

Disparities In Health Care and How Population Health Analytics Can Help

Your Guide to Creating a Population Health Strategy with a Focus on Health Equity and Reducing Disparities



Health care organizations — including those in value-based care arrangements, accountable care organizations and health systems — have long strived to improve health equity. In a post-pandemic world focused on identifying and reducing health disparities, it has become more important than ever to address these issues.

In this guide, we explain the unique features of the ACG® System that allow health care organizations to identify and reduce disparities, ensuring a healthier population and lower health care costs. We also explain how Population Health Analytics can help organizations create population health plans to ensure all individuals receive appropriate levels of care.

TABLE OF CONTENTS

The Landscape: Health Equity and Disparities in Policy - Page 3

Using the ACG System to Develop an Impactful Health Equity Strategy - Page 4

 Patient Need Groups - Page 5

 Social Need Markers - Page 6

 ACG GeoHealth - Page 8

Case Study - Page 10

Conclusion - Page 13

The Landscape:

Health Equity and Disparities in Policy

Despite increased knowledge of how social and individual disparity factors contribute to inequities, health equity plans and solutions have yet to really put that knowledge to use. **However, with the expansion of value-based care arrangements and mandated reporting metrics tied to health disparities, there is now more emphasis than ever on health equity.**

During the last few years, we have seen a rise in the number of health care metrics focused solely on health equity. Health equity measures are also being introduced within the ACO REACH program, CMS STARS, MIPS and HEDIS, among others. CMS has also proposed a Health Equity Index in Medicare Advantage contracts.

To measure and understand health equity and disparities in a population, the population must be analyzed and measured appropriately, adding segmentation and stratification to ensure each population receives an appropriate level of care.

NCQA will require HEDIS measures to be stratified by socioeconomic status and race, both of which are usually underreported within health care data. In contrast, the Humana Health Disparity Measure filters quality metrics by variables such as socioeconomic status and race but also by dual-eligible and disability status.

The Johns Hopkins ACG System allows users to explore their health care data through a variety of filters, including frailty markers, patient health needs and geographic location, all providing a deeply layered approach to the analytics necessary for a health equity strategy.



-  Race
-  Ethnicity
-  Disability Status
-  Dual-Eligible Status
-  Health Needs Based on Location
-  Social Need Markers (SNMs)

Using the ACG System to Develop an Impactful Health Equity Strategy

To implement a strong health equity strategy aimed at reducing disparities, an important first step is to measure and identify where improvements can be made.

The ACG System allows users to analyze diagnoses, procedures and lab and pharmacy data to understand a population's current health needs. These capabilities, combined with predictive models and Social Determinants of Health (SDoH) features, support a long-term strategic goal of creating health equity.



Social Determinants of Health are critical for understanding the social, geographical, environmental and economic factors that determine a population's overall health and well-being. When available, SDoH data enable organizations to craft intelligent and accurate population health strategies. **This information is essential to unlock areas for better patient care, better outcomes and cost savings opportunities.**

But until recently, there was limited information in medical services data — both in claims and Electronic Health Records (EHR) files — to inform practitioners of their patient's SDoH factors. **The ACG System gives users a full understanding of how populations are likely impacted by geographically driven factors, using custom calculations based on information included within existing medical services files.**

All outputs from the ACG System can be stratified by race, ethnicity and other markers. This includes patients' current and predictive needs, disparity levels, identified social needs, frailty, dual eligibility status and disability status.



Patient Need Groups is a segmentation feature—a new and innovative approach to patient categorization.



Social Need Markers identify individuals within patient populations with unmet social needs.



ACG GeoHealth allows users to uncover information about patients based solely on where they live, leveraging existing information we have about most patients in claims and EMR data, without relying on specialized LOINC or Z-codes, which may not be available for all patients.

We will now take a closer look at each of these ACG System functionalities, and how they can support your goals of creating a strategic health equity plan.

Patient Need Groups

The ACG System’s Patient Need Groups (PNGs) segmentation feature is an innovative approach to patient categorization from Johns Hopkins. PNGs, available exclusively within the ACG System, allow users to level-up their population health strategy creation, implementation and monitoring using an intuitive new lens into the unique patterns of patient health needs. Patients’ health needs are driven by their unique combination of medical conditions and social factors, requiring a tailored approach to improving their health. Our PNG methodology assigns individuals into mutually exclusive hierarchical groups, allowing ACG System users to gain deep insights and take focused action to address and meet their population’s health needs.



While other population health groupings identify patients by disease state, care episode or utilization incident, the ACG System focuses on a whole-patient approach to care. Patients, particularly those with complex health needs, are often defined in terms of their disease states (“a diabetic”) or incident (“a readmission”). The ACG System goes further, allowing health care organizations to address the patient, rather than an individual disease state or single occurrence. PNG segmentation takes our multimorbidity approach to the next level by assigning mutually exclusive, hierarchical and clinically-relevant categories that are easy to gather a full-picture of a population’s distribution of health needs.

The Patient Need Groups

PNG01	PNG02	PNG03	PNG04	PNG05	PNG06	PNG07	PNG08	PNG09	PNG10	PNG11
Non User	Low Need Child	Low Need Adult	Multi-Morbidity Low Complexity	Multi-Morbidity Medium Complexity	Pregnancy Low Complexity	Pregnancy High Complexity	Dominant Psychiatric Condition	Dominant Major Chronic Condition	Multi-Morbidity High Complexity	Frailty



The core 11 Patient Need Groups represent a person-oriented approach to understanding health needs, applicable to all age groups and populations. Individuals move into and out of various levels of need over the course of their lifetime. PNG categories can be utilized by health care organizations to understand a population’s health needs, develop clinical programming specific to different patient types, understand utilization patterns and take targeted action to improve service use and costs.

PNG segmentation can help users understand their current health equity structure and direct care improvement where and when it's needed. PNGs can be further stratified by variables such as race, location, and social needs, to contribute to an overall health equity strategy by supporting tailored approaches to patient according to need. For example, less-complex PNG groups could receive digital health improvement programs to focus on appropriate lifestyle management and prevention of a worsening health state, while highly-complex patients can be prioritized for additional, focused, resources.

For more information about Patient Need Groups, [click here](#).

Social Need Markers

The ACG System's Social Need Markers allow users to assess the most pressing health care needs for an individual, measuring social needs and barriers to optimal health at the patient level.

The 10th revision of International Classification of Diseases (ICD-10) includes Z-codes to describe factors that influence medical conditions and health-related outcomes. These Z-codes are used by providers when coding a patient's diagnosis and are helpful for standardizing documentation about a patient's immediate needs. These Z-codes can help organizations drive an effective strategy to address the specified recorded needs of a population.

The ACG System's Social Need Markers work together with Z-codes to capture social need data, consistently identify patients with social factors affecting health and provide actionable insight that can be used in both clinical and population health management settings.

For example, using SNMs, care management teams and social workers can develop interventions and programs to address high-need, high-cost patients specifically tailored to their exact needs.



Social Need Markers were developed to give users a comprehensive view of social needs for individuals within their populations. SNMs consist of **five domains** that capture some of the most documented social needs of individuals visiting a health care system:



Social



Education



Health Care System



Economic



Physical Environment

These individual markers allow health care providers to enhance patient care and create a better understanding of their impact on utilization and total cost of care. Additionally, these individual metrics enable providers to arrange for different interventions, programs and assistance to patients who need more support to achieve better health.

By further leveraging Z-codes via SNMs, care teams can develop or tailor current interventions and programs that address prominent social needs in their patient population. Combined with the ACG System's GeoHealth module, these can be used to identify and focus on geographic areas where social determinant concerns are concentrated. This specificity in location can be used to leverage partnerships with community organizations and other public health resources to meet individuals' social needs within the population more effectively, further working toward a holistic whole-person approach to patient care.

Social Need Markers can not only identify the most prevalent and addressable social needs for a patient population, but can also be used to subsequently track the effectiveness of intervention programs developed to combat those deficits, thus tracking progress on health equity concerns.

The use of these Z-codes to identify social needs among patients is increasing; however, we know ICD-10 Z-code information is not always available or complete. In order to get the full picture of SDoH within a patient population and form an effective health equity strategy, we need to focus on information that is readily available. The ACG GeoHealth feature is able to efficiently and effectively supplement Z-code information based solely on where patients live.

For more information about Social Need Markers, [click here](#).

ACG GeoHealth

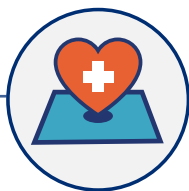
Working alongside the ACG System’s Social Need Markers, ACG GeoHealth is a unique component that enhances an organization’s existing data, as it leverages a patient’s address to incorporate SDoH risks related to patient geography. This provides valuable insights into a population’s geographic contribution to their health based solely on location, without needing to rely on supplementary data sources.



By building on the ACG System’s whole-person approach to health needs and predictive measures, ACG GeoHealth provides in-system capabilities to:



Identify disparities in health status for populations based on the area in which they live



Measure health disparities, outcomes and cost based on geographic variables



Develop needs-based plans to provide essential care in a geographically targeted way



Support resource allocation, case management and community health worker activities

Understand disease prevalence, quality of care and utilization trends by geography

ACG GeoHealth provides datasets cleansed and curated at Johns Hopkins, to identify the concentration of disparities in patient populations. Users can measure outcomes based on geographic variables, develop programs and partnerships targeted to geographic areas in which they serve, support appropriate resource allocation and gain more understanding about their patient population.

The Area Deprivation Index (ADI), a measure created by the Health Resources and Services Administration, ranks neighborhoods on the basis of socioeconomic disadvantage in the areas of income, education, employment and housing quality. This valuable resource has long been utilized by public health organizations for long-term planning.

Each of the factors included in the GeoHealth module were tested to determine their influence on current and future health status. The ACG System team's research concluded that 17 variables, noted below, were most closely related to, and indicative of, health status. When pulled together with the rest of the data available through the ACG System, organizations can create a full view of patient-level risks. Adding these SDoH features provides a comprehensive population- and individual-level view of social risk, giving you results that cannot be obtained through other methods.

ACG GeoHealth Measurements

Health System Access



- % with Employer-Based Insurance
- % of Population with Medicare
- % of Population with Medicaid

Physical Environment



- % Vacant Housing
- % Owner-Occupied Housing Units
- # of Vehicles per Worker (16 years +)

Economic



- % SNAP
- Median Household Income
- % of Population with Income Below Poverty Line

Social



- Population Density
- Area Deprivation Index
- % Spouse Present
- % Living Alone

Education



- % 25 Years + with Bachelor's Degree
- % 25 Years + with No High School Diploma

- % 16 Years + With Employment
- Median Home Value

ACG GeoHealth is designed to give health care professionals the precise ability to address health equity. This feature utilizes neighborhood data to give users a critical look at disparate socioenvironmental factors. Users can also closely examine individual zip codes or census tracts of a certain population to determine the risks and health challenges the population faces due to that geography. **Ultimately, this view of a population allows health care organizations to adapt their current population health strategy to match the equity needs of their population and modify distribution of resources into targeted geographical areas.**

Information from SNMs and ACG GeoHealth allows users to understand the impact of SDoH on a population's health status, disease frequency and health outcomes. This information can be used to drive action and contribute to a population health strategy aimed at improvement of disparities, while adjusting to the areas in need of greater resources and support. **The addition of ACG GeoHealth to the existing suite of ACG System tools is a significant advancement to help users achieve better health outcomes, reduce disparities and better serve their populations.**

For more information about ACG GeoHealth, [click here](#).

Case Study:

A Layered Approach to Health Equity using the ACG System

A customer that uses the ACG System recently discovered exactly how helpful the data is when developing their health equity strategy. This organization needed a clear view of their Medicaid population. They utilized PNGs, SNMs and ACG GeoHealth to develop a thorough view of patient demographics, health needs and health equity scores.

The chart below shows the Medicaid population segmentation, after a thorough analysis using the ACG System. Patients are categorized by need and projected cost and the chart provides considerations for potential levels of care.

PNG	% Population	Avg. Cost
Frail	0.2%	\$85,600
Multimorbid High Complexity	6%	\$45,000
High Complexity Pregnancy	1%	\$10,500
Low Complexity Pregnancy	2%	\$5,500
Medium Complexity	12%	\$5,300
Low Need Adult	20%	\$950

Most cost, utilization and potentially preventable hospitalizations occur in the frail and multimorbid groups. **Are they receiving prospective care-coordination services?**

Almost 30% of pregnancies have an underlying risk factor, placing them at high risk of poor maternal/newborn outcome. **How are they being supported in your population health strategy?**

These individuals have meaningful underlying health needs but have not yet escalated to needing inpatient or ED services. **How can we prevent their disease worsening?**

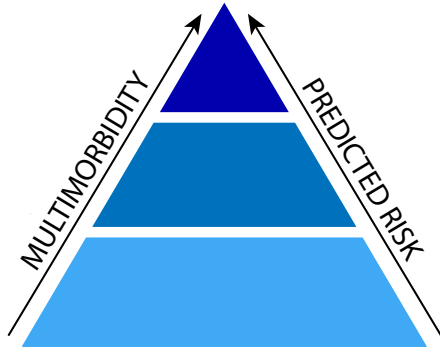
Healthy now - **best target for preventive screenings.**

Illustrative distribution of adults in Medicaid population

Through this analysis, we can clearly observe that **only a very small part of the population is at the level of highest need and cost.** We also see the distribution of patients across groups based on need, allowing this ACG System user to plan current and future predicted resource utilization, drive change and reduce disparities.

These methods can be replicated and further customized by other ACG System users for their specific use cases and populations.

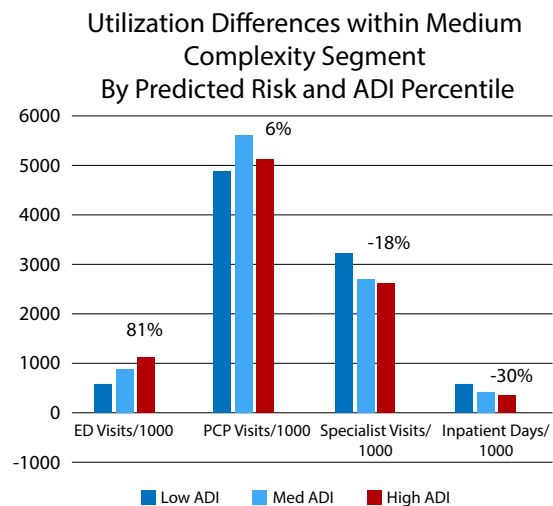
This study also analyzed the distribution of those in various complexities overlaid with predicted risk models. For example, in the graphic below we see a pyramid representing the number of patients in each tier. In the table, we explore those within medium complexity and need, currently stratified by medium and high predicted future risk.



This predictive model, a key component of the ACG System, is suitable for building a successful health equity strategy and proactive population health management. This is achieved by **focusing on the rising-risk population and identifying those who will have high health needs in the near future.**

Medium Complexity (12%)	Medium predicted risk (8.5%)	High predicted risk (1%)
Opportunities for Care Coordination	5%	11%
Lack PCP Care	8%	8%
Substance Use	15%	28%
Polypharmacy	18%	77%
Social Need	20%	20%
Tobacco Use	22%	25%
One or More Non-Emergency Visits to ED	24%	23%
One or More Medication Gaps	28%	62%
Mental Health Comorbidity	42%	45%
Cardio-Metabolic Risk	60%	75%
2 or More Chronic Conditions	72%	91%

Additionally, this study observed utilization by need segment and ACG GeoHealth/Area Deprivation Index (ADI) score. This segmentation supported a whole-person approach to understanding health needs across a population. It also allowed for a clear picture of the relationship between morbidity, utilization and SDoH, which is critical for program planning and execution. In the chart to the right, those with a higher adversity score were found to be less likely to visit a specialist or be admitted to an inpatient setting, likely due to the lack of availability to specialty care and elective procedures. As a result, this population was more likely to visit the Emergency Department (ED) when care was needed.



This insight was only possible through the robust, innovative tools available within the Johns Hopkins ACG System.

Conclusion

Many advancements have been made to equalize care and treatment for all populations, but there is more that can be done to ensure all people receive the best health care for their individual needs. The ACG System enables health systems and other organizations to fully utilize their health care data, including claims, EHR, pharmacy, lab and more, to analyze disparities in the populations they serve.

A valuable health equity strategy requires nuanced, focused data outputs to help prioritize a population's social needs. When users combine these findings into a population health strategy focused on promoting equity and reducing disparities, all people can then achieve their highest possible level of health.

How does the ACG System do this?



The ACG System provides users with robust population health data analyses to enhance understanding of health determinants and improve health outcomes.



The ACG System includes advanced functionality which enables users to measure the significant impact of health disparities on their population.



The ACG System uses data that health care organizations already have and refines it to uncover the best solutions to combat disparities in equality and equity.



ACG GeoHealth uses high quality, geo-targeted measurements to help users develop strategies to create equitable health outcomes and deliver cost-effective care.

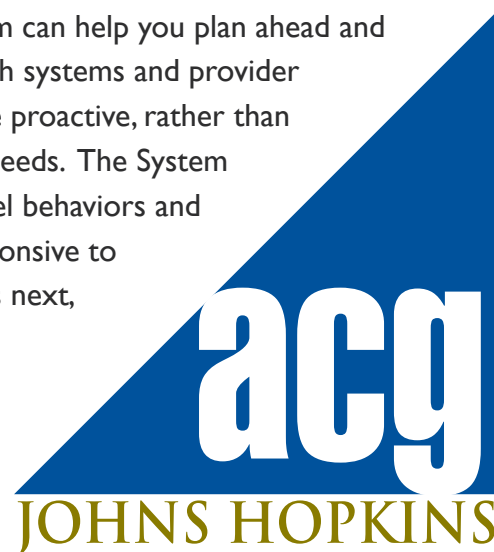


Each of these features work together to help ACG System users develop a successful population health strategy based on insightful, actionable and meaningful data.

ABOUT THE ACG SYSTEM

The Johns Hopkins ACG System is the world's leading population health analytics software. The System continues to evolve, providing ever-more refined tools used in the U.S. and across the globe for over 30 years, from commercial health plans and governments to health systems and large employers. The beauty of the ACG System is its ability to combine data from an array of sources to reveal powerful insights that go beyond just medical records.

By identifying risk and tracking patients over time, the ACG System can help you plan ahead and reduce health care costs – especially valuable to risk-bearing health systems and provider organizations. Most importantly, the ACG System allows you to be proactive, rather than reactive, when it comes to your population's unique health care needs. The System helps you combine a population-level perspective with patient-level behaviors and conditions. And because the System is incredibly flexible and responsive to new information, you can rest assured that no matter what comes next, the ACG System will continuously adapt to your health care management needs.



LEARN MORE

To learn more about how the ACG System can support your organization's health equity strategy, visit www.hopkinsacg.org or email acginfo@jh.edu.

You can also subscribe to our blog, which features the latest developments and news, as well as tips and tricks for making the most of the ACG System's suite of analytics tools. [Click here to subscribe.](#)

