Mergers and acquisitions of nonprofit hospitals are on the rise. Proceeds from many of these transactions will endow new health legacy foundations (HLFs). These philanthropic entities have substantial potential for charitable investment in US communities. Research indicates that the greatest improvements in population health can be achieved by addressing underlying social factors. Determining whether communities served by HLFs are characterized by poor social determinants of health would provide new information for developing effective grant-making strategies. Our study compared socioeconomic, demographic, and health care access indicators in HLF versus non-HLF counties. Compared with non-HLF counties, HLF counties had significantly higher proportions of racial minorities and multiple socioeconomic factors that rendered them more vulnerable to health disparities and poor health. However, HLF counties had better access to health care. These findings have direct implications for HLF leadership, planning, and grant making.

Health legacy foundations (HLFs) are philanthropic entities endowed with proceeds from sales and other transactions involving nonprofit hospitals, health care systems, health plans, and specialty care facilities. The current wave of mergers and acquisitions of nonprofit hospitals is reminiscent of the surges in health care deals that occurred in the early 1980s and mid-1990s, which resulted in scores of new HLFs. With their sizable assets and their narrowly defined geographic service areas, existing and newly forming HLFs provide fresh opportunities to respond to health needs in their communities. Some policy makers and consumer advocates have contended that HLFs should distribute grant funds predominantly to support medical services. However, a growing body of evidence indicates that the keys to improving population-level health are social and economic in nature. Interventions that target unemployment, education, racial discrimination, poverty, and similar influences on health are especially needed in communities with minimal capacity for economic growth.

The financial distress that leads nonprofit hospitals to sell their assets may reflect socioeconomic vulnerabilities in the surrounding community. Thus, counties with HLFs may have poorer health determinants, compared with other counties. If this is so, investing HLF grant funds in strategies that address the underlying causes of poor health may be the optimum strategy for improving community health.

The purpose of this study was to examine social determinants of health in communities where HLFs have been established. The findings can help inform boards of HLFs and policy makers about strategies that have the greatest potential to improve community health and wellness.

Literature Review
Proceeds from nonprofit health care deals must be reinvested for charitable purposes. New foundations are often established to manage the proceeds, but funds may be used to benefit an existing nonprofit or government agency, such as a local health district. The latest census of these grantmakers identified 306 HLFs whose combined assets amounted to more than $26 billion in 2010. Of these HLFs, 251 were formed from transactions involving hospitals or health systems.

At least two legal doctrines provide a framework to guide the philanthropic pursuits of HLFs. First, the “charitable trust” doctrine requires that nonprofit assets must always be dedicated to the charitable purpose for which the nonprofit organization was originally estab-
lished. Second, if the original purpose cannot be fulfilled, the “cy pres” doctrine requires that proceeds resulting from the sale of the nonprofit organization should serve a purpose as close as possible to the mission of the original charity.

Some state officials have opted for a narrow interpretation of these doctrines, requiring that HLFs fund medical services. However, this interpretation does not take into account the underlying social factors that influence health in communities with HLFs.

Increasing evidence shows that socioeconomic status variables influence health more than other factors, including clinical care. Thomas Frieden’s Health Impact Pyramid places socioeconomic factors at the base of the pyramid, which suggests that poverty reduction, improved education, and similar interventions have the greatest potential impact on population-level health. The County Health Rankings model, which ranks all US counties according to health factors and outcomes, assigns the most weight to social and economic factors such as employment and family support.

Similarly, Alvin Tarlov described public policy frameworks for improving population health and asserted that social and societal determinants exert the greatest influence on population health. Kate Pickett and Michelle Pear reviewed twenty-five multilevel studies of socioeconomic factors and health outcomes; in twenty-three of these studies, at least one measure of community-level socioeconomic status had a significant effect on mortality, morbidity, and health behaviors.

The effect of poor socioeconomic status on health and health care access is amplified within certain demographic groups, including racial and ethnic minority groups, older adults, and people living in rural areas. Numerous studies describe the varied and complex pathways to poor health and conclude that socioeconomic interventions have the best potential for improving population-level health. In light of abundant evidence that social factors influence health and health care, information about these health determinants should be considered along with medical needs when developing and prioritizing strategies aimed at improving health.

**Study Data And Methods**

**DATA** Our data were derived from an analysis of our recently developed database of HLFs and from County Health Rankings and Roadmaps. The database provided a subset of 251 HLFs formed from nonprofit hospitals or health systems. County Health Rankings supplied county-level data for the nation’s 3,140 counties and similar jurisdictions, such as parishes in Louisiana; we did not use its county-ranking capability. Original sources for each variable used are provided in the online Appendix, along with methodological details.

**MEASURES** Based on our literature search for major indicators of poor population health, we selected twelve variables. The socioeconomic status measures included the unemployment rate, child poverty rate, percentage of children living in single-parent homes, and high school graduation rate. The demographic variables were the percentage of people who were ages sixty-five and older, percentage black, percentage not proficient in English, and percentage who lived in a rural area (percentage rural). Access to health care was measured using four variables: the percentage of people who were uninsured, the number of ambulatory care-sensitive conditions (a measure of preventable hospitalizations) per 1,000 Medicare enrollees, and numbers of primary care physicians and dentists per 10,000 people in a county’s population.

The units of analysis were counties and similar jurisdictions, referred to here simply as counties. They represent approximations of the service areas of nonprofit hospitals whose sale proceeds were used to establish HLFs. These service areas are typically the areas that benefit from HLF grant making.

We used measures for each of the twelve indicators to compare health determinants in counties where HLFs have been established (HLF counties) against those in counties where no HLFs have been established (non-HLF counties). The 251 HLFs are located in 180 different counties across thirty-eight states. Non-HLF counties located in the same thirty-eight states were used for comparisons.

The 2,731 counties in our study (180 HLF counties and 2,551 non-HLF counties) constitute 87 percent of all US counties.

Health determinant measures are provided as overall rates and stratified by percentage rural. We performed a stratified analysis (see the online Appendix) to ensure that differences in health factors were not attributable to differences in the percentage rural between HLF and non-HLF counties. The percentage rural was based on the US Census Bureau’s population estimates for 2011. To control for regional and state-level influences, we also compared HLF counties with non-HLF counties within the same census division and within the same state.

We used t-tests and Mann-Whitney rank-sum tests to evaluate statistical significance. All analyses were conducted using the statistical software Stata SE, version 11.2.

**LIMITATIONS** Several study limitations must be recognized. The different data sources report slightly different time periods for data collection, as described in the online Appendix. In an attempt to create a parsimonious list of health determinants for analysis, we examined only a small subset of social, economic, demographic, and access-to-care variables. Future studies that investigate other health influences, as well as the causal pathways from poor socioeconomic status to poor health, could equip grant-makers with meaningful and useful information.

Another limitation is that this study did not examine health status, behaviors, or outcomes. The scope of this study was narrowed to social determinants of health for two reasons: the abundant evidence of their influence on population-level health; and the potential and suitability of HLFs as implementers of strategies to address the causes of poor health status, health behaviors, and outcomes.

An additional limitation of this study is that the units of analysis (counties) may not correspond precisely to HLF service areas. Furthermore, although the use of census data provides reliable statistics about county-level health determinants, the environment with the greatest influence on health may not be indicated by predetermined geographic units.
Finally, we note that aggregate findings do not necessarily correspond to those of individual counties. HLFs can best serve their communities by regularly assessing local health-related needs and devising strategies that best address these specific needs.

Study Results
HLF counties were significantly more urban than their non-HLF counterparts: The median percentage of a county’s population living in a rural area was 11.4 percent among HLF counties, compared with 61.8 percent among non-HLF counties (Exhibit 1). Thus, all other variables were grouped into urban, suburban, and rural strata for closer analysis (for detailed results of the stratified analysis, see online Appendix Exhibits 1 and 2).

Overall, compared to non-HLF counties, HLF counties had significantly more vulnerable to poor health, as indicated by high school graduation rates, the percentage of people who were black, the percentage who were not proficient in English, and the percentage of children living in single-parent homes (Exhibit 1). HLF counties had a significantly higher percentage of blacks and significantly higher rates of single-parent homes across urban, suburban, and rural counties (Appendix Exhibit 1). The percentage of people who were not proficient in English was also significantly higher in HLF versus non-HLF counties in urban and suburban areas.

Compared with non-HLF counties, HLF counties had significantly lower rates of high school graduation (Exhibit 1). The rates were lower across urban, suburban, and rural counties, but these differences were not significant (Appendix Exhibit 1). Unemployment was higher in HLF counties than in non-HLF counties and significantly higher across suburban and rural counties. Although child poverty rates were significantly lower overall in HLF counties than in non-HLF counties, child poverty rates were higher among HLF counties across urban, suburban, and rural strata. A significantly smaller proportion of the population ages sixty-five and older lived in HLF counties, compared with non-HLF counties.

In contrast with the poor socioeconomic and demographic determinants of health seen in HLF counties, all four health care access measures were significantly better in HLF counties than in non-HLF counties (Exhibit 1). HLF counties had a lower proportion of uninsured people, a lower rate of ambulatory care–sensitive conditions, and higher rates of primary care physicians and dentists.

Most of these differences in access to care remained significant across the strata of rurality (Appendix Exhibit 2). Only the rural rate of ambulatory care–sensitive conditions indicated that HLF counties had significantly poorer access to health care, compared with their non-HLF counterparts. The median number of ambulatory care–sensitive conditions was 94.4 per 1,000 Medicare enrollees in rural HLF counties, compared with 81.0 in rural non-HLF counties (Appendix Exhibit 2).

We also used the twelve indicators to compare HLF counties and non-HLF counties within the same census division and within the same state (results not shown). Within every division except New England and within most states, the percentage black and the percentage not proficient in English were significantly higher among HLF counties than among non-HLF counties. HLF counties also had lower uninsurance rates, lower rates of ambulatory care–sensitive conditions, and significantly higher rates of dentists and primary care physicians within eight out of nine census divisions and within a majority of the states that we analyzed.

### Exhibit 1
Socioeconomic, Demographic, And Health Care Access Indicators In Counties With Health Legacy Foundations (HLFs) And Those Without HLFs

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Counties with HLFs (n=180)</th>
<th>Counties without HLFs (n=2,551)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unemployment rate&lt;sup&gt;a&lt;/sup&gt;&lt;sup&gt;b&lt;/sup&gt;</td>
<td>9.0%</td>
<td>8.7%</td>
</tr>
<tr>
<td>Child poverty rate&lt;sup&gt;e&lt;/sup&gt;&lt;sup&gt;h&lt;/sup&gt;</td>
<td>23.5</td>
<td>25.5&lt;sup&gt;***&lt;/sup&gt;</td>
</tr>
<tr>
<td>Children living in single-parent homes&lt;sup&gt;c&lt;/sup&gt;&lt;sup&gt;g&lt;/sup&gt;</td>
<td>35.2</td>
<td>31.3&lt;sup&gt;***&lt;/sup&gt;</td>
</tr>
<tr>
<td>High school graduation rate&lt;sup&gt;d&lt;/sup&gt;&lt;sup&gt;f&lt;/sup&gt;</td>
<td>80.3</td>
<td>82.6&lt;sup&gt;***&lt;/sup&gt;</td>
</tr>
<tr>
<td><strong>PEOPLE WHO:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are ages 65 and older&lt;sup&gt;a&lt;/sup&gt;&lt;sup&gt;b&lt;/sup&gt;</td>
<td>13.9</td>
<td>16.3&lt;sup&gt;****&lt;/sup&gt;</td>
</tr>
<tr>
<td>Live in a rural area&lt;sup&gt;a&lt;/sup&gt;</td>
<td>11.4</td>
<td>61.8&lt;sup&gt;****&lt;/sup&gt;</td>
</tr>
<tr>
<td>Are black&lt;sup&gt;e&lt;/sup&gt;&lt;sup&gt;c&lt;/sup&gt;</td>
<td>10.9</td>
<td>2.6&lt;sup&gt;****&lt;/sup&gt;</td>
</tr>
<tr>
<td>Are not proficient in English&lt;sup&gt;c&lt;/sup&gt;&lt;sup&gt;e&lt;/sup&gt;</td>
<td>1.9</td>
<td>0.8&lt;sup&gt;****&lt;/sup&gt;</td>
</tr>
<tr>
<td>Are uninsured&lt;sup&gt;d&lt;/sup&gt;</td>
<td>17.5</td>
<td>19.0&lt;sup&gt;****&lt;/sup&gt;</td>
</tr>
<tr>
<td><strong>PER 1,000 MEDICARE ENROLLEES, NUMBER OF:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambulatory care-sensitive conditions&lt;sup&gt;d&lt;/sup&gt;&lt;sup&gt;e&lt;/sup&gt;&lt;sup&gt;g&lt;/sup&gt;</td>
<td>65.0</td>
<td>75.8&lt;sup&gt;****&lt;/sup&gt;</td>
</tr>
<tr>
<td><strong>PER 10,000 PEOPLE, NUMBER OF:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary care physicians&lt;sup&gt;h&lt;/sup&gt;</td>
<td>7.5</td>
<td>4.9&lt;sup&gt;****&lt;/sup&gt;</td>
</tr>
<tr>
<td>Dentists&lt;sup&gt;h&lt;/sup&gt;</td>
<td>5.6</td>
<td>3.2&lt;sup&gt;****&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

**Source:** Authors’ analysis of data in the Health Legacy Foundations database (see Note 9 in text) and County Health Rankings and Roadmaps (see Note 10 in text). **Notes** Online Appendix Exhibits 1 and 2 (see Note 17 in text) show HLF and non-HLF counties stratified by percentage rural. *Mean rate; p value calculated for two-group t-tests. 2011. Five-year estimates for 2007–11. For most states, 2009–10. **Median rate; p value calculated using Mann-Whitney two-group rank-sum tests comparing distributions. Methodological details are provided in the online Appendix (see Note 17 in text). 2010. †A measure of preventable hospitalizations. 2011–12. **p < 0.05; ***p < 0.001
Discussion
This is the first quantitative study to match HLFs with socioeconomic indicators of relative community need. Uncovering determinants of health that characterize HLF counties helps identify possible grant-making opportunities to improve health and well-being and underscores the great potential of HLFs as local sources of philanthropic funding to reduce health disparities.

Compared with other counties, HLF counties had significantly higher proportions of black residents and people not proficient in English, as well as multiple socioeconomic indicators of poor health, even when we controlled for percentage rural and for regional and state-level influences. Unexpectedly, we found that HLF counties were relatively advantaged in terms of access to medical services. In light of evidence that interventions related to socioeconomic status have the greatest potential to improve population health, this study’s findings have direct implications for HLF leadership, planning, and grant making.

Leadership: An HLF’s responsiveness to community health needs begins with its leadership. To involve disadvantaged populations and devise effective strategies for achieving health equity, HLFs’ governing boards of directors and executive staffs must be representative of the target populations they serve. Minority representation is especially critical given that higher proportions of blacks and people with limited English proficiency reside in HLF counties, compared with non-HLF counties.

In spite of the greater minority presence where HLFs are located, the composition of HLF boards has been predominantly white. In fact, in a 2006 survey Grantmakers In Health found that 28 percent of HLFs had no minority board members. Furthermore, only 23 percent of HLFs surveyed used a community advisory committee. Greater minority representation among HLF leaders and other decision makers would demonstrate foundations’ commitment to empowering historically underrepresented populations, a crucial step toward eliminating racial and ethnic disparities in health.

Planning: Our findings also underscore the need for HLFs to conduct community health needs assessments that go beyond measures of health behaviors, status, and outcomes by incorporating measures of socioeconomic status. Carefully assessing health indicators of minority populations and other groups that are vulnerable to poor health is especially important for identifying and monitoring health disparities.

Because health needs assessments can play a pivotal role in improving health and health care, the Affordable Care Act now requires that nonprofit hospitals conduct these assessments at least every three years. However, the act does not require that hospitals collect information about social determinants of health. For communities in which the sole nonprofit hospital has converted to for-profit ownership, an HLF can assume responsibility for conducting an assessment that includes the measurement of a broad array of socioeconomic and other factors that influence health. For communities that still have a nonprofit hospital, an HLF could collaborate with that hospital in conducting the needs assessment, ensuring that data are collected on a wide range of health determinants. In spite of the value of health needs assessments, Grantmakers In Health found that fewer than half of the HLFs surveyed used a community needs assessment in their planning, and only two of the forty-nine foundations that conducted needs assessments had adopted bylaws requiring them to do so.

Grant Making: Strategies that target underlying barriers to health for disadvantaged populations have the potential to improve overall community health and minority health, in particular. HLFs are well positioned to implement such strategies. As locally governed nonprofit organizations, HLFs are less restricted than governments in their ability to respond to changing community needs. The redistributive nature of public policies addressing social determinants of health can be controversial. However, a community-based philanthropic organization is well suited to distribute charitable assets in a manner that most efficiently and effectively responds to local health needs.

Furthermore, most HLFs are located in the South, a region with historically poor socioeconomic status and a history of racial health disparities. The current infusion of charitable wealth provided by HLFs may offer new hope to many chronically distressed communities in that region, which is home to the greatest concentrations of black residents and of people living in poverty. Rural HLF communities, which are also concentrated in southern states, may stand to benefit the most from strategies that target social determinants of health.

In spite of our finding that HLF counties have better access to health care than non-HLF counties, we recommend that HLFs include access to care among their strategic priorities, for several reasons. First, although this study analyzed the most commonly used indicators of health care access, many other factors affect people’s ability and willingness to access care, including distrust of providers, language barriers, and limited transportation. Greater understanding of the specific barriers to health care access would enable HLFs to tailor grant-making strategies so that community needs are best addressed.

Second, many HLFs have worked for years to improve access to health care, and their effectiveness may be reflected in current indicators such as low rates of preventable hospitalizations. Withdrawing HLF support for initiatives that facilitate access may have negative consequences for vulnerable populations.

Finally, although most HLFs are located in urban areas, rural and suburban HLF counties have substantially less access to medical care than urban HLF counties across all four measures of access (Appendix Exhibit 2). This finding makes even more compelling our recommendation that HLFs play a leading role in community-based needs assessments, either in collaboration with a local nonprofit hospital or alone in the absence of such a hospital. HLF participation can foster reflective and unbiased needs assessments that consider medical care needs, population health disparities, and a full range of local health interests.

Conclusion
As new HLFs emerge in the post–health reform era, the need will grow for information about how best to use HLF re-
resources to improve community health. This study suggests that HLFs that support only medical services may inhibit improvements in population health by depriving communities of opportunities to remedy underlying impediments to good health.

Our principal and unexpected finding is that HLFs tend to be located in areas that have greater-than-average health care access but poorer socioeconomic determinants of health. This finding, coupled with increasing evidence that the health status of populations is determined largely by socioeconomic status, leads us to recommend that HLFs consider socioeconomic factors in addition to medical needs when doling out grant funds. HLFs that foster racial diversity among their leaders and use comprehensive needs and assets assessments to establish priorities will be best equipped to implement strategies that improve population health and reduce the need for medical care in the first place.

Particularly in the South, the financial struggles that led to the sale of nonprofit hospitals may have been a reflection of poorer socioeconomic conditions in the communities surrounding the hospitals. Hence, with the advent of HLFs, some communities with historically minimal resources have new opportunities to address the root causes of poor health conditions. Given their abundant resources and their unique charitable health lineage, HLFs are well positioned to mobilize resources to ensure that people have safe housing, high-quality education, supportive families, stable employment, affordable child care, good nutrition, and other necessities that make healthy living possible.

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NOTES


8 Standish JD. Hospital conversion revenue: a critical analysis of present law and future proposals to reform the manner in which revenue generated from hospital conversions is employed. J Contemp Health Law Policy. 1998; 15(1):131–82.


