

Research Highlights

Cost Sharing Cuts Employers' Drug Spending—but Employees Don't Get the Savings

Putting the brakes on drug costs

Spending on outpatient prescription drugs has increased at double-digit rates for the past decade and is now the third largest component of health care expenses after hospital care and physician services. In an attempt to control costs, many employers and insurers have adopted incentive-based formularies, in which drugs are placed in different tiers. Under these arrangements, most drugs are covered, but enrollees have different co-payments depending on the tier to which a drug is assigned.

Do increased patient cost sharing and formulary restrictions reduce pharmaceutical use and costs? To answer this question, a RAND team led by economist Geoffrey Joyce examined more than 700,000 person-years of data on beneficiaries enrolled in health plans from 25 private employers. The study is the largest ever conducted involving non-elderly patients enrolled in employer-sponsored health plans.

The study's key findings:

- Increasing co-payments causes consumers to use less medication and less-expensive drugs.
- Higher co-payments do cut costs, but
- Most of the savings go to health insurance plans, not to consumers.

How do incentive-based formularies work?

With incentive-based formularies, members pay different co-payments or coinsurance rates based on the status of a drug. Table 1 lists some of the most common benefit designs and their associated co-payments.

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Table 1. Description of Drug Benefit Plans and Most Common Co-Payments

Type of Plan	Description	Type of Drug		
		Generic	Preferred Brand	Nonpreferred Brand
One-tier co-payment	Single co-payment	\$6	\$6	\$6
Two-tier co-payment	Separate co-payments for generic and brand drugs	\$5	\$15	\$15
Three-tier co-payment	Separate co-payments for generic, preferred brand, and nonpreferred brand drugs	\$5	\$10	\$25
Coinsurance	Single coinsurance rate	30%	30%	30%

In one-tier plans, members pay a single co-payment for all drugs. Two-tier benefit designs have lower co-payments for generic drugs to encourage their use. Some benefit designs further differentiate by adding a third tier for more-expensive or less-effective brand name medications. In these three-tier plans, generic drugs typically have the lowest co-payment, formulary or preferred brands have a midrange co-payment, and non-formulary brands have the highest co-payment.

In all of these incentive-based formularies, savings result from shifting members' drug use to generics or preferred brands, for which the health plans have negotiated favorable rates, and by increasing patients' cost sharing.

Other tools to control drug spending include coinsurance and mandatory generic substitution. Coinsurance, in which consumers pay a fixed percentage of a prescription's costs, is attractive to employers because, unlike fixed co-payments per prescription, coinsurance rates keep pace with rising drug costs.

In benefit packages that include mandatory generic substitution, members who choose brand drugs over their generic equivalents generally must pay the generic co-payment plus the full difference in cost between the brand and generic drugs.

Assessing the cost effects of incentive-based formularies

To examine how incentive-based formularies affect pharmaceutical costs, RAND team members assembled a unique data set linking health care claims to health plan benefits. They obtained 1997-1999 claims data from 25 private employers. The resulting study sample consisted of more than 700,000 person-years of data on about 421,000 beneficiaries aged 18 to 64 who were continuously enrolled in a plan for one, two, or three years.

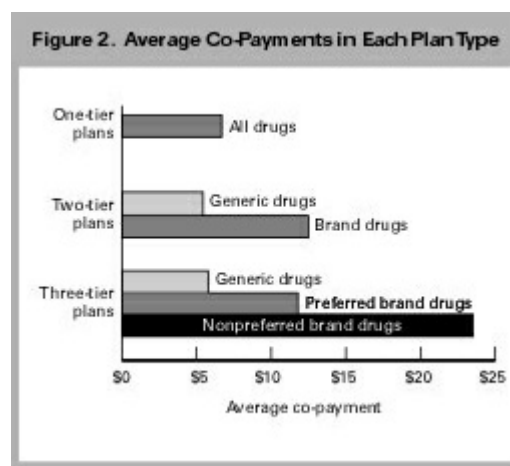
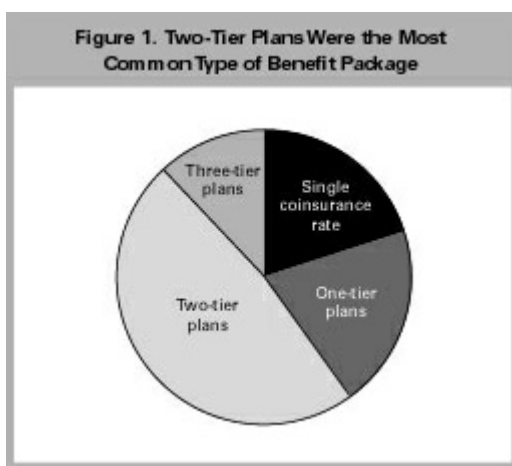
Claims data included information on the type of drug, place of purchase, and expenditures—billed charges, negotiated discounts, excluded expenses, deductibles, co-payments, payments made by the employer or employee, and other third-party coverage.

To examine how the drug benefit design affected drug expenditures, the researchers linked the claims data with information about drug and medical plan benefits. The drug benefit

design features they examined included co-payments or coinsurance rates for both retail and mail-order pharmacies, generic substitution rules, and a list of drugs or drug classes excluded from coverage. The researchers then built a simulation model to predict drug spending by health plans and beneficiaries under alternative benefit designs and cost-sharing arrangements.

Description of drug benefit packages

Of the 75 plans studied, 15 had coinsurance requirements, with rates of 20 percent or 30 percent. Figure 1 shows how the remaining 60 plans were distributed across benefit types. Two-tier designs were by far the most common. Figure 2 shows the average co-payment for each type of plan.



The 15 one-tier plans had an average co-payment of \$6.67, with a minimum of \$2 and a maximum of \$10. For two-tier plans, average co-payments were \$5.47 for generic drugs and \$12.51 for brand medications. Three-tier plans had similar co-payments in the first two tiers. However, the average co-payment for nonpreferred brand drugs in three-tier plans was nearly \$24.

How benefit designs affect total drug spending

The research team examined how co-payments and coinsurance rates affected total drug spending and expenditures on generic and brand drugs. They found that increasing co-payments in any of the benefit designs significantly reduced spending. For example, increasing a single co-payment from \$5 to \$10 cut annual per-person spending from \$725 to \$563, or more than 20 percent. Similarly, doubling co-payments in multi-tier plans reduced average drug spending by about one-third. Because patients were paying more of the drug costs out of their own pockets, they reduced their use of both generic and brand name drugs.

Adding tiers also significantly reduced average drug spending. For example, moving from a one-tier plan with a co-payment of \$10 to a two-tier plan with co-payments of \$10 for generic drugs and \$20 for brand medications lowered average annual drug expenses from \$563 to \$455 per member, or about 19 percent.

Other changes cut costs less dramatically. Requiring mandatory generic substitution in two-tier plans cut costs by 8 percent, while adding a third tier with incremental co-payments of \$10 cut costs by just 4 percent.

Who benefits from lower spending on drugs?

Even though co-payments rose under these plans, overall costs to patients remained about the same because patients used fewer prescription drugs. But the share of drug spending borne by patients and health insurance plans under alternative cost-sharing arrangements changed dramatically. For example, doubling co-payments in a two-tier plan increased the fraction of drug costs members paid out-of-pocket from 18 percent to 26 percent.

"The measures that health plans have put in place do lower drug expenditures," said Joyce. "But just about all of the cost savings accrue to the health plan and not to the patient." Table 2 below illustrates where the savings go.

For example, doubling co-payments in two-tier plans saved insurance plans \$220 per member annually but saved patients just \$3 because they bought fewer medicines. Adding a third co-payment saved plans \$44 per year, but cost patients \$25 more.

The future of incentive-based formularies

There is optimism among some health insurance plans and providers that three-tier benefits will dampen the rapid growth in drug spending. The researchers found that adding a third co-payment for nonpreferred brand drugs had only a modest effect on drug spending. They note, however, that the potential savings from a three-tier benefit depend on where drugs are placed in the tiers and on utilization patterns within a plan. Currently, drugs are often placed in tiers based on the cost of ingredients and manufacturer rebates rather than on clinical outcomes. As a result, pharmacy benefit managers and their sponsors may be designing prescription drug benefits that reduce the costs of pharmaceuticals but actually increase overall medical costs.

In this study, consumers responded to higher co-payments by reducing their use of prescription drugs. Whether this has adversely affected clinical outcomes is uncertain. Several studies found that spending caps and formulary restrictions reduced use of both essential and nonessential medications among low-income and elderly groups. However, few studies have found a consistent link between higher co-payments and patients' health.

Table 2. Cost Effects of Prescription Benefit Design

Current Benefit	New Benefit	Reduction in Total Rx Spending	Savings to Plan	Savings or Loss to Consumer
Increasing co-payments				
\$5 co-payment for all drugs	\$10 co-payment for all drugs	22%	\$165	\$-3*
\$5 generic, \$10 brand	\$10 generic, \$20 brand	33%	\$220	\$3
\$5 generic, \$10 preferred brand, \$15 nonpreferred brand	\$10 generic, \$20 preferred brand, \$30 preferred brand	35%	\$237	\$-7*
Adding tiers				
\$10 co-payment for all drugs	\$10 generic, \$20 brand	19%	\$98	\$10
\$10 generic, \$20 brand	\$10 generic, \$20 preferred brand, \$30 nonpreferred brand	4%	\$44	\$-25*
Requiring generic substitution				
\$10 generic, \$20 brand	Require generic substitution	8%	\$35	\$1
* Consumer pays more than before the change in benefit.				

Findings from this study suggest that patients will continue to see higher out-of-pocket expenses for prescriptions and more restrictions on the types of drugs that insurance plans cover. "We are moving to a system where if patients want new brand drugs, they will have to pay more money out of their own pocket," said Dana Goldman, director of health economics at RAND. "In many cases, you will not be able to get the exact drug your doctor wants you to have, unless you are willing to pay more money."

The findings are useful to both health plans and policymakers. "All benefit managers want to know what is likely to happen when they change benefit designs," Joyce said. "In the past, they have had few objective data to depend on." The study found that raising co-payments by \$10 or \$20 changed patients' behavior. This suggests that policymakers should be very careful when they change plans for low-income consumers because those consumers may react to even smaller changes in co-payments.

The researchers are following up this work by examining whether patients with common chronic conditions such as diabetes or hypertension, which require a daily array of medications, respond differently to drug benefit changes. They are also following those patients over time to see if these changes affect health outcomes.

This Highlight summarizes RAND research reported in the following publication: Joyce GF, Escarce JJ, Solomon MD, Goldman DP. Employer Drug Benefit Plans and Spending on Prescription Drugs. JAMA. 2002;288(14):1733-1739.

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