

# Spillovers And Vulnerability: The Case Of Community Uninsurance

It is in the self-interest of the less vulnerable to be concerned about the plight of the more vulnerable.

by **Mark V. Pauly and José A. Pagán**

**ABSTRACT:** This paper studies the uninsured as a vulnerable population. We contend that reducing the size of the uninsured population yields important spillover benefits to the insured population, benefits that go beyond a lower charity care burden. Evidence presented in this paper reinforces studies in the literature that show that problems of health services quality and access facing insured people increase when the proportion of uninsured people in their local communities is greater. The size of such spillover benefits is reduced if the local market is large enough to be segmented based on insurance status. [*Health Affairs* 26, no. 5 (2007): 1304–1314; 10.1377/hlthaff.26.5.1304]

**T**HE DIFFICULTIES FACED BY VULNERABLE POPULATIONS in obtaining and using health care are important policy concerns. Many are convinced that improving access for the more vulnerable should be an important matter for everyone because it is the right thing to do. Yet judging from the current limited public provision of remedies for these populations, not everyone appears to be convinced. There can be many reasons for the views different citizens hold on the need for providing health care services for the more vulnerable, and the connection between citizens' views and public action through the political process is necessarily imprecise. However, it is clear that solely focusing on making everyone aware of uninsured people's access difficulties has not yet been enough to bring about change. Something more might be useful to buttress the case for addressing the problems faced by the more vulnerable.

■ **Our thesis.** In this paper we make the claim that it is in the self-interest of those who are less vulnerable to be concerned about the plight of more vulnerable populations. We argue that the patterns of health care use of the more vulnerable

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may have a strong impact on the accessibility and quality of services available to everyone else, independent of the amount of charity care or its financing. This effect could be particularly relevant in communities with relatively large vulnerable populations, although, somewhat paradoxically, the likelihood of taking strong action may be greater in communities where such problems are less overwhelming.

■ **Definition of “vulnerable.”** What do we mean by “vulnerable”? This concept obviously can have many interpretations, but here we define *the vulnerable* as those people who are less likely than average to obtain medical care of an appropriate quality and quantity. One obvious distinguishing characteristic that would predict this kind of vulnerability is to be uninsured. More than forty-six million U.S. children and adults are without any form of health insurance coverage now, and the ranks of the uninsured will likely continue to grow if health policy initiatives are not implemented to address the problem.<sup>1</sup>

Of course, the uninsured are not the only vulnerable population fitting this definition. Insured populations can be vulnerable if they face other impediments to high-quality care. Ethnic/racial minorities, even if insured, are one such group. In this paper we focus primarily on negative spillovers from the uninsured to the insured.

■ **The uninsured as a vulnerable population.** Approximately one of every six Americans are uninsured, and this has important consequences that manifest themselves in reduced access to health care and poor health outcomes for this population.<sup>2</sup> The groups generally identified as disproportionately vulnerable because of a higher chance of being uninsured include low-income people, children, ethnic and racial minorities, immigrants, people with chronic health conditions, the near-elderly, and people with psychiatric or substance abuse disorders.<sup>3</sup> But even the large fraction of the uninsured who are not poor, sick, or members of ethnic/racial minorities may be vulnerable to bad health outcomes if illness should strike.

There is a great deal of variation in the proportion of people who are uninsured, not only across states but also across communities within states. During 2003–05, the uninsurance rate ranged from a high of 24.6 percent in Texas to a low of 8.7 percent in Minnesota.<sup>4</sup> The within-state variation is also substantial (for example, from 12.0 percent in Collin County, Texas, to 32.8 percent in Hidalgo County, Texas).<sup>5</sup> It is this variation’s impact on the insured that we emphasize in this paper.

## Why Does It Matter?

The Institute of Medicine (IOM) released a report in 2003 that attempted to determine how communities are being affected by uninsurance.<sup>6</sup> The IOM’s conceptual framework posits that a large uninsured population receiving charity care leads to lower revenue relative to costs for health care providers in the community, which in turn results in increases in public and private spending—largely financed by insured taxpayers—to pay for services for the uninsured. That is, under this framework, there is a pecuniary spillover from the uninsured to the insured.

This spillover has a detrimental effect on the availability or prices of health care services if no subsidies from higher levels of government are available to affected providers or if locally paid subsidies to hospitals or clinics crowd out spending on other public health services, some of which may be of some value to the insured. In contrast, to the extent that the larger numbers of uninsured people in a community lead to higher payments by the federal government (say, in the form of Medicare disproportionate-share payments to hospitals) or by the state government, the insured in a given community might not be adversely affected by the uninsured. Indeed, the insured might occasionally benefit from having a larger share of public funds flow into their community.

What is missing from this conceptual framework of community uninsurance is the less obvious spillover effect of low community aggregate demand for health care quality, which potentially affects the quality of care available to the insured. These nonpecuniary or real spillovers might well occur even if outside sources of revenue completely supported a community's charity care and bad-debt burden. Real spillovers only require that the uninsured demand a lower quantity and quality of health care than the insured and that the provision of health care is not perfectly segmented by health insurance status. In such a case, the quality level in the community may well fall because of what Joel Waldfogel has called "preference externalities" that arise when "distinct groups of consumers who have substantially different preferences [from others]...bring forth products with more appeal to themselves but less appeal to others."<sup>7</sup>

### **How The More Vulnerable (Uninsured) Might Affect The Less Vulnerable (Insured)**

■ **Impact on quality of care.** How would a nonpecuniary, real quality spillover work in partially insured medical markets? Relative to insured people, those who are uninsured in general demand medical care that is lower in quality.<sup>8</sup> Moreover, the mix or types of health care services that the local uninsured population can afford are likely to be different from the mix of services demanded by the insured. Although the insured majority at the local level might still have differential access to medical services that are, to some extent, different from those demanded by the uninsured, the separation is unlikely to be complete because of the high fixed costs of quality differentiation. In this sense, quality is a kind of public good whose level is determined by the mix of demands in the community and is then experienced by all in the community. Lower demand for quality by more uninsured people will lower the quality of health care services available to the insured.

Examples of two polar cases may be useful to make the distinction between the two types of spillovers more transparent. Suppose that there are two communities of the same size with the same number of uninsured residents. In the first community the uninsured never use charity care and so can only pay for lower-quality care, but in the second community the uninsured rely heavily on charity care and

do not skimp on quality. In community 1 there is no pecuniary spillover, but there are nonpecuniary spillovers through lower market quality. In community 2 there is a negative pecuniary spillover on the costs paid by the insured (out of pocket and through their insurers), but there are no nonpecuniary effects on quality.

In reality, communities generally exhibit a mix of both types of negative spillovers. Larger amounts of charity or bad-debt care cause suppliers of medical services to charge higher prices to the insured. To the extent that the uninsured do pay for the health care they use, the pecuniary spillover will be less. But to the extent that they then limit their use of care to what they can pay for, market-level quality will be affected, and real spillovers can be substantial.

■ **Impact of market segmentation.** The insured can to some extent avoid both charity care costs and lower quality if they can patronize suppliers who render relatively little care to the uninsured or who do not or cannot engage in cost shifting. These selective suppliers can offer high-quality services to the insured and expect to be paid adequately for it, and they will have a low charity care burden. Depending on the size or configuration of the local market, such market segmentation might enable some or all of the insured to dodge both types of negative spillovers.

This segmentation would be unlikely to occur if the community were not large enough to permit the fixed costs of product differentiation to be covered. That is, product differentiation is limited by the size and configuration of the market, and the extent to which this is the case for a particular service depends on the size of the economies of scale in the production of that service. If a market can accommodate only one seller, segmentation would be more difficult. In contrast, if a market is large enough to accommodate many sellers at near-optimal scale, some sellers can provide the quality demanded by the insured and use location or referral practices to sustain that segmentation.

■ **Differential effects of types of care on quality.** For what kinds of care are nonpecuniary, real quality spillovers more likely? Routine primary care visits probably display more or less constant returns to scale beyond a relatively small size. In contrast, sophisticated scanning services requiring specialized and expensive equipment have large increasing returns to scale. And tertiary care specialists require a large market to have enough patients who need what they are best at doing. The distinction between these two types of effects is not precise, but some potential differences can be measured.

## Assessing The Effects Of Community Uninsurance

In what follows, we provide some examples of how community uninsurance spillovers may manifest themselves across different dimensions of local health care markets.

■ **Health care access, use, and quality effects.** We used data from the 2003 Community Tracking Study (CTS) Household Survey to shed some light on how community uninsurance is related to health care access, use, and quality for the in-

sured. This survey was conducted in sixty randomly selected communities, and it is representative of the civilian noninstitutionalized population in the contiguous United States (N = 46,587).<sup>9</sup> *Communities* in this survey were defined as local health care markets (that is, areas where local residents obtain their health care services and where physicians practice medicine). Most of these communities overlap metropolitan statistical areas (MSAs, as defined by the Office of Management and Budget) and nonmetropolitan economic areas (as defined by the Bureau of Economic Analysis).<sup>10</sup> The 2003 CTS Household Survey included information on the demographic and socioeconomic status of respondents as well as their health status, health insurance, access to care, and health care use.

We compared differences in a set of health care access, use, and quality indicators between insured adults residing in the ten communities with the highest and lowest proportions of uninsured adults in the 2003 CTS Household Survey (n = 9,552) (Exhibit 1). High-uninsurance communities had an average of 26.9 percent uninsured adults, and low-uninsurance communities had an average of 6.8 percent. The proportion of insured adults with a family income below 100 percent of the federal poverty level was 11.5 percent in high-uninsurance communities and 5.9 percent in low-uninsurance communities, which suggests that there is a “community effect” in addition to income or affordability that determines whether a household or person has insurance. For example, the percentage of insured adults who were Latino/Hispanic was 27.9 percent in high-uninsurance communities

**EXHIBIT 1**  
**Health Care Access, Utilization, And Quality Indicators Of Insured Adults, By Community Uninsurance, 2003**

Indicator	High-uninsurance communities (%)	Low-uninsurance communities (%)	Odds ratio (95% CI)
Proportion of population uninsured	26.9	6.8***	
Had a place to go when sick or in need of advice about health	84.1	94.3***	1.54 (1.34, 1.77)***
Postponed needed medical care	21.4	20.7	0.93 (0.80, 1.08)
Had a doctor's visit in the past year	77.5	82.5**	1.12 (1.04, 1.20)***
Had a doctor's visit for routine preventive care (physical exam or check-up)	58.5	66.3**	1.40 (1.32, 1.50)***
Had problems getting a referral to see needed specialist in the past year	19.0	11.5***	0.59 (0.51, 0.67)***
Very satisfied with health care provider	60.1	68.1***	1.27 (1.17, 1.39)***
Trust that doctor would put the patient's medical needs above all considerations when treating medical problems	65.2	70.4**	1.01 (0.94, 1.08)

**SOURCE:** Authors' analyses using data from the 2003 Community Tracking Study Household Survey.

**NOTES:** Data on insured adults ages 18–64 from the ten communities with the highest proportion of uninsured residents (“high-uninsurance communities”) and the ten with the lowest proportion of uninsured residents (“low-uninsurance communities”) out of sixty communities (n = 9,552). Odds ratios were adjusted (using multilevel logistic regression) for health status, age, education, ethnicity/race, marital status, sex, and household income over poverty level. CI is confidence interval.

\*\*p < 0.05 \*\*\*p < 0.01

*“We found that the uninsurance rate was positively associated with insured adults’ having reported unmet medical needs.”*

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 compared with 5.7 percent in low-uninsurance communities. The percentage of insured adults who were black/African American was 11.0 percent in high-uninsurance communities compared with 7.4 percent in low-uninsurance communities, but this difference was not statistically significant. The proportion of insured adults reporting that they were in fair or poor health was 16.4 percent in high-uninsurance communities compared with 10.2 percent in low-uninsurance communities.

■ **Spillover effects from high uninsurance on the insured.** Insured adults in high-uninsurance communities were less likely than their peers in low-uninsurance communities to have a place to go when they were sick or in need of advice about health, less likely to have visited a doctor, and less likely to have had a physical exam or checkup within the past year (Exhibit 1). A higher proportion of insured adults also reported having more problems getting a referral to see a needed specialist in high-uninsurance communities than in low-uninsurance communities, and a lower percentage of insured adults were very satisfied with their health care provider in high-uninsurance communities compared with low-uninsurance communities. Insured adults in high-uninsurance communities were also less likely to report that they trusted that their doctor would put their medical needs above all other considerations when treating their medical problems.

We also estimated multilevel logistic regression models to see whether or not these differences persisted after adjusting for health status, years of age, years of education, ethnicity/race (white, African American, Hispanic, and other ethnicity/race), marital status, sex, and household income above the poverty level. We found that most of the differences in use, access, and quality for the insured who resided in high- and low-uninsurance communities were statistically significant (Exhibit 1).

These results clearly point to the existence of real spillovers from the uninsured to the insured. Although pecuniary and real spillovers are difficult to disentangle, the fact that indicators related to health care quality vary by community uninsurance for the insured suggests the presence of real quality-related spillovers. For example, an insured adult is 54 percent more likely to have a place to go when sick, 41 percent less likely to report problems getting a referral to see a specialist, and 27 percent more likely to be satisfied with his or her health care provider if he or she lives in one of the ten communities with low uninsurance than in one of the ten communities with high uninsurance.

■ **Unmet medical needs.** In a recent study we used data from the 2000–01 CTS Household Survey to analyze the relation between the proportion of the population who is uninsured in a community and the unmet medical needs reported by both

uninsured and insured adults.<sup>11</sup> We found that the community uninsurance rate was positively associated with insured adults' having reported unmet medical needs. On average, a five-percentage-point increase in the proportion of the local population who was uninsured was associated with a 10.5 percent increase in the likelihood that an insured adult would report having unmet medical needs within the past year. Although this study's results showed that there were spillovers from the uninsured to the insured, the study did not address whether these spillovers were pecuniary or real, or whether they varied across services or with community size.

■ **Quality of care from the supply side.** The 2003 IOM report mentioned above presented some compelling evidence that health care providers located in high-uninsurance communities face financial difficulties because of the low demand for their services and the high levels of uncompensated care. However, that report did not address whether or not financial difficulties translate into problems for the insured and, if so, how. We analyzed data on 4,920 physicians from the 2000–01 CTS Physician Survey and on 25,637 adults from the 2003 CTS Household Survey to see whether or not the relative size of the local uninsured population was associated with the level of career satisfaction among physicians and the quality of care they provided.<sup>12</sup> We also assessed whether patients' trust was associated with the level of community uninsurance. We found that the relative size of the local uninsured population was negatively related to physicians' career satisfaction and perceptions of the quality of care they provided. Community uninsurance was also negatively related to patients' trust in their doctors. We believe that physicians, who cannot be neatly categorized as either nonprofit or for-profit, have lower career satisfaction and lower perceptions of the quality of care provided in communities with larger shares of uninsured people.

■ **Quality of specialized services.** We used data from the 2003 CTS Household Survey and the 2004–05 CTS Physician Survey to study the relation between community uninsurance and the quality of and access to specialized health care services.<sup>13</sup> Our hypothesis is that the share of the population who is uninsured should have more of an effect on the quality that insured patients experience when the service is specialized than if it is a more general high-volume service, because specialized services require larger markets if they are to be segmented. Physicians providing specialized health care services invest heavily in education, and the demand for their services depends largely on referrals from primary care providers (PCPs). We looked at community uninsurance effects on the use of specialized services from three different perspectives: PCPs, specialists, and patients.

PCPs reported that the higher the proportion of uninsured people in their community, the less likely they are to be able to refer their patients to high-quality specialists. Specialists also reported that the higher the community uninsurance rate, the less able they are to deliver high-quality care to their patients. Adults who visited a specialist within the past twelve months were less likely to report that they were satisfied with their specialists the higher the uninsurance rate. These results

*“Women living in communities with high uninsurance were less likely to have a mammogram, whether or not they were insured.”*

are consistent with real nonpecuniary spillover effects of community uninsurance in the form of a lower availability of high-quality specialists in communities.

■ **Mammography screening.** Health insurance coverage is an important determinant of whether or not women get mammograms.<sup>14</sup> Reimbursement for mammography services has been declining in recent years, and providing mammography screening services can be financially risky for both local health care systems and freestanding radiology facilities.<sup>15</sup> The provision of mammography screening services is also a capital-intensive undertaking, so there are surely economies of scale (up to capacity) at the facility level. Thus, these facilities’ net incomes (even given some net revenue per procedure) are very sensitive to demand changes that affect volume.

Most mammography screening facilities operate at a lower volume level than the minimum efficient scale.<sup>16</sup> Consequently, community uninsurance could have a strong impact on the cost of such facilities because of lower demand. Of course, once a community is large enough to support a screening facility at optimal volumes for the insured population, spillovers may become less important.

A recent study by José Pagán and colleagues used data from the 2000–01 CTS Household Survey to evaluate whether the proportion of the local population without health insurance coverage was related to whether women ages 40–69 underwent mammography screening within the past year ( $n = 12,595$ ).<sup>17</sup> The results from this study showed that insured as well as uninsured women were less likely to report that they had a mammogram within the past year if they resided in a community with a high proportion of uninsured people; the size of the effect was actually the same for both groups. A ten-percentage-point increase in the proportion of the local uninsured population was associated with an 18.3 percent decrease in the probability that women ages 40–69 would undergo mammography screening within a year. Thus, women living in communities with high uninsurance rates were less likely to have a mammogram, whether or not they were insured or uninsured themselves.

■ **Other effects.** There has been much less investigation of spillovers from other correlates of low demand (given insurance coverage status), such as low income or ethnicity/race. E. Richard Brown and colleagues analyzed how community-level attributes such as the safety-net population, the resources provided to low-income populations, safety-net services, and other local health care market characteristics were related to potential and realized access to health care services.<sup>18</sup> Low-income insured adults were more likely to have a usual source of health care if they lived in a community with high managed care penetration. Insured people were more likely to have visited a health care provider in communities with higher Medicaid payments

per enrollee.

Lisa Dubay and colleagues analyzed expansions in Medicaid coverage on prenatal care use in four states (California, Georgia, Michigan, and Tennessee) based on data from interviews with stakeholders (state Medicaid directors, leaders of advocacy groups, and health care providers).<sup>19</sup> They found that the supply of prenatal care available to pregnant women increased after expansions in Medicaid coverage. The number of providers specializing in serving Medicaid-eligible women also greatly increased. They also found evidence of an increase in the comprehensiveness of services offered by hospital outpatient departments and publicly funded clinics and an increase in the number of prenatal clinics. There was also an emergence of alternative service delivery approaches (for example, nurse practitioners and certified nurse midwives began to be used more frequently for low-risk prenatal care). These improvements in health care quality at the local level are consistent with positive real spillovers after expansions in health insurance coverage to low-income populations.

### **The Punchline: Different Approaches To Helping The Uninsured Will Lead To Different Effects On The Insured**

■ **A paradox.** Different approaches to helping the uninsured population could result in radically different impacts in local health care markets. For example, if increased support were to be provided through expansions in safety-net providers that cater to uninsured populations (such as community health centers), there would be little (positive) real spillover to the insured population.<sup>20</sup> In contrast, if tax credits or targeted subsidies permit the uninsured to buy mainstream insurance and use mainstream medical services, this will also improve quality for the insured. Paradoxically, the insured may gain the most from helping the uninsured if that assistance is not targeted specifically at providing services to the uninsured only.

■ **Who pays also matters.** Who has to pay to cover the uninsured also matters. Suppose that a community decides to cover the uninsured entirely with its own finances; it taxes its better-off (insured) citizens to pay for coverage for the uninsured. This higher tax will offset the gain from reduced pecuniary spillovers. In the limit, where the additional taxes on the insured just equal the amount of charity care, there is no net pecuniary gain to the insured at all. However, if the uninsured demand higher-quality care after being provided health insurance coverage, then this could benefit the insured. In other words, there can be substantial real spillover benefits even when net pecuniary spillover benefits are zero. Net pecuniary spillover benefits from covering a community's uninsured population will be larger if some entity other than the community helps with the cost.

To the extent that medical markets in communities of a given size differ in the extent to which segmentation is possible (based on either historical configurations, regulation chosen for other reasons, or specific regulation to prevent cream skimming), the spillovers in quality will differ. Indeed, providing greater support

for facilities treating the uninsured is sometimes the quid pro quo for permitting the opening of specialized facilities in segmented markets.<sup>21</sup> The ultimate question is whether or not a specialized facility is efficient, regardless of its distributional effects. Even when a specialized facility is not efficient, there still may be an incentive for entrepreneurs and insured patients alike to develop and patronize these facilities if they reduce pecuniary or real spillovers. But movements in this direction, although individually rational, may be collectively irrational. It might be better to distribute the obligation of helping the uninsured more evenly and in a more direct way (for example, through taxes), instead of trying to achieve it through enforced spillovers.

### Concluding Remarks

Few people will question whether improving access to health care for the uninsured is an important goal, but, so far, it has been difficult to convince the general public that something costly must be done about this problem. Using uninsurance as an example, we have argued that it is in the self-interest of those who are less vulnerable (the insured) to be concerned about the plight of the more vulnerable (the uninsured) and, therefore, to be willing to pay to make a change. There is some evidence that there are negative spillover effects from the uninsured to the insured not only in terms of a higher financial burden of uncompensated and charity care at the local level but also in terms of the quality of health care available to everyone locally as a result of the low demand for quality by the uninsured. Nonpecuniary spillovers are more important than pecuniary spillovers in the context of social welfare because they have a direct effect (lower quality and availability) on the insured. Pecuniary effects generally have impacts only on prices and the distribution of income, and those effects are haphazard.

Nonpecuniary spillover effects are likely to be less apparent than pecuniary spillover effects, but, nonetheless, they are likely to be real and substantial. The nature and size of local spillovers are related to the quality and quantity of health care demanded by the uninsured, the level of insurance-related market segmentation, and the size of the market. All of these factors will determine whether some or all of the insured are able to avoid these spillover effects of uninsurance. Ultimately, however, the public's willingness to do something about covering the uninsured hinges not only on whether these effects actually exist in their local community but, more importantly, on whether they can be convinced that they exist.

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