Dignity Health

Improving Public Health & Preventing Chronic Disease

Dignity Health's Community Need Index

Who We Are

Dignity Health is a faith-based, mission-driven organization of more than 65,000 physicians, employees, and volunteers who daily deliver quality, compassionate care to communities across the United States.

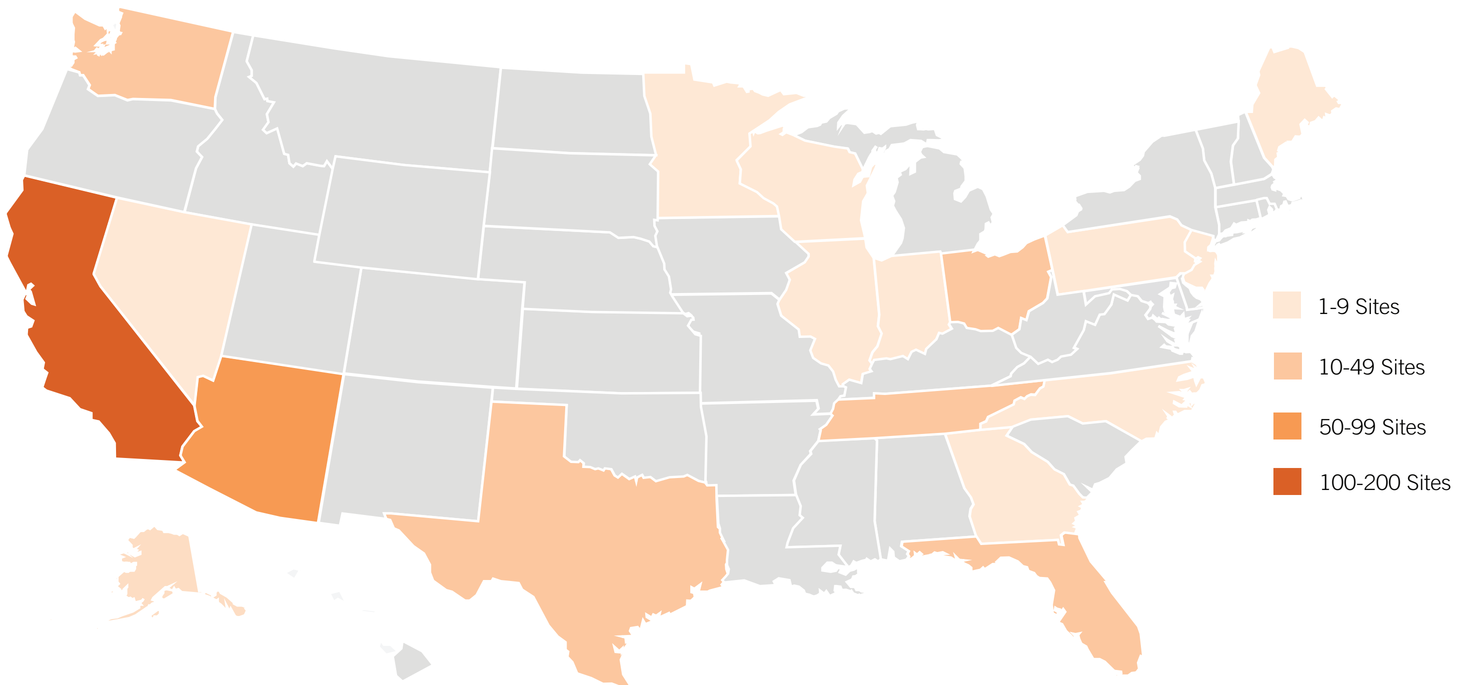
Our founders charge us with the responsibility to serve our patients and to partner with others to improve the quality of life. Doing so enables us to be both a presence and a proactive agent for change in our communities.

Why We Exist

Dignity Health is committed to furthering the healing ministry of Jesus. We dedicate our resources to:

- Delivering compassionate, high-quality, affordable health services;
- Serving and advocating for our sisters and brothers who are poor and disenfranchised; and
- Partnering with others in the community to improve the quality of life.

- Population Served: 22 million
- Employees: 56,000
- Physicians: 10,000
- Facilities: 300
- ER Visits: 240,000 annually
- Babies Delivered: 66,000 annually
- Grants/Investments: $163 million since 1990
- Community Benefit: $1.6 billion in FY12



"Health care matters to all of us some of the time, public health matters to all of us all of the time."

— C. Everett Koop

As one of the largest safety-net providers in the nation, Dignity Health is uniquely positioned to improve the health and wellbeing of a population spanning 22 million people across three states. We exist to protect and enhance the health of the communities we serve, both inside and outside our hospitals' walls.

Excellence for Our Patients, Excellence for Our Communities

When we deliver care in a hospital we are concerned with the individual — body, mind, and spirit — and focus our attention on delivering quality, compassionate care that meets each patient's unique needs. When we extend our care beyond our hospitals' walls we focus our efforts on improving the health of whole communities. And just as we are in a relentless pursuit of excellence in our patient care environments, so too are we engaged in continuous quality improvement in our public health and community benefit planning.

Improving Public Health

Our work begins with an understanding that health cannot be defined simply as the absence of disease. A person's health is affected by many factors including where the person lives, income, educational status, and other social circumstances.

The focus of Dignity Health's public health interventions is therefore based on overall determinants of health. We are committed to developing partnerships with community-based organizations who share our goals to improve health, as well as advocating for policies that improve the health of whole populations equitably.

This work is a fulfillment of our mission, which calls us to advocate for the underserved and partner with others in the community to improve the quality of life.

Applying Scientific Rigor to Community Benefit

To help accomplish this mission imperative, we have challenged ourselves to apply a more scientific approach to our community benefit initiatives, demanding a greater degree of accountability for cost and outcomes. As a result we have developed a tool to help organizations understand the public health needs of every zip code they serve, which in turn helps guide the development of community benefit programming. By aligning our resources to meet the right needs, we believe we can prevent unnecessary hospitalizations, improve public health, and drive down the cost of health care.

Accurate measurement of community need is a crucial first step towards ensuring the overall health of a community. Current community-need assessments rely on highly specific, non-standardized data where the relevance is limited to the individual community. These specialized assessments will continue to be important for community planning. However, for the purpose of large-scale public health programming, a comprehensive and standardized assessment of community need is a prerequisite to the strategic allocation of resources by hospitals, health care organizations, private foundations, and public health systems.

The Nation's First Community Need Index

Dignity Health has developed the nation's first standardized Community Need Index (CNI) in partnership with Truven Health Analytics. In developing this tool we applied the same level of scientific rigor we insist on in the practice of medicine to our public health programming. The CNI identifies the severity of health disparity for every zip code in the United States based on specific barriers to healthcare access. In doing so we have demonstrated the link between community need, access to care, and preventable hospitalization for conditions that, if effectively diagnosed and managed, should be treatable in an outpatient setting.

The ability to pinpoint neighborhoods with significant barriers to health care access is an important new advancement for public health advocates and care providers. And because the CNI considers multiple factors that are known to limit health care access, the tool may be more accurate and useful than existing assessment methods in identifying and addressing the disproportionate unmet health-related needs of neighborhoods.

"People's social and economic circumstances affect their health throughout life, so health policy must be linked to the social and economic determinants of health."

—World Health Organization

A Breakthrough Approach

Rather than relying solely on public health data, the CNI accounts for the underlying social and economic barriers that affect overall health. Using a combination of research, literature, and experiential evidence, Dignity Health identified five prominent socio-economic barriers that enable us to quantify health care access in communities across the nation:

Income Barriers – *Percentage of elderly, children, and single parents living in poverty*

Research shows that people living on limited incomes are more likely to forego visits to the doctor in order to meet their more pressing financial responsibilities. Low-income wage earners are also less likely to be covered by an employer's health insurance program, and if they are covered, they are often less able to pay their share of health expenses.[1]

Cultural/Language Barriers – *Percentage Caucasian/non-Caucasian and percentage of adults over the age of 25 with limited English proficiency*

Access to culturally and linguistically competent care is a necessary component in improving health status. Language and culture barriers can contribute to an increased prevalence of disease and lower recruitment into government health programs.[2] Research has shown that patients whose primary language is not English may be compromised in their understanding of their medical situation, be confused about instructions following hospital discharge, and may not be able to read their prescription labels or understand self-care instruction for chronic conditions.[3]

Educational Barriers – *Percentage without high school diploma*

Lack of education has been cited as a major indicator of poor health in many studies.[4] Educational barriers often turn into impediments to employment, further increasing the likelihood of poverty and lack of insurance. Lack of adequate health education also impacts a person's ability to understand medical information or recognize early symptoms of disease.

Insurance Barriers – *Percentage uninsured and percentage unemployed*

Lack of health insurance forces individuals to forgo primary care treatment options, leading to a markedly increased propensity to be hospitalized for chronic conditions.[5] Employment status also has a substantial impact on the ability of individuals to obtain insurance. A person without health insurance who experiences an injury or a new chronic condition has greater difficulty accessing recommended medical care and takes longer to return to full health, if at all. And if health remains compromised, it could make it more difficult for an uninsured person to obtain health insurance in the future.[6]

Housing Barriers – *Percentage renting houses*

Increased use of rental housing is associated with more transitory lifestyles, a less stable home and an environment that deters health prevention.[7] For example, rental housing is more likely than owned housing to be sub-standard, in neighborhoods with higher crime rates, lower quality schools, limited healthy food choices and fewer recreational opportunities.[8] This measure does not reflect whether there is a significant population of homeless individuals in an area, a factor that could influence demands on local health systems in addition to the inherent increase in overall health risk from lack of stable shelter.

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2 Reynolds D Improving care and interactions with racially and ethnically diverse populations in healthcare organizations. Journal of Healthcare Management. 2004 Jul-Aug;49(4):237-49.

3 Williams MV et al. Inadequate functional health literacy among patients at two public hospitals. JAMA. 1995 Dec 6;274(21):1677-82.

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5 Holahan J, Arunabh G. The Economic Downturn and Changes in Health Insurance Coverage, 2000-2003. Henry J. Kaiser Family Foundation, Sept. 2004.

6 Hadley, Jack. Insurance Coverage, Medical Care Use, and Short-Term Health Changes Following an Unintentional Injury or the Onset of a Chronic Condition. The Journal of the American Medical Association 2007; 297: 1073-1084.

7 Diez Roux AV, Merkin SS, Arnett D, et al. Neighborhood of residence and incidence of coronary heart disease. N Engl J Med. 2001; 345:99-106.

8 Macroeconomics and health investing in health for economic development: Report on the commission on Macroeconomics and health. World Health Organization, Geneva 2001.

Assigning CNI Scores

To determine the severity of barriers to health care access in a given community, the CNI gathers data about that community's socio-economy. For example, what percentage of the population is elderly and living in poverty; what percentage of the population is uninsured; what percentage of the population is unemployed, etc.

Using this data we assign a score to each barrier condition. A score of 1.0 indicates a zip code with the lowest socio-economic barriers (low need), while a score of 5.0 represents a zip code with the most socio-economic barriers (high need). The scores are then aggregated and averaged for a final CNI score (each barrier receives equal weight in the average). Figure 1, provides an example of CNI scores for a low need community and a high need community.

Figure 1 **Comparison of CNI Scores for High-Need and Low Need Communities**

		Green Valley, AZ 85614		Compton, CA 90220	
Barrier	**Indicator**	**Indicator %**	**Barrier Score**	**Indicator %**	**Barrier Score**
Income	Elderly Poverty Child Poverty Single Parent Poverty	3% 8% 32%	3	17% 27% 40%	4
Cultural	Non-Caucasian Limited English	8% 1%	2	97% 16%	5
Education	Without HS Diploma	9%	1	45%	5
Insurance	Unemployed Uninsured	4% 13%	2	15% 32%	5
Housing	Renting %	12%	1	38%	4
Final CNI Score			1.8 (Low Need)		4.6 (High Need)

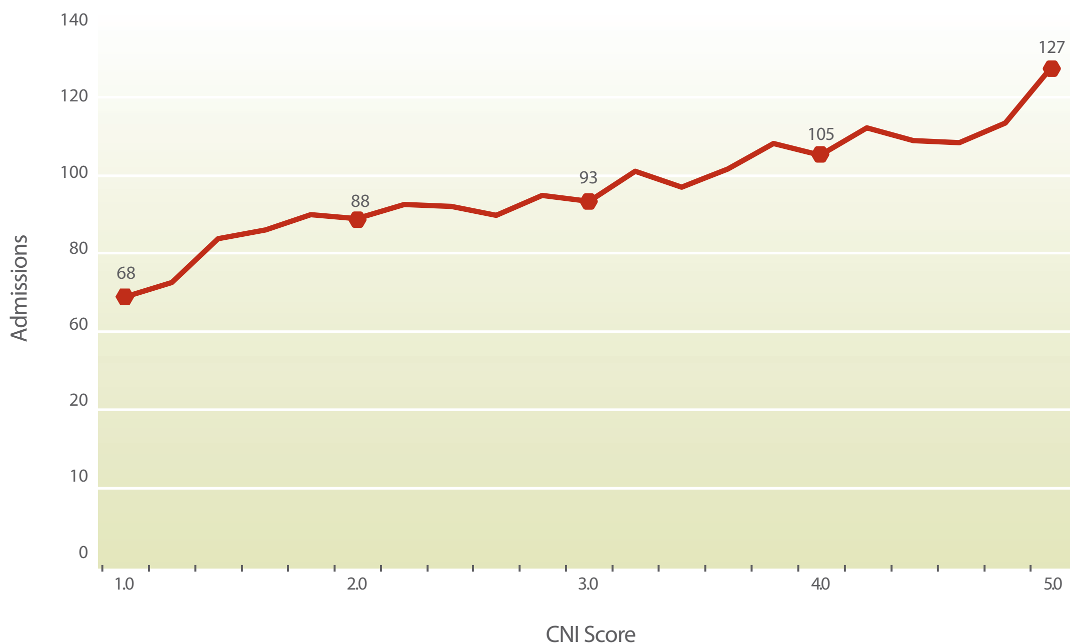
What The Scores Mean

A comparison of CNI scores to hospital utilization shows a strong correlation between high need and high use. When we examine admission rates per 1,000 population (where available), we find a high correlation (95.5%) between hospitalization rates and CNI scores. In fact, admission rates for the most highly needy communities (CNI=5.0) are more than 60 percent higher than communities with the lowest need (CNI=1.0), as illustrated in Figure 2.

We have also examined admission rates for ambulatory sensitive conditions, or ASCs. These are conditions such as pneumonia, congestive heart failure and cellulitis where appropriate ambulatory care could prevent or reduce the need for hospital admission. Hospitalization for some conditions may be reduced if persons had access to effective and timely care in the community. Prior care could prevent the onset of certain illnesses, help control an acute episodic illness or condition, or manage a chronic disease or condition. With proper outpatient care these conditions do not generally require an acute care admission.

Figure 2

Annual Admission Rate per 1000 Population by CNI Score All Service Lines



Admission Rates in High Need Areas Are Twice Those of Low Need Areas

When admission rates for ASC conditions were compared to CNI scores, we found that the highest need communities were experiencing admission rates almost twice as often (97 %) as the lowest need communities, as shown in Figure 3. Importantly, there was no relationship observed between CNI scores and "marker conditions" — such as appendicitis and heart attack, which require inpatient treatment regardless of socio-economic status. This proves a strong causal relationship between CNI scores and preventable hospitalization for manageable conditions (i.e., ASCs).

Figure 3

Using the CNI

At Dignity Health, we have used the CNI scores to map the health need of every community we serve. The data and the maps are being used locally by our hospitals and health clinics, and by our community partners, to develop programs and services that address the underlying causes of health disparity.

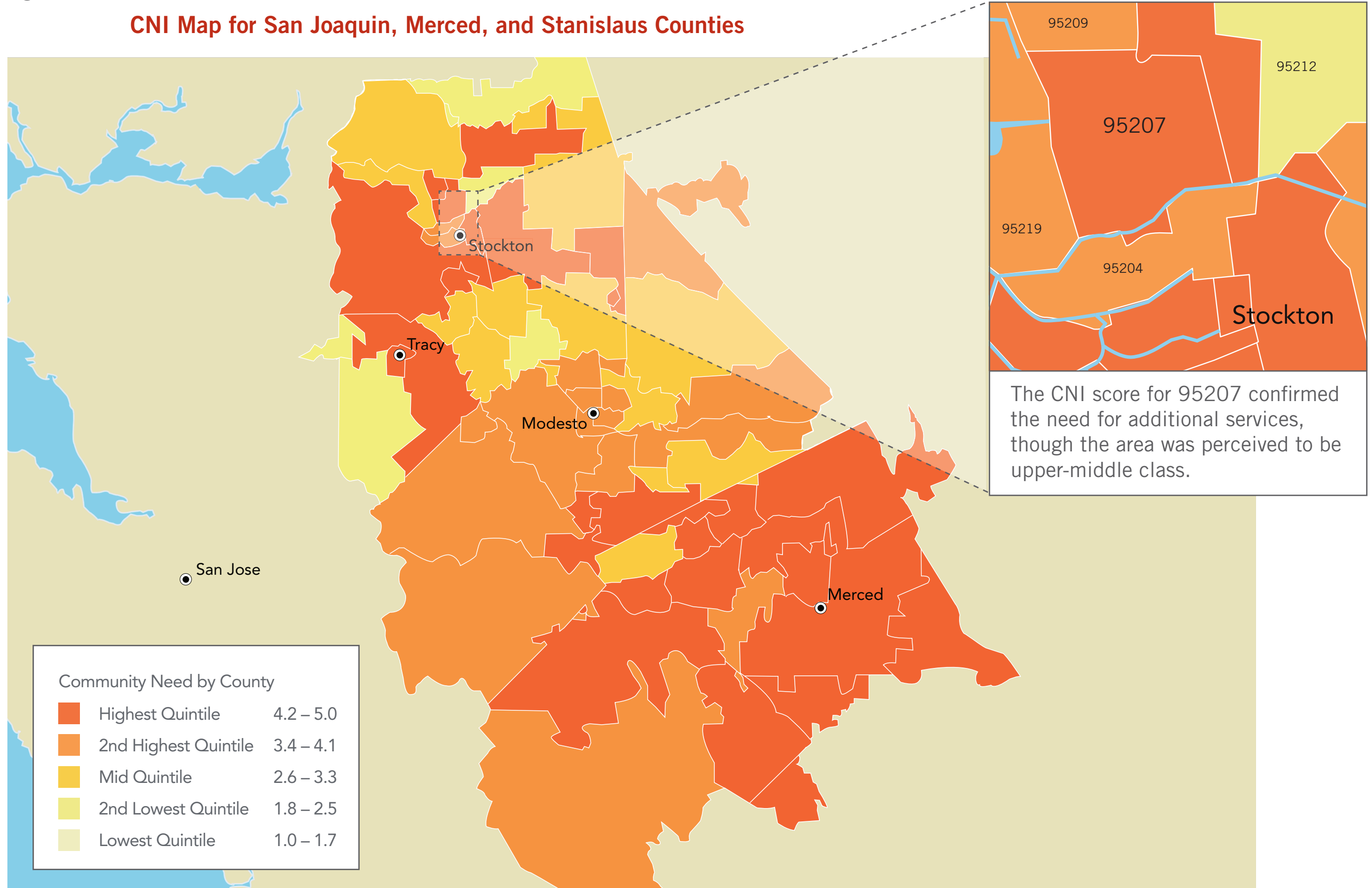
The CNI map in Figure 4, for example, shows the CNI scores for zip codes in San Joaquin, Merced, and Stanislaus counties in California. The CNI data for these areas confirmed that one zip code was a high need community, even though many thought it to be an upper-middle class area.

The CNI score for 95207 was 4.2, which is in the highest need quintile. This prompted St. Joseph's Medical Center in Stockton (a Dignity Health facility) to collaborate with other community organizations to conduct a more in-depth analysis of what was going on in 95207. The CNI data showed that 48 percent of children in that zip code were living in single parent homes and were in poverty. Further study found that 52 percent of the children in that zip code qualified for the federal "free lunch" program at school. In response, St. Joseph's revised the routes for their CareVan, which now makes regular stops at the elementary schools in the area, providing free health screenings and immunizations.

In Sacramento, California, the CNI also confirmed the need for a community health clinic in the North Highlands area. Within zip codes for the community, as many as 30 percent of residents lack health insurance and up to 43 percent of households are headed by single parents living in poverty. To meet the health need in that area, Dignity Health's Mercy San Juan Medical Center is partnering with a number of community groups to invest an estimated $300,000 for a community clinic at a local school.

Figure 4

CNI Map for San Joaquin, Merced, and Stanislaus Counties



The CNI score for 95207 confirmed the need for additional services, though the area was perceived to be upper-middle class.

How the CNI Can Improve the Quality of Life and Control Costs

We will update the data in the CNI regularly and track whether our efforts are having an effect on community health and preventable hospitalization for manageable conditions. As an example of the potential benefits of this work, Figure 5 shows the difference in cost for hospitalization versus outpatient treatment for two common ambulatory sensitive conditions — simple pneumonia and ear infection — in San Francisco County for 2004. Had these conditions been detected and treated through effective primary prevention, the savings to the healthcare system would have been nearly $15 million.

Figure 5

Potential Cost Savings for Outpatient Treatment vs. Inpatient Treatment

		DRG 089 Pneumonia	DRG 069 Ear Infection
Hospital inpatient	Number of admissions in SF County	1,897	37
	Medicare Hospital Rate	$8,383	$3,968
	Medicare Physician Rate	$455	$325
	Total Medicare allowable	$8,838	$4,293
	Total Cost	$16,765,591	$158,848
Physician office visit	Number of admissions in SF County	1,897	37
	Office outpatient 40 min consult	$742	$445
	Diagnostics (X-ray, blood tests, etc)	$300	$300
	Medication (antibiotics, etc.)	$100	$100
	Physician Consult + additional costs	$1,142	$845
	Total Cost	$2,166,659	$31,276
	Potential savings	**$14,598,933**	**$127,572**

Likewise, a review of data from the Office of Statewide Health Planning and Development (OSHPD), shows that in San Joaquin, Stanislaus and Merced counties, where Dignity Health operates two hospitals, there were more than 15,500 admissions for ambulatory sensitive (or manageable) conditions. This represents 12.5 percent of all admissions in those counties in 2004. Over time, we believe that effective partnerships between providers, payers, community based organizations, and local governments can create solutions that address disparate health needs and significantly lower the cost of healthcare.

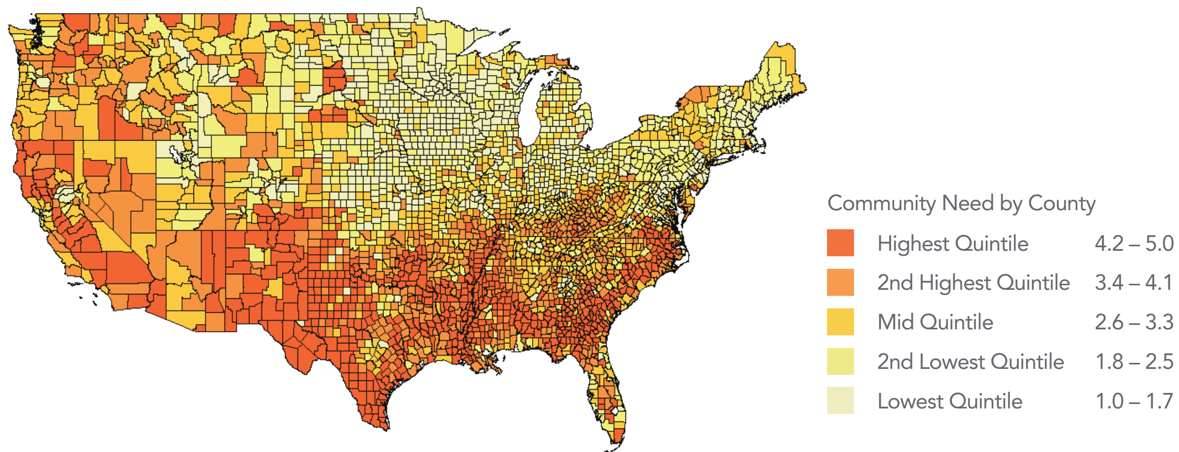
Sharing the CNI to Improve Public Health Nationwide

Dignity Health and Truven have agreed to share the methodology with other health systems and community benefit organizations in an effort to improve community needs analysis nationally. The map in Figure 6 shows the CNI results for every county in the nation and we are actively reaching out to hospitals, health systems, non-profits, and policy makers to provide them with this data.

With this tool communities can become quickly focused on the areas of most need and devote more time and resources to planning interventions that can assure health issues are addressed in sufficient time, and in the most cost effective settings.

The CNI is helping to build coalitions between hospitals, health departments, clinics, health associations, and neighborhood centers. It has influenced emerging bi-partisan legislation to reduce health disparities and is being used by hundreds of providers across the nation. With continued strategic use of the CNI to address the underlying causes of health disparity we can help improve health, control costs, and positively affect the quality of life across our nation.

Figure 6 **CNI Map for Every County in the United States**

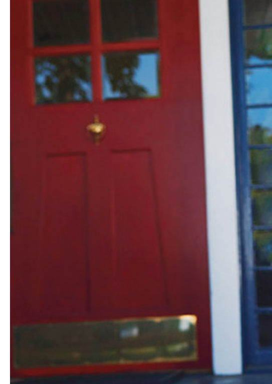


Highest Need Communities in the U.S. (pop. > 500,000)

Community	CNI Score
1. Bronx, NY	4.76
2. Kings, NY	4.67
3. Hidalgo, TX	4.64
4. Baltimore City, MD	4.60
5. Hudson, NJ	4.53
6. Kern, CA	4.34
7. Fresno, CA	4.34
8. El Paso, TX	4.32
9. Philadelphia, PA	4.29
10. San Joaquin, CA	4.24

Lowest Need Communities in the U.S. (pop. > 500,000)

Community	CNI Score
1. Bucks, PA	1.99
2. Norfolk, MA	2.13
3. Will, IL	2.19
4. Dupage, IL	2.21
5. Nassau, NY	2.22
6. Montgomery, PA	2.24
7. Oakland, MI	2.26
8. Suffolk, NY	2.35
9. Jefferson, CO	2.36
10. Gwinnett, GA	2.36



For more information about the Community Need Index
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To learn more about Dignity Health
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