes to enhance physician efficiencies. The use of electronic prescribing devices decreases calls from the pharmacy to clarify illegible or incomplete prescriptions or to change therapies based on drug coverage issues. Integrated medical information systems allow the physician to quickly and efficiently access all needed information for a given patient and minimize the need to request medical records or call various departments (laboratory or pharmacy) for information. |
Table 6. Key Factors of Innovative Programs, cont’d

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<thead>
<tr>
<th>Key Factors</th>
<th>How Key Factors Are Incorporated into Innovative Programs</th>
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<tr>
<td><strong>Committed Medical Leadership</strong></td>
<td>Participation of medical directors through personal, one-on-one sessions with prescribers was essential for success, particularly for the non-high tech initiatives.</td>
</tr>
<tr>
<td><strong>Clear and Simple Educational Messages</strong></td>
<td>The centerpiece of many of the non-high tech initiatives is physician feedback reports that not only describe the physician’s practice pattern, but include recommendations on how to modify practice patterns. For example, an effective physician report highlights the use of nonformulary drugs and includes information about available alternatives that are clinically superior and/or offer financial advantages.</td>
</tr>
<tr>
<td></td>
<td>High tech innovations provide simple, directive messages that are easy to access on a patient-specific basis (for example, formulary coverage for a patient in Health Plan A) and make simple recommendations regarding dosing, avoidance of drug interactions, etc. The provider is then able to prescribe more efficiently by referring to a single source for decision support, rather accessing multiple sources of information (such as formularies and drug dosing guidelines).</td>
</tr>
</tbody>
</table>

Physicians are barraged with information—from patients, pharmaceutical representatives, and other sources. They need educational messages that combine clinical and financial information, delivered in a clear, simple, and concise manner. Point-of-care technology takes advantage of this method of communicating with physicians by using simple graphics and symbols in its application.
Endnotes


Appendix A: Trade Journals and Newsletters Reviewed

Accountability Action (FACCT)
Data Strategies & Benchmarks
Disease Management News
Drug Topics
E-Healthcare Connections
Healthcare Demand & Disease Management
Healthcare Practice Management News
Healthcare Trends Report
Jenks Healthcare Business Report
Journal of Managed Care Medicine
Managed Care Week
Managed Healthcare News
Med Ad News
Medical Management Network
Medical Outcomes & Guidelines Alert
Medicine on the Net
OTC Pharmacy Trends
Pharmaceutical Executive
Pharmacy Reimbursement/Disease Management
Value in Health—The Journal of the International Society for Pharmacoeconomics and Outcomes Research
## Appendix B: Interviewees: Primary Market Research

<table>
<thead>
<tr>
<th>Title/Name of Organization</th>
<th>Covered Lives</th>
<th>Region</th>
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<tbody>
<tr>
<td><strong>Health Plan</strong></td>
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<tr>
<td>Director of Physician Education &amp; Development</td>
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<td>National</td>
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<tr>
<td>Kaiser Permanente</td>
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<tr>
<td>Director of Pharmacy Administration</td>
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<td>Northwest</td>
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<td>Group Health Cooperative</td>
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<td>Medical Director, CIGNA HealthCare</td>
<td>6,500,000</td>
<td>National</td>
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<tr>
<td>Medical Director for Quality Management</td>
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<td>CIGNA Healthplan of California</td>
<td>700,000</td>
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<td>Medical Director, Aetna-U.S. Healthcare</td>
<td>650,000</td>
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<td>Medical Director, Health Net</td>
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<td>Medical Director, Pacificare</td>
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<tr>
<td>Medical Director, United Healthcare</td>
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<tr>
<td>Medical Director, Medica Health Plans</td>
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<tr>
<td>Medical Director, Harvard Pilgrim Health Care</td>
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<td><strong>Medical Groups</strong></td>
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<td>Vice President Medical Affairs</td>
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<td>Brown and Toland Medical Group</td>
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<td>Chief Operating Officer</td>
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<td>Santa Monica Bay Physician Health Services</td>
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<td>Medical Director, Bright Medical Associates</td>
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<td>Medical Director, CAP Management Systems</td>
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<tr>
<td><strong>Pharmacy Benefit Managers/Other</strong></td>
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<tr>
<td>Director of Clinical Drug Programs, Pharmacare</td>
<td>10,000,000</td>
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<tr>
<td>Director of Disease Management &amp; Outcomes Research</td>
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<td>Wellpoint Pharmacy Management</td>
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<tr>
<td>Vice President of Clinical Services, Express Scripts, Inc.</td>
<td>40,000,000</td>
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<tr>
<td>Director of Clinical Services, Omnicare</td>
<td>N/A</td>
<td>National (SNF)</td>
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