Oregon's Cost-Shift:
The Effect of Public Insurance Coverage on Uncompensated Care

Report to the Oregon Office for Health Policy and Research

K. John McConnell PhD
Oregon Health & Science University
Neal Wallace, PhD
Portland State University

Author Contact Information:
John McConnell
OHSU Center for Policy & Research in Emergency Medicine
3181 SW Sam Jackson Park Rd.
Mail Code CR-114
Portland, OR 97239
Tel. 503.494.1989
Email: mcconnjo@ohsu.edu

Executive Summary

The majority of Oregonians receive their medical care through commercial health insurance, usually provided through their employers. However, the cost of commercial insurance premiums has been rising steadily. One important component of the cost of commercial premiums is the extent to which these premiums are used to pay for care that is provided to uninsured (and underinsured) individuals who can not or do not pay their bills. This uncompensated care – which has been growing rapidly in Oregon – amounts to a hidden tax that is ultimately paid by those with private, commercial insurance.

In this report, we use recent data from the state's Medicaid program, the Oregon Health Plan (OHP), to examine the relationship between coverage and uncompensated care. Our results suggest that the OHP program and OHP enrollment have been important in reducing uncompensated care, and that contractions in the OHP program have subsequently led to large increases in uncompensated care. When the federal match for OHP spending is considered, it appears that savings that may have accrued through reducing OHP enrollment may have been offset by increases in uncompensated care that take the form of a hidden tax on commercial premiums. Finally, we estimate from these data that total uncompensated care is likely to account for 6% to 9% of the average commercial health insurance premiums. We conclude that policies that address coverage for the uninsured have a potential to reduce the cost of coverage for individuals with private, commercial insurance.

Introduction

Over the last three years, providers of medical care in Oregon have reported a sharp increase in the amount of uncompensated care they provide. Understanding the scope and causes behind uncompensated care is important to all Oregonians. When medical bills are unpaid, health care providers may be able to cover the cost of services by raising their rates to those who can pay – those with health insurance. Although health economists have debated the extent of cost-shifting,[1] health plan and provider dynamics in Oregon appear to provide the sufficient conditions for cost-shifting to exist. Thus, a large part of the financial burden uncompensated care is likely to be borne by individuals with private, commercial insurance.

The increase in uncompensated care parallels the growing number of uninsured in the state, a phenomenon that has been driven in primarily by two factors. First, the state's Medicaid program, the Oregon Health Plan (OHP), underwent a severe contraction in 2003 that led to the disenrollment of approximately 50,000 OHP beneficiaries over the course of a few months. Second, following a national trend, coverage through employer-sponsored health insurance has been declining.

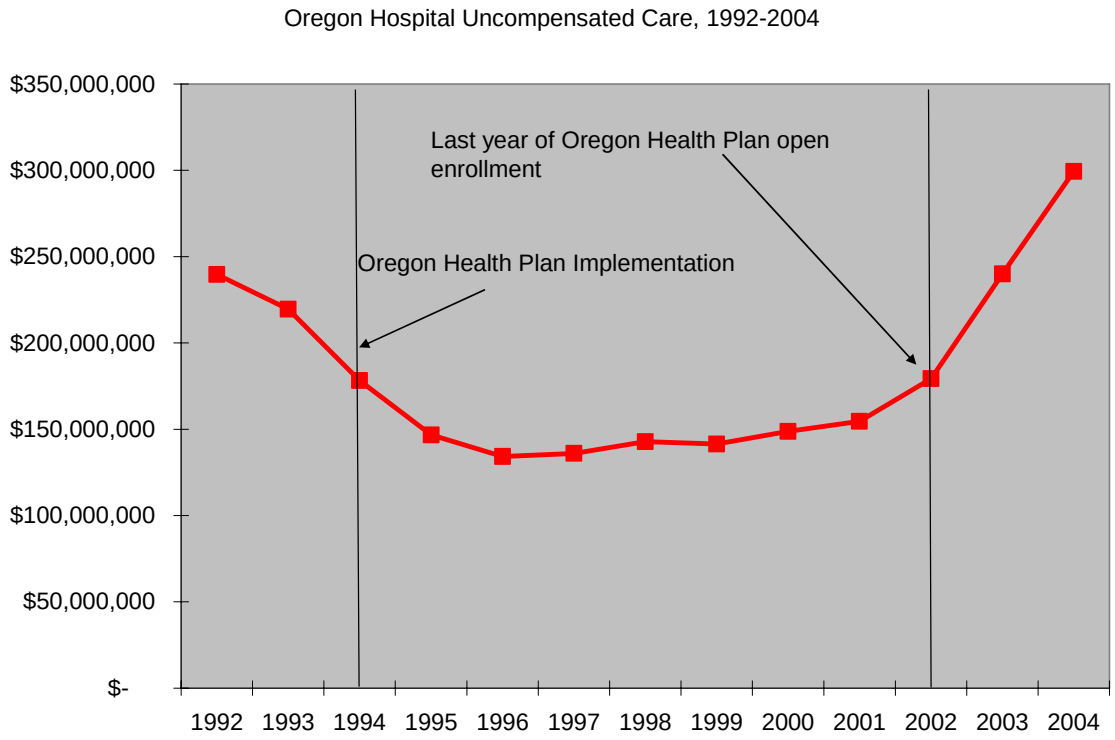
This paper aims to assess the scope of uncompensated care in Oregon (particularly since the large disenrollment that occurred in 2003), and to model the relationship between public/OHP insurance coverage and hospital uncompensated care. We use these empirical findings to provide an indication of the larger implications of uninsurance, total uncompensated care, and cost-shifting in Oregon.

Uncompensated Care in Oregon 1992-2004

Uncompensated care is defined as the sum of a hospital's "charity care" and its "bad debt." The definitions of charity care and bad debt vary among hospitals; however, the sum of these two generally reflects the total amount that the hospital charged but received no reimbursement. Bad debt and charity care are typically reported in terms of hospital charges (often referred to as "list prices" or "gross charges"). Since charges are not directly interpretable and vary greatly among hospitals, we used data on hospital charges and expenditures to create hospital-year specific cost-to-charge ratios, and deflated total uncompensated care charges to uncompensated care costs.[2] To compare total burden across the years 1992-2004, costs were inflated to 2004 dollars using the Medical Care CPI.

As shown in Exhibit 1, total hospital uncompensated care was relatively high but declining in the 1992-1995 period, relatively low and flat from 1995 through 2002, and sharply increasing in 2003 and 2004. Decreases in uncompensated care coincide with the OHP implementation in 1994, which provided coverage for approximately 100,000 additional adults. Likewise, increases in uncompensated care coincide with the large-scale OHP disenrollment that occurred in 2003, when approximately 50,000 OHP beneficiaries were disenrolled over the course of a few months, and enrollment was capped for individuals who were not part of the "traditionally-eligible Medicaid" population (i.e., OHP "Standard").

Exhibit 1. Total hospital uncompensated care in Oregon, 1992-2004.



Between 1994 and 2002 uncompensated care was relatively stable, showing a slight increase between 1999 and 2002. The reasons for this slight upward trend are not entirely clear. OHP coverage was relatively stable during this period. In addition, there did not appear to be large changes in the offer rates of health insurance by employers during this period. For example, the percent of Oregon employees in firms offering health insurance was relatively stable from 1999-2003 (with an average of 87.6% of Oregon employees in firms offering insurance).[3] (Of note, the percent of employees in private firms offering insurance dropped significantly in 2004 to 80.2%).Furthermore, eligibility and take-up rates among employees were generally rising from 2001 through 2003. Thus, the apparent increase in hospital uncompensated care that occurred between 1999 and 2002 might be attributable to other market dynamics, such as increasing unemployment.

We estimate the total cost of hospital uncompensated care to be $299M in 2004. This is approximately $83 per Oregonian, or $142 per privately insured individual, accounting for approximately 5.7% of the average 2004 Oregon family premium of $9,906. We note that these costs only refer to hospital uncompensated care. This figure does not capture out-of-hospital care or any physician services provided in the hospital setting. However, previous research suggests that hospital uncompensated care accounts for approximately 63% of total uncompensated care (the remaining 37% borne by physicians and clinics).[4] This suggests that total uncompensated care in Oregon was

approximately $475M in 2004, or $225 per privately insured individual, accounting for approximately 9% of a commercial premium. These estimates are similar to the 10% estimate recently reported in a study of uncompensated care in California.[5]

Measuring the Effect of Public Insurance (OHP) Coverage on Hospital Uncompensated Care

As shown in Exhibit 1, hospital uncompensated care appears to correlate with changes in OHP coverage. We sought to quantify the specific changes in uncompensated care that could be attributed to public coverage.

Data and Methods. We analyzed the relationship between OHP coverage and hospital uncompensated care by combining hospital financial data, hospital discharge data, census data, and zip-code level OHP enrollment data. Our analysis uses regression methods to focus on the effect of *changes* in OHP enrollment on *changes* in uncompensated care. This approach produces a measure of the change in the dollar amount of uncompensated care that can be expected through the enrollment (or disenrollment) of an additional OHP member. We focus on *changes* because it reduces the confounding that may be associated with some unobservable variables that affect uninsurance (such as enrollment in private, commercial coverage).

Measuring uncompensated care – specifying the outcome variable. Oregon hospital discharge data provide information on inpatient admissions, including total hospital charges, insurance status, and patient zip code. Using hospital financial data, we converted hospital charges to hospital costs (as described above). Then, for all valid Oregon zip codes, we calculated total costs associated with uninsured admissions by adults (ages 19-64) for each zip code, for 2001-2004.[6] We combined total costs for 2001 and 2002 (2 years of data prior to the 2003 OHP contraction) and total costs for 2003 and 2004 (2 years of data occurring during and after the OHP contraction), and then took the difference in these measurements. This created an outcome variable that represented the change in hospital uncompensated care that could be attributed to each Oregon zip code.

Independent variables. The primary independent variable in our model is the change in OHP enrollment in each zip code. This variable was based on OHP enrollment data provided by the Oregon Division of Medical Assistance Programs. These data provide information on the number of days enrolled in OHP and zip code residence.[7] Our analysis focused on adults, excluding those enrolled as pregnant women or through the CAWEM program. We took total enrollment days for adults and divided by 365 to generate a person-year of enrollment. Our final independent variable was constructed by taking the difference in total enrollment in the two-year pre-period (2001-2002) and the two-year post-period (2003-2004), generating an independent variable that represented the change in OHP coverage in each Oregon zip code.

We also included independent variables for changes in per-capita-income, adult population, and unemployment rates by zip code, based on census data and compiled by Claritas, Inc. While these variables are not expected to directly influence

uncompensated care, they provide additional opportunity for capturing variation in the changes in uncompensated care. For example, uncompensated care might generally be considered to increase as the population grows, or through changes in employer-sponsored insurance that are indirectly related to changes in unemployment or per-capita income.

Statistical Methods. We use linear regressions with Huber-White robust standard errors to assess the association between changes in OHP enrollment and hospital uncompensated care. An additional series of quantile regressions were run to assess the robustness of our primary analysis. In a separate set of regressions, we aggregated zip codes to one of 130 primary care service areas defined by the Oregon Office of Rural Health.[8] Regressions that use these aggregations are more robust to single, small zip code outliers, and provide some measure of the robustness of our primary analysis.

Results

Our primary analysis included 383 valid zip codes. As displayed in Exhibit 2, a decrease OHP enrollment has a statistically significant effect on hospital uncompensated care. The model suggests that the average adult who disenrolled in the 2003-2004 OHP contraction generated $852 in hospital uncompensated care. This variable is strongly significant ($P < 0.001$) and has a fairly small confidence interval. The variables representing changes in per-capita income or unemployment rates are not significantly signficant.[9] The change in adult population is significant, suggesting that increasing population generally leads to higher uncompensated care. The intuition is that uncompensated care will generally grow as the population grows.

Exhibit 2. Regression Results of Change in OHP Enrollment on Hospital Uncompensated Care

Variable	*Coefficient/Effect on Hospital Uncompensated Care*	*P-Value*	*95% Confidence Interval*
Decrease in OHP Enrollment	852	0.00	(732, 971)
Increase in Per-capita Income	-11	0.18	(-26, 5)
Increase in Unemployment Rate	-6531	0.17	(-15970, 2907)
Increase in adult population	278	0.00	(211, 345)
Intercept	56826	0.02	(10911, 1027423)

Dependent variable: Change in Hospital Uncompensated Care (N = 383).
$R^2 = 0.70$.

The R^2 measure for this model is 0.70, suggesting that changes in OHP enrollment and adult population capture more than half of the variation in uncompensated care at the zip code level.

As described above, we ran several additional models to assess the sensitivity of our results to different modeling specifications. Exhibit 3 summarizes these results for several models. In general, results do not appear sensitive to the linear regression (in comparison to the more robust median regression) or to conducting the analysis at the primary care service area level (as opposed to the zip code level). Furthermore, we also use a statistical test (Ramsey's regression specification error test) to provide an indication of problems with the model's functional form. These tests reject the hypothesis of model misspecification.

Exhibit 3. Outcome

Model	*Point estimate: Effect of disenrollment of one adult on hospital uncompensated care*	*95% Confidence Interval*
Primary model (Exhibit 2)	$852	($732, $971)
Median regression	$843	($817, $869)
Primary model, data aggregated to Primary Care Service Area (N = 129)	$859	($646, $1,072)

Limitations

Our estimates provide insight on the ways in which changes in public coverage translate to changes in uncompensated care. However, there are important limitations to this work. For example, we note that our analysis was limited to the years 2001-2004, a period of great upheaval in the OHP. A longer time-series, covering relatively stable periods, would be preferable. Unfortunately, concerns about data quality for the hospital discharge data for the pre-2000 period constrained us to the more recent time period.

Furthermore, a variable of great interest is the total number of uninsured individuals within a zip code. We could not identify this variable. Changes in OHP coverage provide a partial measure related to uninsurance. However, uninsurance will also be closely related to coverage provided by private, commercial insurance. Nationally, there have been increasing concerns that higher premiums are leading firms to reduce their likelihood of offering health insurance as well as reducing take-up rates among employees. These changes are likely to occur in Oregon. As noted above, in 2004, there the percentage of employees in private firms who offered insurance dropped 5.4%, to 80.2%. Unfortunately, these data are not available at the zip code or county level, and thus we could not include them in our analysis.

Our study does not address the amount of uncompensated care that can be attributed to the erosion of coverage offered by employer-sponsored insurance. However, since 2004, total enrollment in OHP has increased, and employer-sponsored coverage appears to have decreased. Preliminary data suggests that hospital uncompensated care continued to increase throughout 2005 and 2006. This increase is likely to be driven by greater uninsurance that could be attributable to eroding coverage on the private side. Although we did not explicitly calculate the uncompensated care attributable to individuals who lost coverage through the private market, the cost is likely to be substantial. Considering that more than 2 million adults and children receive their coverage through the private market, even small decreases in the rate of coverage may have the potential to lead generate large increases in uncompensated care.

Conclusions & Discussion

Our model suggests that, on average, disenrollment of one adult from the OHP leads to an increase of approximately $852 in hospital uncompensated care. These estimates appear to have some validity. For example, we note that hospital uncompensated care was approximately $60M to $120M higher in 2003 and 2004 than it was in 2002. In that same time period, approximately 75,000 adults lost OHP coverage, and a substantial but unknown number would have been unable to enroll during this period. 75,000 individuals at a cost of $852 each suggests uncompensated care of $64M associated with OHP disenrollment – within the range suggested by the aggregate figures displayed in Exhibit 1.

Furthermore, as described above, total hospital uncompensated care was estimated to be $299M in 2004. In this same year, there were approximately 600,000 uninsured Oregonians, suggesting that the average amount of hospital uncompensated care was approximately $500 per uninsured Oregonian. Since our estimation is focused on adults who were disenrolled from the OHP, we could anticipate that these individuals would be more likely to have higher medical needs and costs than either uninsured children or otherwise healthy adults who were uninsured. Thus, an estimate of $852 in uncompensated care attributable to the average disenrolled OHP beneficiary seems in line with current estimates of hospital uncompensated care and the total number of uninsured individuals in Oregon.

As described above, previous research suggests that hospital uncompensated care accounts for 63% of total uncompensated care. This suggests that disenrollment of the average OHP beneficiary led to approximately $1352 in total uncompensated care, spread among hospitals, clinics and physicians.

An important question is who ultimately pays for this care. Conversations with Oregon health plans and providers suggest that the majority of the burden of uncompensated care is ultimately borne those with private insurance. Health plans and purchasers of insurance (i.e. employers) appear to have little appetite for reimbursements that would be low enough to either result in the closure of hospitals or relocation of key providers. Instead, negotiations around rate increases between providers and health plans appear

to acknowledge expenses for uncompensated care and to factor these expenses into negotiated reimbursement rates. These rate increases are then translated into higher premiums among the commercially insured.

It is important to note that not all uncompensated care is driven by changes in OHP enrollment. The majority of individuals with health insurance in Oregon receive their coverage through their employer. However, the extent to which employer-sponsored insurance provides coverage is affected by several factors: the general health of the economy and the associated unemployment rate; employers' decisions to offer health insurance; and employees' decisions to purchase or take-up insurance offered by their employer. The latter 2 factors are strongly affected by the price of health insurance. As the price of premiums rises, employers are less likely to offer insurance, and employees are less likely to purchase it when offered. Workers who do not have health insurance are likely to increase the overall amount of uncompensated care, a portion of which is likely to be paid by the remaining privately insured through higher premiums. This dynamic has the potential to lead to even greater increases in the price of health insurance and larger numbers of uninsured.

Factoring in the Medicaid "Match"

Suppose that the $1352 in uncompensated care was ultimately paid as an indirect tax on those with commercial insurance. How would this compare with care provided through a direct tax that was used to pay for coverage through OHP? When we consider the 61% federal match on OHP spending (i.e., for every $1 spent on care for OHP beneficiaries, $0.61 is paid by the federal government, and $0.39 paid by the state), $1352 in state spending translates to approximately $3467 in OHP spending. This is approximately 95% of the projected statewide cost of coverage for OHP adults eligible through the Temporary Assistance to Needy Families (TANF) program. This suggests that any state savings from disenrolling OHP adults may almost be entirely offset by increases in uncompensated care.

Marginal Costs vs. Average Costs

This report has focused primarily on the cost of uncompensated care by uninsured individuals. We have not considered the role of payments by public programs. Public programs are typically considered to pay below the average cost of care, and thus it is useful to consider whether the cost shifting phenomenon extends beyond the care provided to uninsured individuals.

This is a legitimate question; however, when considering payments by public programs, it may be more informative to consider the relationship between reimbursement and *marginal* costs, rather than *average* costs. If reimbursements were lower than *marginal* costs, providers would lose money on every patient covered through the OHP or Medicare, and would only stay in business through the receipt of higher payments from private payers. However, if reimbursements were higher than marginal costs, each additional patient would be providing at least some net revenue. Indeed, the economic models of price discrimination suggest that firms who can separate consumers on the

basis of price will maximize profits by charging high-paying patients one price, and low-paying patients another. The low price will typically be below the average cost but not below the marginal cost.

Thus, it is important to note that increasing OHP reimbursement rates would not automatically solve the cost-shifting problem. Indeed, reducing uncompensated care by the uninsured will not automatically lead to a dollar-for-dollar in increase in savings among those with commercial insurance. Some of the savings could be captured by providers (in the form of higher revenues), some could be captured by the insurer (in the form of lower reimbursement rates), and some could be captured by the purchaser of private insurance (the employer and employee, through lower premiums). Health reform seeking to reduce uninsurance also needs to consider mechanisms that insure that the savings from reduced uncompensated care are translated into premium reductions or savings for employees, employers, and others with private, commercial insurance.

Reform Options

Capturing the cost shift is not impossible, but may require a departure from the current regulatory and reimbursement systems. One method of capturing the cost shift is to carefully measure the payer mix, reimbursement rates, and margins across provider groups, and to directly or indirectly alter these payment streams so that savings can be returned to employers and individuals in the commercial market. This method would maintain much of the current reimbursement structure but would require substantial oversight. A second method would be to eliminate public coverage as currently structured and enroll each individual in commercial plans. In this case, there would not be differential reimbursement rates based on insurance type. Instead, rates would be set on the basis of market dynamics and negotiations.

Using the cost-shift as a method for providing coverage for the uninsured is a questionable long-term strategy. The implicit, hidden tax of cost-shifting is probably a much less efficient way of providing coverage than a policy that used an explicit tax to raise funds to provide health insurance coverage with a focus on preventive care. In addition, there may be some point at which purchasers of private insurance are no longer willing to pay this hidden tax. In particular, employers and employees are struggling with higher premiums. In addition to restricting wage growth, higher premiums may lead fewer employers to offer health insurance, and fewer employees to purchase it, if offered. This trend could in turn lead to greater uninsurance, further increasing uncompensated care.

In summary, our results suggest that the OHP program and OHP enrollment have been important in reducing uncompensated care, and that contractions in the OHP program have subsequently led to large increases in uncompensated care. Specifically, we found that, on average, disenrollment of a single OHP adult leads to a $852 increase in hospital uncompensated care, and an estimate $1352 increase in total uncompensated care. When the federal match for OHP spending is considered, it appears that any

savings that may have accrued through disenrollment of OHP members may have been offset by increases in uncompensated care that take the form of a hidden tax on commercial premiums.

The magnitude of uncompensated care in Oregon is substantial, suggesting that policies aimed at covering the uninsured may convey significant benefits to employers, employees, and other individuals with private insurance. An understanding of the importance of these costs – and who ultimately pays them – may lead to more informed public discussions around the health reform policies and legislation currently under consideration in the state.

Endnotes

1. See for example, M. A. Morrisey, "Cost-Shifting: New Myths, Old Confusion, and Enduring Reality," *Health Affairs* Web Exclusive, October 8, 2003; and D. Dranove and W.D. White, "Medicaid-dependent hospitals and their patients: how have they fared?" *Health Services Research*, 1998 Jun;33(2 Pt 1):163-85.
2. Hospitals financial reports differ in their fiscal year reporting periods (e.g., some fiscal years begin in January; others in July; others in September). We converted all financial data to calendar year data. For hospitals whose fiscal year did not coincide with the calendar year, we allocated charity care, bad debt, total charges (gross revenues), and total expenditures proportional to months in the calendar year. For example, a hospital with fiscal years beginning in September who reported total expenditures of $100M for the period 9/1/93 to 8/30/94 and total expenditures of $200M for the period 9/1/94 to 8/30/95 was assumed to have 1994 expenditures of $125M ($100M*[8/12] + $200M*[4/12]).
3. Agency for Healthcare Research and Quality. *Percent of private-sector employees that are enrolled in health insurance at establishments that offer health insurance by firm size and State and percent of private-sector employees in establishments that offer health insurance by firm size and State*. Generated using MEPSnet/IC. <http://www.meps.ahrq.gov/mepsnet/IC/MEPSnetIC.jsp>
4. Hadley, J. and J. Holahan. 2003. "How much medical care do the uninsured use, and who pays for it?" *Health Affairs* Web Exclusives:W3-66-81.
5. See http://www.newamerica.net/files/HealthIBNo3.pdf for additional details of the New America report "A Premium Price: The Hidden Costs All Californians Pay In Our Fragmented Health Care System"
6. We confined our analysis to the years 2001-2004 because many hospitals appeared to use a different method for recording admissions by uninsured patients before 2000. We also excluded the VA and Kaiser hospitals, as well as 4 additional hospitals that appeared to record uninsured visits in a manner that was inconsistent with state averages (e.g., registering uninsured admissions at extremely low [0%] or extremely high [20%] levels). These hospitals were generally small (less than 10,000, 4,000, 2,000 and 1,000 admissions annually) accounting for less than 5% of all admissions in the state.
7. We are grateful to Dennis Deck at RMC Consulting for providing us with these data.
8. See http://www.ohsu.edu/oregonruralhealth/what_is_rural.html for additional details. In general, primary care service areas represent areas for which: health resources are generally located within 30 to 40 minutes travel time; defined areas are not smaller than a single zip code and zip codes used are geographically contiguous; defined areas contain a population of generally more than 1,000 people; areas constitute a "rational" medical trade or market area considering topography, social and political boundaries, and travel patterns.

9. The sign on the point estimate for unemployment is counterintuitive, suggesting that a decrease in unemployment leads to greater uncompensated care. However, the confidence interval on this variable is very large and is not statistically significant.
10. See page 89 of "Capitation Rates 2004-2005" Report by PriceWaterhouseCoopers, LLP, available at http://www.oregon.gov/DHS/healthplan/data_pubs/rates-costs/caprate1004-0905.pdf.