The Effects of Preventative Medicaid Coverage on Avoidable Hospitalizations

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Introduction

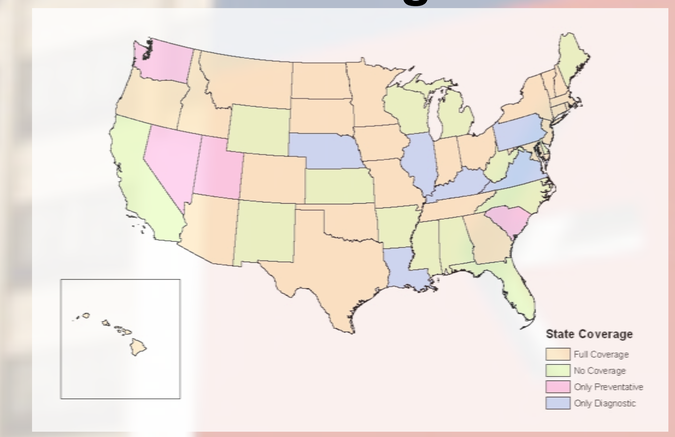
In the early 1980's the conversation regarding potentially avoidable hospitalizations (PAH) surfaced in the medical and economic fields. The avoidable hospitalizations include conditions such as hypertension, diabetes and dehydration. They are often used by researchers to quantify a patients access to care. Since then both the frequency has increased, while overall hospitalizations saw an opposite trend (Kozak 2001).

Previous literature have found that the probability of PAH is affected by age, race, availability of care and type of insurance—the last of which motivated this topic (Pappas 1997).

Medicaid, a government insurance program for the underprivileged, has major coverage differences between each state. This is due to the state-by-state management of a federally-mandated program.

This research expands on previous literature by finding the incremental change in probability of an avoidable hospitalization when a state chooses to cover preventative and diagnostic services. It also analyzes the differences in cost associated with providing different care.

Nationwide Medicaid Coverage



Data

Country-wide sample of hospital data from the 2006 Nationwide Inpatient Sample. This allows for patient specific data.

Country-wide information of county characteristics from the 2006 Area Resource File. This allows me to control for availability of care.

Obesity data from the Centers for Disease Control, given by both race and state. This allows me to control for state fixed effects and also a baseline health for the patient.

Framework

There are two essential dimensions at play in this thesis.
1.Supply and demand: Assuming a patients propensity to consume preventative and diagnostic services, the decreased supply (and availability of doctors) creates a shortage, and thus should increase the risk of a PAH.
2.Cost efficiency: Medicaid programs carry staggering price tags. This research sheds light on effective ways for Medicaid to cut costs of hospitalizations.

Methods

I ran a logistic regression to find overall probability of PAH, and then multivariate logistic regressions to find split probability for chronic and acute hospitalizations.

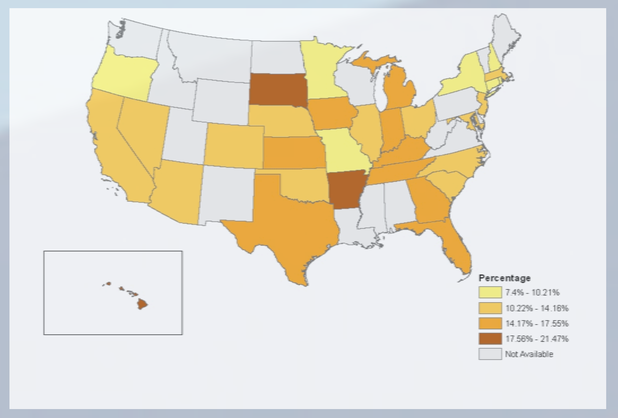
I subsequently ran ordinary least squares regressions using a logarithm of the costs to find how covering additional programs affected cost.

My model controlled for the patient's gender, age, race, income, education, home's rural/ urban location. My county and state controls were the number and density of doctors, obesity by race and state and the average state income. Most variables were split into quantiles to be used as dummies.

PAH Conditions

Chronic	Acute
Asthma	Angina
Cellulitis	Hypoglycemia
Congestive Heart Failure (CHF)	Kidney or Urinary Tract Infection (UTI)
Chronic Obstructive Pulmonary Disorder (COPD)	Pneumonia
Epilepsy	Dehydrationah
Hypertension	Gastroenteritis
Diabetes	Severe Ear Nose and Throat (ENT) infection

Avoidable Hospitalizations



Results

Probability of a Potentially Avoidable Hospitalization:

- ✓ Covering both preventative and diagnostic care lowers the risk of a PAH by 23.3% (95% CI: 19.9-26.7).
- ✓ Covering only diagnostic increases the risk of a PAH by 36.7% (95% CI: 30.1-43.6).
- ✓ Blacks are more likely to have a PAH (Odds Ratio=1.21).
- ✓ Risk of a PAH decreases incrementally with increased education and income, and increased incrementally with increased age.
- ✓ Increased density of doctors decreases the risk of a PAH by at most 36.9% (95% CI: 33.3-41.4).

Acute vs. Chronic Potentially Avoidable Hospitalization:
Running the multivariate logistic regression found preventative and diagnostic care lowered the risk of chronic potentially avoidable hospitalizations were found to lower the relative risk by 26.9% (95% CI: 22.8-20.8), while the same care lowers the risk of acute PAHs by 83.1% (95% CI: 10.8-22.6). These coefficients are statistically different.

Cost Analysis
The regression found a 26.3% decrease in cost per hospitalization if the state covered both, and a 39.7% decrease in cost if the state simply covered diagnostic care.

Conclusions

Covering preventative and diagnostic care was found to, not only, significantly lower the probability of an occurrence of a PAH, but also lowers the cost per hospitalization. As hospitalization cost has been previous shown to have a strong relation with sickness of the patient, it can also be implied that residents of states that cover these programs present in the emergency room in a healthier condition. Additionally, the regressions found that increased accessibility of care (from the density of doctors) significantly decreases the risk of a PAH.

Policy Implications:
Looking forward into the governmental arena, these results could provide broad-scale implications for the management of Medicaid programs by state. States can therefore decrease overall hospitalization costs for avoidable conditions by nearly 50% when combining the results of the two regressions. The double-edged saving could truly benefit the population and state budgets, saving lives and millions of dollars.

Bibliography

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2. Pappas, G., Haddan, W. Kozak, L, Fisher, G. (1997). Potentially avoidable hospitalizations: inequalities in rates between US Socioeconomic Groups. *Am J Public Health*: 87 (5): 811-816.

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