Prescription Drug Coverage And Seniors: How Well Are States Closing The Gap?

The existence of substantial differences in depth and availability of coverage is a compelling reason to seek a national drug-coverage solution for the elderly.

by Dana Gelb Safran, Patricia Neuman, Cathy Schoen, Jana E. Montgomery, Wenjun Li, Ira B. Wilson, Michelle S. Kitchman, Andrea E. Bowen, and William H. Rogers

ABSTRACT: As policymakers debate adding a drug benefit to Medicare, many states are attempting to provide drug coverage for low-income seniors through Medicaid and state-funded pharmacy assistance programs. This 2001 survey of seniors in eight states finds marked differences among states in the percentage of seniors with coverage and in the sources providing coverage. Among low-income seniors, a range of 20 percent (New York and California) to 38 percent (Michigan and Texas) lacked drug coverage. In all states Medicaid was an important source of coverage for the poor, but the depth of Medicaid drug coverage varied widely across states. Even states with pharmacy assistance programs fell far short of closing the prescription coverage gap for low-income seniors. Finally, the study finds that classifying beneficiaries as either having coverage or not misses major differences in depth of coverage, with some sources of coverage appearing only marginally better than no coverage at all. With erosion of state and private sources of prescription benefits expected, the findings speak to the need for a national policy solution.

THE ABSENCE OF A MEDICARE DRUG BENEFIT is widely regarded as a problem that needs to be addressed. The 107th Congress is actively debating whether to add a prescription drug benefit to Medicare and, if so, how to structure and finance it. In the meantime, Medicare beneficiaries rely on a range of supplemental sources to help with their drug expenses.[1] Although these supplemental sources help to fill Medicare's coverage gaps, seniors nationwide now face

Dana Safran directs the Health Institute at Tufts–New England Medical Center in Boston. Jana Montgomery is a senior research associate there; Wenjun Li is a statistician; Andrea Bowen is a research assistant; and William Rogers is a senior scientist. Ira Wilson is an associate professor of medicine at Tufts University School of Medicine. Patricia Neuman is vice-president and director of the Medicare Policy Project, Henry J. Kaiser Family Foundation, in Washington, D.C.; Michelle Kitchman is a senior policy analyst there. Cathy Schoen is vice-president for health policy at the Commonwealth Fund in New York City.

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an erosion of prescription benefits under many sources, including retiree health plans, Medicare+Choice plans, and Medigap.[2] With the recent rise in Medicaid prescription drug costs, states are looking to curtail drug spending, which could jeopardize current coverage for low-income seniors. National data reveal that it is the near-poor on Medicare, those with incomes too high to qualify for Medicaid, who most often lack drug coverage.[3]

Against this backdrop, states continue to offer assistance, particularly to low-income seniors. In all states Medicaid provides prescription drug coverage to the poorest seniors, although states vary widely in their Medicaid eligibility criteria and in the depth of drug coverage provided.[4] Twenty-one states have implemented pharmacy assistance programs that subsidize drug benefits for low-income Medicare beneficiaries, and four additional states have implemented prescription discount programs.[5] As with Medicaid, state pharmacy assistance programs vary widely in their eligibility requirements and the benefits provided.[6]

As the national debate over a Medicare drug benefit proceeds, there is considerable interest in the effect of states' efforts to meet the needs of seniors, particularly the twelve million seniors with incomes below 200 percent of the federal poverty level. Yet state-level data concerning drug coverage are unavailable. In particular, little is known about the experiences of low-income seniors and how these differ by state, given considerable differences in state programs and policies.

This study reports results from a 2001 survey administered by mail to a sample of noninstitutionalized seniors in eight geographically diverse states. The eight states account for 42 percent of U.S. adults age sixty-five and older and 41 percent of low-income elderly adults.[7] The study states vary widely in their policy efforts to meet the prescription needs of low-income seniors (Exhibit 1). The sample includes four states with state-funded pharmacy assistance programs (Illinois, Michigan, New York, and Pennsylvania) and four states without such programs (California, Colorado, Ohio, and Texas). In selecting program states, we limited the sample to states with mature programs (established before 1998), and among these states, we selected four that offered as much geographic diversity as possible.[8] At the time of sampling, these four program states accounted for 56 percent of state pharmacy assistance program enrollees nationwide.[9] In selecting states without programs, we excluded those that were in the process of implementing a program, and among the remaining states, we prioritized those with large elderly populations, a range of Medicaid eligibility and benefit characteristics, and geographic diversity. The resulting sample of eight states offers a useful base from which to address the following questions: How well are states closing the prescription drug coverage gap for seniors—especially for low-income seniors? How do low-income seniors' experiences vary by source of drug coverage? Do the experiences of low-income seniors with a given source of drug coverage vary by state?

EXHIBIT 1
Demographics, Medicaid Program Characteristics, And Pharmacy Assistance Program Characteristics For The Eight Study States, 2001

	IL	MI	NY	PA	CA	CO	OH	TX
Demographics								
Age 65+ (millions)	1.3	1.2	2.4	1.7	3.4	0.4	1.4	1.9
Percentage 65+ below poverty	13%	11%	18%	11%	13%	8%	10%	19%
Program features								
Medicaid								
Income eligibility (percent of poverty)[a]	85%	100%	87%	100%	135%	79%	67%	74%
Medically needy (percent of poverty)[a]	40%	57%	87%	59%	84%	No program	No program	No program
Rx benefits								
Formulary	Closed	Closed	Open	Open	Closed	Closed	Closed	Closed
Monthly Rx limit[b]	None	None	None	None	6	None	None	3
State pharmacy program[c]								
Enrollment[d]	145,089	12,000	234,916	234,711				
Eligibility, single (percent of poverty)[a]	≤247%	≤150%; monthly Rx costs >10% of income	≤407%	≤186%				
Annual enrollment fee	$5 or $25	None	$8–$300[e]	None				
Limits on benefit (beyond copayments, deductibles, and formularies	Only select conditions covered; senior pays 20% after $2,000 paid by program	Coverage limited to 3 months per year	None	None				

SOURCES: Kaiser/Commonwealth/Tufts-New England Medical Center, Eight-State Study of Seniors' Prescription Coverage, Use, and Spending, 2001. State data derived from Urban Institute and Kaiser Commission on Medicaid and the Uninsured analysis of 1998, 1999, and 2000 Current Population Surveys; National Association of State Medical Directors, "Aged, Blind, and Disabled State Summaries," October 2001, medicaid.aphsa.org/research/ABD/abd.htm (25 June 2002); National Pharmaceutical Council, "Pharmaceutical Benefits under State Medical Assistance Programs, 2000," www.npcnow.org/issues_productlist/medicaidpharmaceutical.asp (25 June 2002); National Governors Association, "State Pharmaceutical Assistance Programs," December 2001, www.nga.org/cda/files/STATEPHARM.pdf (25 June 2002); National Conference of State Legislatures, "State Senior Pharmaceutical Assistance Programs," July 2001, www.ncsl.org/programs/health/drugaid.htm (15 December 2001 and 25 June 2002); and personal communication with state Medicaid offices.

[a] For states where 2001 income eligibility requirements were in dollar terms, they were converted to a percentage of the 2001 federal poverty level, which was $8,590 for singles and $11,610 for couples.

[b] The monthly prescription limit for California Medicaid may be overridden with prior authorization from a physician. The monthly prescription limit for Texas Medicaid is fixed, although a six-month supply may be obtained and only counts toward one month's allocation.

[c] California offers a discount on retail price of drugs for Medicare beneficiaries but does not subsidize the purchase of drugs and thus is not considered a state pharmacy assistance program for the purposes of this study.

[d] The number enrolled in Illinois's program includes nonelderly disabled. All other state program enrollment figures reflect elderly only.

[e] For beneficiaries with incomes of 233–407 percent of poverty, a deductible ($530–$1,715) is charged instead of the enrollment fee.

Study Methods

Data for sampling were provided by the Centers for Medicare and Medicaid Services (CMS). For each state the CMS provided a 10 percent probability sample

of noninstitutionalized Medicare beneficiaries age sixty-five and older. CMS data included a current buy-in code for each beneficiary, indicating whether the state was buying Medicaid coverage for that person and, if so, designating full or partial Medicaid coverage. Because a central goal of the study was to enable cross-state comparisons of low-income seniors, we oversampled those enrolled in Medicaid and those residing in low-income neighborhoods. To identify low-income neighborhoods, we linked the CMS file to 1990 U.S. census data through geocoding.[10] Data at the Census Block Group level were used to designate whether or not each beneficiary resided in a high-poverty neighborhood (that is, one in which 30 percent or more of residents had incomes below 200 percent of poverty). With the linked CMS and census data, we defined four strata for sampling: (1) beneficiaries with full Medicaid benefits, (2) beneficiaries with partial Medicaid benefits, (3) beneficiaries without Medicaid benefits who reside in a high-poverty neighborhood, and (4) beneficiaries without Medicaid benefits who do not reside in a high-poverty neighborhood. In each state we randomly sampled from within each stratum, with a fixed allocation from each—oversampling Medicaid enrollees and seniors in low-income neighborhoods (strata 1, 2, and 3). The starting sample included 24,950 Medicare beneficiaries.[11]

The survey was administered in English and Spanish between 15 May and 23 August 2001 using a standard five-stage survey protocol involving mail and telephone.[12] After we account for beneficiaries excluded because of death, institutionalization, relocation, non-English/Spanish language, or severe cognitive or physical impairment, the response rate was 55 percent (N = 12,100).[13]

The survey instrument focused on prescription drug coverage, use, and out-of-pocket spending and included additional questions on health status, income, and other sociodemographic characteristics, drawing from instruments that had been extensively tested and validated.[14] Beneficiaries who reported having no prescription drug coverage but whom the CMS indicated to have full Medicaid benefits (n = 115) were designated as having Medicaid prescription drug coverage. For beneficiaries reporting more than one source of drug coverage, a primary coverage source was assigned based on the following hierarchy: Medicaid, employer-sponsored, health maintenance organization (HMO), Medigap, state prescription program, Department of Veterans Affairs (VA)/Department of Defense, and other. In this hierarchy, the leading sources of drug coverage supercede more minor sources, and among the leading sources, those offering more comprehensive coverage supercede those offering less. For persons with more than one source of drug coverage, this system enables us to attribute their experiences and out-of-pocket costs to the source that has the largest influence on their overall coverage experiences.

A three-level poverty variable was defined based on self-reported income and marital status: (1) poor, income up to 100 percent of the federal poverty level; (2) near poor, income 101–200 percent; and (3) nonpoor, income greater than 200 percent. Throughout this paper, we use the term *low-income* to refer to persons with

incomes up to 200 percent of poverty. For respondents with missing income data (about 10 percent), income was imputed based on Buck's Method.[15]

We used a combination of bivariate and multivariate methods to examine state-level differences in rates and sources of prescription drug coverage, the effect of drug coverage on medication use and out-of-pocket spending, and rates of cost-related medication skipping. The analytic sample included all respondents for whom required data elements were present (N = 10,416). We report bivariate results in the exhibits and summarize multivariate results in the text. In most cases, multivariate adjustment strengthened the observed findings, which suggests that the bivariate results reported here are conservative. Probability sampling weights, defined as the inverse of the sampling probability, were applied to all analyses to correct for unequal sampling probabilities across states and strata. The statistical software used (STATA 7.0) takes these weights into account when computing standard errors. Rates of poverty and minority race/ethnicity observed in each state accord with those reported by the Current Population Survey (Exhibit 1), which suggests that representation of income groups and minorities achieved by this study was highly representative of each state's elderly population.[16]

Study Findings

■ **Prescription drug coverage.** The study data reveal considerable state-level variations in both the percentage of seniors with prescription drug coverage and the sources of coverage, particularly for low-income seniors (Exhibit 2). Seniors in California, New York, and Pennsylvania were least likely to lack drug coverage, while those in Texas and Illinois were the most likely to lack coverage.[17] Among poor seniors, state-level differences in the percentage lacking drug coverage were even larger, ranging from 11 percent in New York to 38 percent in Michigan and Colorado. In most states near-poor seniors were most likely to lack prescription drug coverage, and in all states seniors with higher incomes (more than 200 percent of poverty) were least likely to lack drug coverage.

States differed considerably from one another in the mix of sources providing coverage to seniors. For example, approximately half of seniors in Michigan and Ohio received drug coverage through an employer-sponsored plan—likely because of the concentration of auto, steel, and other manufacturing industries in these states—while employer-sponsored plans played a much smaller role in the remaining states. Medicare HMOs were a leading source of drug coverage in California (30 percent) and Colorado (24 percent)—likely reflecting the availability of Medicare HMOs offering low- or no-cost drug benefits in these states in 2001. In the other six states fewer than 15 percent of seniors reported HMO-based drug coverage.

Similarly, among seniors with incomes below 200 percent of poverty, differences in the mix of sources providing coverage were noteworthy (Exhibit 2), and the share of seniors without coverage appears to be largely a product of the partic-

EXHIBIT 2
Sources Of Prescription Drug Coverage, By Poverty Status And State, 2001

	IL	MI	NY	PA	CA	CO	OH	TX
Total	N = 1,004	N = 1,128	N = 1,605	N = 1,085	N = 2,380	N = 1,181	N = 985	N = 1,048
None	31%	25%	19%	21%	18%	23%	22%	31%
Medicaid	2	4	7	3	11	4	2	7
Employer	38	50	42	33	30	32	47	31
HMO	7	5	9	14	30	24	12	11
Medigap	9	11	10	14	7	10	11	10
State drug program	8	1	9	9	—[a]	—[a]	—[a]	—[a]
VA or Defense Department	3	2	2	3	3	5	4	7
Other	2	2	2	3	1	2	2	3
Poor[b]	n = 260	n = 332	n = 511	n = 306	n = 407	n = 300	n = 256	n = 321
None	33%	38%	11%	16%	16%	38%	31%	33%
Medicaid	14	32	45	25	56	34	16	44
Employer	9	13	9	13	8	6	25	6
HMO	7	3	6	16	14	14	14	7
Medigap	7	11	9	6	4	4	10	4
State drug program	23	0	12	22	—[a]	—[a]	—[a]	—[a]
VA or Defense Department	3	1	1	0	1	0	3	4
Other	3	2	5	3	1	4	1	3
Near poor[b]	n = 292	n = 329	n = 417	n = 360	n = 752	n = 328	n = 329	n = 258
None	34%	38%	25%	27%	21%	25%	30%	41%
Medicaid	1	2	2	1	24	3	1	1
Employer	27	41	30	24	17	25	31	22
HMO	11	5	12	15	28	31	14	17
Medigap	11	9	10	13	7	8	17	10
State drug program	12	1	14	15	—[a]	—[a]	—[a]	—[a]
VA or Defense Department	2	3	4	2	1	6	5	6
Other	2	1	2	2	1	2	2	4
Total low income[b]	n = 552	n = 661	n = 928	n = 666	n = 1,159	n = 628	n = 585	n = 579
None	34%	38%	20%	25%	20%	28%	30%	38%
Medicaid	4	10	16	7	33	10	5	17
Employer	22	33	23	21	15	21	29	16
HMO	10	4	10	15	24	27	14	13
Medigap	10	10	10	12	6	7	15	8
State drug program	15	1	13	17	—[a]	—[a]	—[a]	—[a]
VA or Defense Department	3	2	3	1	1	4	5	5
Other	2	2	3	3	1	3	2	4

SOURCE: Kaiser/Commonwealth/Tufts-New England Medical Center, Eight-State Study of Seniors' Prescription Coverage, Use, and Spending, 2001.

NOTES: Among nonpoor seniors (income above 200 percent of poverty), the percentage without prescription drug coverage in each state was as follows: IL, 29 percent; MI, 16 percent; NY, 19 percent; PA, 18 percent; CA, 17 percent; CO, 20 percent; OH, 16 percent; TX, 25 percent.

[a] Not applicable.

[b] "Poor" denotes 100 percent of the federal poverty level or less; "near poor" denotes 101–200 percent. "Total low income" denotes combined poor and near-poor groups.

ular blend of public and private coverage options available in that state. In Texas, for example, a relatively small share of low-income seniors had drug coverage through an employer, Medicare HMO, or Medigap plan. Thus, despite higher rates of Medicaid enrollment among low-income seniors in Texas compared with many other states, the overall percentage of low-income seniors lacking drug coverage in Texas was high (38 percent). In Michigan high rates of employer-sponsored coverage among low-income seniors (33 percent) helped to compensate for rela-

tively low rates of drug coverage under Medicaid, Medicare HMOs, and the state's pharmacy assistance program but still left more than a third of Michigan's low-income seniors without prescription drug coverage. In Colorado high rates of Medicare HMO participation among low-income seniors (27 percent) helped to compensate for relatively low rates of Medicaid enrollment (10 percent) but still left more than one-quarter of low-income seniors in that state without drug coverage (28 percent). By contrast, California achieved its high rates of coverage through relatively high rates of Medicaid (33 percent) and Medicare HMO (24 percent) enrollment, offsetting the low rate of employer-sponsored coverage there.

State-funded pharmacy assistance programs covered roughly one in seven low-income seniors in three of the four states offering them (Illinois, New York, and Pennsylvania). However, in all four program states a large percentage of low-income seniors were without prescription drug coverage. In New York and Pennsylvania, whose pharmacy assistance programs are among the largest and most comprehensive in the nation, one in five low-income seniors lacked prescription drug coverage. In Illinois and Michigan the percentage of low-income seniors without prescription drug coverage (34 percent and 38 percent, respectively) was as high as that in many nonprogram states, and higher in most cases.

For the poorest seniors in all states, Medicaid played a key role in providing drug coverage. Even so, Medicaid provided drug coverage to fewer than half of persons living below poverty in seven of the eight states, and to one-third or less of poor seniors in five states. California's Medicaid program (Medi-Cal) covered the largest share of poor seniors (56 percent), most likely owing to its less restrictive income eligibility requirements compared with those of other states (Exhibit 1).

■ **Out-of-pocket costs and medication use.** Nearly one-quarter of seniors (23 percent) reported spending in excess of $100 per month for prescription medicines (Exhibit 3). Among seniors without prescription drug coverage, 43 percent spent more than $100 monthly. This was the case even among low-income seniors.

The study's findings suggest that different sources of prescription drug coverage vary considerably in the extent to which they protect against high out-of-pocket drug costs. Medigap drug coverage appears to offer the least financial protection; seniors in this group reported higher out-of-pocket prescription drug costs than any other covered group, despite taking a similar number of medications, or fewer, than other covered groups (Exhibit 3). More than one-third of seniors with Medigap coverage—and 39 percent of low-income seniors in this group—reported spending $100 or more per month on prescription drugs. Costs were much lower among those with drug coverage through an employer or HMO, although approximately one-third of seniors in these groups reported monthly drug expenses of $50 or more.

The lowest out-of-pocket prescription drug costs were reported by seniors with Medicaid coverage, followed closely by those with VA coverage, despite the

EXHIBIT 3
Monthly Out-Of-Pocket Prescription Drug Costs And Current Prescription Drug Use, By Source Of Drug Coverage And Poverty Status, 2001

	Total[a]	None	Medicaid	Employer	HMO	Medigap	State drug program	VA or Defense
Total	N = 10,416	N = 2,140	N = 2,420	N = 2,909	N = 1,297	N = 806	N = 374	N = 293
Monthly out-of-pocket cost								
None	15%	14%	57%	12%	10%	8%	8%	25%
<$50	46	25	29	59	55	35	51	57
$50–$99	17	18	5	18	17	22	17	5
≥$100	23	43	8	12	19	35	25	12
Current number of Rx (mean total)[b]	4.3	3.6	5.1	4.5	4.0	4.6	5.2	5.5
None	8%	12%	7%	7%	8%	6%	5%	4%
<3	25	29	20	24	29	23	15	18
3–5	38	38	34	38	40	38	45	35
6+	29	21	39	31	23	33	36	43
≤200 percent of poverty	n = 5,758	n = 1,215	n = 2,364	n = 787	n = 552	n = 329	n = 296	n = 113
Monthly out-of-pocket cost								
None	18%	14%	57%	9%	9%	9%	8%	25%
<$50	39	27	29	53	49	28	56	58
$50–$99	16	17	5	19	18	24	12	7
≥$100	27	42	8	18	24	39	24	10
Current number of Rx (mean total)[b]	4.6	3.8	5.1	4.9	4.2	4.8	5.4	6.1
None	8%	12%	7%	6%	9%	8%	4%	4%
<3	22	27	20	21	26	20	15	12
3–5	38	38	34	36	39	38	45	29
6+	31	22	39	37	27	34	36	54
>200 percent of poverty	n = 4,658	n = 925	n = 56	n = 2,122	n = 745	n = 477	n = 78	n = 180
Monthly out-of-pocket cost								
None	12%	13%	57%	12%	10%	7%	10%	25%
<$50	50	23	21	61	59	40	35	57
$50–$99	18	20	8	17	16	20	29	5
≥$100	20	44	14	10	16	33	26	13
Current number of Rx (mean total)[b]	4.2	3.4	5.8	4.4	3.8	4.6	4.6	5.3
None	8%	13%	8%	7%	7%	6%	8%	4%
<3	27	31	8	25	31	25	13	21
3–5	39	37	40	38	41	37	44	37
6+	27	19	44	29	21	32	35	38

SOURCE: Kaiser/Commonwealth/Tufts-New England Medical Center, Eight-State Study of Seniors' Prescription Coverage, Use, and Spending, 2001.

[a] Results for respondents whose drug coverage source was classified as "other" are included in "total" but not shown as a separate coverage group.

[b] Mean total prescriptions reflects respondent's report of the number of different prescription medicines that he or she uses.

fact that these groups had a higher disease burden and were taking more prescription medicines than were their counterparts in all other groups except those in state-sponsored pharmacy assistance programs.[18] State pharmacy assistance programs appear to offer much less financial protection to low-income seniors than Medicaid or the VA offers. One-quarter of low-income seniors in state pharmacy assistance programs reported spending $100 or more per month on prescriptions,

compared with 8 percent of low-income seniors covered by Medicaid.

The observed differences in spending under different sources of prescription drug coverage do not appear to be an artifact of differences in the use of prescription medications by enrollees or in other enrollee characteristics. Multivariate analyses controlling for enrollees' sociodemographics, chronic conditions, and number of prescriptions revealed the same pattern of spending and spending differences as reported in Exhibit 3.

■ **Forgoing medicines because of cost.** To examine the impact of out-of-pocket prescription drug costs on seniors' adherence to medication regimens and their ability to afford basic necessities, we asked respondents to report (1) the number of times in the past year they did not fill a prescription because it was too expensive; (2) whether they skipped doses of medicine in the past year to make prescriptions last longer; and (3) whether they spent less on food, heat, or other basic necessities during the past year, in order to pay for their prescription medications. For each of these measures, we compared the experiences of seniors with and without drug coverage (Exhibit 4) and by source of coverage (Exhibit 5).

The role of prescription drug coverage. Seniors without drug coverage reported rates of forgone medication use two to three times higher than those of their counterparts with coverage (Exhibit 4). In the full sample, one-quarter of seniors without drug coverage reported not filling prescriptions because of cost and skipping doses to make the prescriptions last longer in the past year. Among those with coverage, approximately one in ten reported these forms of forgone care (odds ratio ≥ 2.5, $p < .001$). One in five seniors without drug coverage reported spending less on basic necessities to pay for their medicines—twice the rate reported by those with coverage (odds ratio = 2.3, $p < .001$). In multivariate analyses, controlling for seniors' sociodemographic characteristics, chronic conditions, and number of medications being used, odds ratios denoting the effect of coverage were somewhat larger, which suggests that the effects of coverage based on the unadjusted bivariate results are conservative (Exhibit 4).

Poverty status. The effect of drug coverage on the odds of skipping doses or not filling a prescription was equally strong across all income groups (Exhibit 4). However, low-income seniors reported these actions at much higher rates than did their wealthier counterparts, and even low-income seniors who had drug coverage showed high rates of forgoing medications. Forty-one percent of poor seniors without drug coverage had not filled prescriptions in the past year because of costs, and 36 percent skipped doses to make medications last longer. Among poor seniors with coverage, rates of these actions were 19 percent and 21 percent, respectively (odds ratio = 3.0 and 2.1, $p < .001$). More than one-third of poor seniors without coverage (38 percent) reported spending less on basic necessities to pay for their medicines, compared with 21 percent of poor seniors with coverage (odds ratio = 2.2, $p < .001$).

Chronic medical conditions. Seniors with chronic medical conditions who lacked

EXHIBIT 4
Reports Of Cost-Related Medication Skipping And Basic Necessities Forgone, By Poverty Status And Chronic Conditions, 2001

	Didn't fill Rx due to cost					
	One or more times			Three or more times		
	Coverage	No coverage	Odds ratio	Coverage	No coverage	Odds ratio
Total (N = 10,416)	11%	25%	2.8***	4%	11%	3.2***
Poverty status						
≤100% FPL (n = 2,693)	19%	41%	3.0***	8%	20%	2.9***
101–200% FPL (n = 3,065)	18	30	2.0***	7	13	2.1***
>200% FPL (n = 4,658)	7	18	3.1***	2	8	4.4***
Chronic conditions						
CHF (n = 1,019)	14%	25%	2.1**	4%	13%	3.4***
Diabetes (n = 1,963)	14	31	2.8***	6	13	2.2**
Hypertension (n = 6,095)	12	28	2.9***	4	12	3.2***
3 or more conditions (n = 3,226)	17	35	2.8***	7	17	2.7***
	Skipped doses to make Rx last longer			**Spent less on basic needs to afford Rx drugs**		
	Coverage	**No coverage**	**Odds ratio**	**Coverage**	**No coverage**	**Odds ratio**
Total (N = 10,416)	13%	27%	2.5***	10%	20%	2.3***
Poverty status						
≤100% FPL (n = 2,693)	21%	36%	2.1***	21%	38%	2.2***
101–200% FPL (n = 3,065)	18	30	1.9***	17	24	1.6***
>200% FPL (n = 4,658)	9	23	2.9***	5	13	3.1***
Chronic conditions						
CHF (n = 1,019)	16%	33%	2.6***	19%	28%	1.7*
Diabetes (n = 1,963)	17	30	2.1***	16	32	2.6***
Hypertension (n = 6,095)	14	31	2.8***	11	24	2.5***
3 or more conditions (n = 3,226)	19	36	2.4***	16	31	2.3***

SOURCE: Kaiser/Commonwealth/Tufts-New England Medical Center, Eight-State Study of Seniors' Prescription Coverage, Use, and Spending, 2001.

NOTES: In multivariate models adjusting for sociodemographic characteristics, chronic conditions, and number of medications being used, odds ratios increased 10–35 percent. For example, the adjusted odds ratios for the overall sample (total) were 3.1, 3.6, 2.9, and 2.9, respectively. The adjusted odds ratios for the poor were 4.2, 4.8, 2.8, and 3.7, respectively. CHF is congestive heart failure.

*$p \leq .05$ **$p \leq .01$ ***$p \leq .001$

drug coverage reported rates of forgone medications two to three times higher than those of their counterparts with drug coverage. Among those with congestive heart failure, diabetes, or hypertension—each of which require adherence to a

EXHIBIT 5
Reports Of Cost-Related Medication Skipping And Basic Needs Forgone Among Low-Income Seniors, By Source Of Prescription Drug Coverage, 2001

	Total	No coverage	Medicaid	Employer	HMO	Medigap	State drug program	VA/Defense	Other
	N = 5,758	n = 1,215	n = 2,364	n = 787	n = 552	n = 329	n = 296	n = 113	n = 102
Didn't fill Rx due to cost									
One or more times	22%	32%	**14%**	**12%**	28%	24%	**15%**	**17%**	22%
Three or more times	9	14	**5**	**4**	10	11	**6**	**3**	11
Skipped doses to make Rx last longer	23	31	**16**	**15**	25	21	22	**18**	31
Spent less on basic needs to afford Rx drugs	21	27	17	**12**	24	20	26	**8**	29

SOURCE: Kaiser/Commonwealth/Tufts-New England Medical Center, Eight-State Study of Seniors' Prescription Coverage, Use, and Spending, 2001.

NOTES: For each outcome variable, bold type denotes the highest-performing source of prescription drug coverage and any source of prescription drug coverage statistically equivalent to it ($p > .05$); underlined type denotes the lowest-performing source of prescription drug coverage and any source of prescription drug coverage statistically equivalent to it ($p > .05$); plain type denotes the source of prescription drug coverage performing at an intermediate level.

strict medication regimen for disease management—more than a fourth of those without coverage did not fill at least one prescription in the past year because of the cost, more than one-tenth did not fill three or more prescriptions, and approximately one-third skipped doses to make prescriptions last longer.

Among those with three or more chronic conditions and without drug coverage, approximately one-third reported not filling prescriptions because of cost—17 percent said that they did this three or more times during the year—and 36 percent skipped doses to make their medication last longer. Nearly one-fifth of covered seniors with multiple chronic conditions reported these actions.

Source of drug coverage. In analyses restricted to low-income seniors, we observed significant differences in the rates of forgone medications across the different sources of coverage, as well as differences between those with and without coverage (Exhibit 5). As seen earlier, those without prescription drug coverage had significantly higher rates of forgone medications than those with coverage ($p < .001$). Among those with coverage, two tiers of coverage emerged. Low-income seniors with coverage through an employer, Medicaid, or the VA reported the lowest rates of medication skipping and were statistically equivalent to one another ($p > .05$). Seniors in these coverage groups had rates of not filling prescriptions and skipping doses of medicine that were half, or less than half, those of their low-income counterparts who lacked coverage ($p < .001$).

Compared with low-income seniors in these "top-tier" coverage groups, low-income seniors with drug benefits through a Medicare HMO or Medigap plan were significantly more likely to go without prescription drugs because of costs (p

< .05). One-fourth of low-income seniors with HMO or Medigap benefits reported not filling prescriptions in the past year because of costs, and more than one-fifth had skipped doses to make medications last longer. These actions coincide with the higher monthly out-of-pocket spending reported by seniors with HMO or Medigap coverage compared with those covered by Medicaid, an employer, or the VA (Exhibit 3).

State-sponsored pharmacy assistance programs fell between the two coverage tiers. Low-income seniors in such programs aligned with the "top-tier" coverage group with respect to filling prescriptions (lower rates of skipping) and with the "lower-tier" group with respect to skipping doses and forgoing basic necessities to pay for their medicines (higher rates of skipping). Differences among sources of coverage held, and in some cases were strengthened, in multivariate analyses controlling for enrollees' sociodemographic characteristics, chronic conditions, number of recent medical visits, and current use of prescription medicines.

Role of states. Finally, we examined whether the experiences of low-income seniors with each source of coverage, and those without coverage, differed by state. These analyses revealed few significant state-level differences among seniors with employer-sponsored, HMO, or Medigap coverage (results not shown). The effect of having no coverage was also similar across the eight states (Exhibit 6).

However, for low-income seniors with Medicaid coverage and those in state-sponsored pharmacy assistance programs, there were notable state-level differences (Exhibit 6). Medicaid enrollees in Michigan, New York, Pennsylvania, and Colorado were least likely to spend more than $100 per month on medicines and reported the lowest rates of unfilled prescriptions and skipped doses (the four programs were statistically equivalent to one another on these). Medicaid enrollees in Texas had the highest rates of cost-related medication skipping—significantly higher than all states except Ohio. Medicaid beneficiaries in Texas, Ohio, and Illinois were significantly more likely to spend more than $100 per month on medications than were Medicaid enrollees in the other five states ($p < .05$). Texas Medicaid program restrictions (for example, a limit of three prescriptions per month) likely contribute to the experiences reported by enrollees there.

State-level variability in medication spending and cost-related medication skipping was also apparent among enrollees in pharmacy assistance programs. The results suggest that the Illinois program may offer somewhat less protective coverage than the New York or Pennsylvania programs do, although the sample sizes here were more limited than in other coverage categories reported in Exhibit 6. Michigan's program had too few survey respondents to be evaluated.

Conclusions And Policy Implications

Overall, this eight-state survey finds that the percentage of seniors with drug coverage varies widely from state to state, particularly among low-income seniors. Seniors appear to face quite different supplemental coverage options depending

EXHIBIT 6
Out-Of-Pocket Prescription Costs, Cost-Related Medication Skipping, And Basic Needs Forgone, By State And Selected Sources Of Prescription Drug Coverage, Low-Income Sample, 2001

	Spent $100 or more per month on Rx drugs	Didn't fill Rx due to cost (1 or more times)	Skipped doses to make Rx last longer	Spent less on basic needs to afford Rx drugs
Total[a]	27%	22%	23%	21%
Source of drug coverage[b]				
None				
IL (n = 159)	47	**30**	**35**	31
MI (n = 170)	43	**29**	**28**	**22**
NY (n = 128)	**31**	37	**29**	28
PA (n = 105)	**35**	**20**	**23**	**12**
CA (n = 178)	**31**	**20**	**23**	**20**
CO (n = 128)	**35**	**32**	**30**	33
OH (n = 155)	53	42	38	33
TX (n = 192)	54	45	40	40
Medicaid				
IL (n = 121)	15	13	**15**	23
MI (n = 277)	**4**	**7**	**11**	**14**
NY (n = 422)	**4**	**8**	**9**	**11**
PA (n = 252)	**4**	**5**	**14**	**8**
CA (n = 611)	8	15	16	18
CO (n = 285)	**4**	**5**	**11**	**15**
OH (n = 190)	17	**11**	21	**15**
TX (n = 206)	14	27	26	25
State drug program[c]				
IL (n = 107)	**27**	35	**26**	36
NY (n = 95)	34	**10**	**12**	21
PA (n = 88)	**15**	**8**	27	25

SOURCE: Kaiser/Commonwealth/Tufts-New England Medical Center, Eight-State Study of Seniors' Prescription Coverage, Use, and Spending, 2001.

[a] Results for "total" includes all low-income seniors (all sources of prescription coverage and those with no prescription coverage).

[b] For each outcome variable, bold type denotes the highest-performing state within a given coverage category and any state within that coverage category that is statistically equivalent to it ($p > .05$); underlined type denotes the lowest-performing state within a given coverage category and any state within that coverage category that is statistically equivalent to it ($p > .05$); and plain type denotes states performing at an intermediate level. Type that is both bold and underlined denotes a state that overlaps statistically with both the highest- and lowest-performing states in that coverage category for that outcome variable.

[c] Sample size in Michigan state drug program is insufficient to include in these analyses (n = 10).

on where they live, as a result of uneven access to employer-sponsored health benefits, Medicare+Choice plans, and state pharmacy assistance programs, and differences in Medicaid eligibility rules and benefit limitations. The results suggest that national-level data on prescription drug coverage mask important variations across states, leaving policymakers with insufficient information to assess the adequacy of coverage and to identify appropriate policy solutions.

Despite efforts by states to provide drug coverage to low-income seniors

"Medicaid played a critical role in providing drug coverage to low-income seniors but did not close the coverage gap entirely."

through Medicaid and, in some cases, pharmacy assistance programs, a substantial percentage of low-income seniors in all eight states were without prescription drug coverage—and near-poor seniors were the least well covered group. Even in states with well-established programs, at least one in five low-income seniors lacked drug coverage. The failure of these programs to close the coverage gap entirely is likely attributable to multiple and differing factors across states, including limited awareness about the programs, burdensome enrollment processes, views that the benefits are not worthwhile, and restrictive eligibility criteria.[19] The particularly large coverage gaps among low-income seniors in Michigan and Illinois, despite the presence of state-sponsored pharmacy assistance programs, may be partly explained by the limited benefits offered by those programs (Exhibit 1) and, in Michigan, by restrictive eligibility criteria and a burdensome application process.[20]

In all eight states Medicaid played a critical role in providing drug coverage to low-income seniors but did not close the coverage gap entirely, even for persons with incomes below poverty. In fact, except in California, fewer than half of each state's poor seniors and less than 5 percent of near-poor seniors had Medicaid prescription drug benefits. Among seniors with Medicaid drug coverage, experiences varied widely from state to state, which raises questions about the effect of state policies related to eligibility and benefits.[21] Although the state Medicaid differences we observed are largely consistent with those one would expect based on documented differences in the program specifications (Exhibit 1), they are not fully explained by them. These findings add to an emerging literature that underscores the sizable effects of these program differences on enrollees.[22]

Finally, the study results underscore that a drug benefit alone does not protect against high out-of-pocket prescription costs—and that, for policy purposes, classifying beneficiaries as either having coverage or not misses major differences in the depth of coverage and financial protection afforded by different sources of drug coverage. The study finds that the extent of financial protection against high out-of-pocket prescription drug costs varies greatly by sources of coverage. For example, the coverage provided under Medigap and Medicare+Choice plans as of 2001 in these eight states appears to leave substantial gaps, measured by self-reported out-of-pocket drug costs and cost-related medication skipping. The findings accord with well-documented coverage limits in Medigap prescription drug benefits and with the more recently documented erosion in Medicare HMOs' drug benefits.[23] By contrast, the most generous sources of drug coverage appear to be Medicaid, employer plans, and the VA.

With mounting fiscal pressures facing states and other sponsors of drug cover-

age for seniors, and forecasts of continued double-digit increases in drug spending, further erosion of drug coverage from public and private sources seems inevitable. The study's findings, including widely divergent levels of coverage across states, substantial differences in the depth of coverage by source, and major problems experienced by seniors who lack coverage, underscore the challenges inherent in relying on a patchwork of state and private solutions to provide prescription drug coverage to the Medicare population. The need for a national policy solution is clear.

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NOTES

1. J.A. Poisal and L. Murray, "Growing Differences between Medicare Beneficiaries With and Without Drug Coverage," *Health Affairs* (Mar/Apr 2001): 74–85.
2. Henry J. Kaiser Family Foundation, Health Research and Educational Trust, and Commonwealth Fund, *Erosion of Private Health Insurance Coverage for Retirees: Findings from the 2000 and 2001 Retiree Health and Prescription Drug Coverage Survey,* April 2002, www.cmwf.org/programs/medfutur/gabel_retiree_cb_506.pdf (25 June 2002); and L. Achman and M. Gold, *Medicare+Choice 1999–2001: An Analysis of Managed Care Plan Withdrawals and Trends in Benefits and Premiums* (New York: Commonwealth Fund, February 2002).
3. M. Laschober et al., "Trends in Medicare Supplemental Insurance and Prescription Drug Coverage, 1996–1999," 27 February 2002, www.healthaffairs.org (25 June 2002).
4. A. Schneider and L. Elam, *Medicaid: Purchasing Prescription Drugs* (Washington: Kaiser Commission on Medicaid and the Uninsured, January 2002).
5. National Conference of State Legislatures, "State Pharmaceutical Assistance Programs," www.ncsl.org/programs/health/drugaid.htm (25 June 2002).
6. U.S. General Accounting Office, *State Pharmacy Programs: Assistance Designed to Target Coverage and Stretch Budgets,* Pub. no. GAO/HEHS-00-162 (Washington: GAO, September 2000).
7. U.S. Census Bureau, "People 65 Years and Over Below 100 Percent of Poverty, by State," 26 February 2002, www.census.gov/hhes/poverty/100pct98-00.html (25 June 2002).
8. In 2001 there were fourteen mature state prescription drug programs, and eleven of these were in the Northeast and Mid-Atlantic regions. The three programs outside this area included those chosen for this study (Michigan and Illinois) and Wyoming, which had fewer than 600 enrollees. See GAO, *State Pharmacy Programs;* and NCSL, "State Pharmaceutical Assistance Programs."
9. NCSL, "State Pharmaceutical Assistance Programs".
10. Geocoding assigns exact latitude and longitude to a known address. Using commercially available software, these coordinates are mapped to polygon IDs and then into census tracts and block groups allowing census neighborhood variables to be attached to each beneficiary address. A Census Block Group (CBG) is a much smaller and more homogeneous unit than ZIP code, county, or census tract and therefore is a useful proxy for individual socioeconomic characteristics.
11. A base sample of 2,500 was selected from each state. Supplementary samples were drawn in New York (N = 4,184) and California (N = 5,837), reflecting the interests of the two foundations in the effects of prescription drug policies and programs there.
12. D.A. Dillman, *Mail and Telephone Surveys: The Total Design Method* (New York: John Wiley, 1978).
13. The study response rate among Medicaid enrollees (Strata 1 and 2) exceeded that typically achieved by

mail and phone surveys of this population (47 percent). See, for example, P.J. Gibson et al., "Increasing Response Rates for Mailed Surveys of Medicaid Clients and Other Low-Income Populations," *American Journal of Epidemiology* 149, no. 11 (1999): 1057–1062. Nonrespondents were disproportionately low-income and minority race/ethnicity but did not differ from respondents on age or sex ($p \geq .05$).

14. The questionnaire included two sections of items to discern respondents' prescription drug coverage status and sources of coverage. Respondents indicated their sources of prescription coverage from a list that included Medicaid, retiree plan (their own or a spouse's), current employer plan, HMO, Medigap, VA/DOD, state pharmacy assistance program (using state-specific name), and other. Each source was identified with terminology developed through extensive interviews and testing with seniors representative of the study population.
15. S.F. Buck, "A Method of Estimation of Missing Values in Multivariate Data Suitable for Use with an Electronic Computer," *Journal of the Royal Statistical Society* B22 (1960): 302–306. Ordinal logistic regression models were used to estimate the conditional distribution (predicted probabilities) of the missing data. Missing values were replaced with values having the highest probability among the categories.
16. U.S. Census Bureau, "People 65 Years and Over."
17. National data from the Medicare Current Beneficiary Survey (MCBS) indicate lower rates of drug coverage than those observed in this eight-state survey (see Laschober et al., "Trends in Medicare Supplemental Coverage"). A combination of four factors may contribute to higher rates of drug coverage observed in this survey: (1) The states studied here and, in particular, the inclusion of several states with above-average rates of employer-sponsored coverage and Medicare HMO penetration, might have yielded higher rates of drug coverage than would be observed in other states and in the national average; (2) the timing of this survey (spring/summer) versus that of the MCBS Access to Care Survey (fall) might have produced fewer seniors who had "spent through" their annual drug benefit and thus reported being without drug coverage at the time of the survey; (3) questions in this survey explicitly name and probe about coverage sources that are not named by the MCBS (for example, state prescription assistance program or VA), which appears to have produced a higher percentage of seniors reporting these sources than in the MCBS, where these are subsumed as "other"; and (4) because the survey was conducted primarily by mail, nonresponse among frail seniors, those with very low literacy skills, and those who felt too disenfranchised to participate might have resulted in overstating prescription drug coverage if the underrepresented groups are disproportionately without coverage.
18. Seniors with prescription drug coverage through Medicaid, the VA, and state drug programs were sicker than those with other sources of coverage by several measures. For example, the percentage reporting three or more chronic medical conditions were as follows: Medicaid (42 percent); VA (34 percent); state drug program (42 percent); employer-sponsored plan (26 percent); HMO (27 percent); Medigap (26 percent); and no coverage (23 percent).
19. GAO, *State Pharmacy Programs*; and K. Fox, T. Trail, and S. Crystal, *State Pharmacy Assistance Programs: Approaches to Program Design* (New York: Commonwealth Fund, May 2002).
20. The Michigan program we studied (MEPPS) was established in 1988 and had 12,000 enrollees in 2001. An in-person application and monthly reenrollment were required. In October 2001 MEPPS was replaced by "Michigan EPIC," which offers broader coverage and less restrictive eligibility requirements. In June 2002 Illinois was scheduled to introduce a new program (SenioRx Care) and to automatically move qualifying Circuit Breaker enrollees (elderly, below 200 percent of poverty) into that program. SenioRx Care offers greatly expanded coverage and is expected to benefit 368,000 seniors.
21. A recent study for the under-sixty-five population also found indications of skipping in Medicaid with rates varying by programs. See P. Cunningham, *Affording Prescription Drugs: Not Just a Problem for the Elderly* (Washington: Center for Studying Health System Change, April 2002). For the earlier study of the potential impact of Medicaid copayments, see B. Stuart and C. Zacker, "Who Bears the Burden of Medicaid Drug Copayment Policies?" *Health Affairs* (Mar/Apr 1999): 201–212.
22. For example, see A.S. Adams et al., "The Case for a Medicare Drug Coverage Benefit: A Critical Review of the Empirical Evidence," *Annual Review of Public Health* 22 (2001): 49–61; Stuart and Zacker, "Who Bears the Burden?"; and B.C. Martin and J.A. McMillan, "The Impact of Implementing a More Restrictive Prescription Limit on Medicaid Recipients: Effects on Cost, Therapy, and Out-of-Pocket Expenditures," *Medical Care* 34, no. 7 (1996): 686–701.
23. Medigap plans with prescription drug coverage include a $250 deductible and 50 percent cost sharing with a benefit limit of $1,250 per year for Medigap Options H and I, and $3,000 per year for Option J. For recent drug benefit changes, see Achman and Gold, *Medicare+Choice 1999–2001*; and M. Gold, "Medicare+Choice: An Interim Report Card," *Health Affairs* (July/Aug 2001): 120–138.