Health Equity from an Actuarial Perspective
Managing Population Health

The American Academy of Actuaries created a Health Equity Work Group with a goal of contributing to efforts to reduce health disparities and improve health equity among racial and ethnic minority populations and underserved or under-resourced communities. The work group is examining actuarial practices and methods in the health area to assess the extent to which they may affect health disparities and recommend changes when appropriate, educate actuaries and other stakeholders on health equity issues, and apply an equity lens to the Academy's health policy work.

An initial issue brief, _Health Equity from an Actuarial Perspective: Questions to Explore_, introduced the first phase of the work group's work—an identification of areas in which health actuaries are involved that may affect health equity and development of a list of questions and topics to explore further. This discussion brief is part of a follow-up series of papers providing more context and details on these questions. This discussion brief is the last in the series and focuses on questions related to population health management. Other discussion briefs have focused on questions related to health plan pricing, health plan benefit design, and provider contracting and network development.

Taken together, the series forms the foundation for the next phase of the group's work—investigation and analysis to answer the questions. By sharing an actuarial perspective through this series, the work group hopes to actively engage not only the actuarial profession, but also policymakers and the health policy community, to help advance the public discourse on health equity solutions.

The Health Equity Work Group has found it instructive to refer to the following definitions in its work:

Health equity means that everyone has a fair and just opportunity to be as healthy as possible. This requires removing obstacles to health such as poverty, discrimination, and their consequences, including powerlessness and lack of access to good jobs with fair pay, quality education and housing, safe environments, and health care.

Health disparities are differences in health or its key determinants that adversely affect marginalized or excluded groups. Disparities in health and in the key determinants of health are the metric for assessing progress toward health equity.

Social determinants of health are nonmedical factors such as employment, income, housing, transportation, child care, education, discrimination, and the quality of the places where people live, work, learn, and play that influence health.

Source: Braveman P, Arkin E, Orleans T, Proctor D, and Plough A. "What Is Health Equity? And What Difference Does a Definition Make?" Princeton, NJ: Robert Wood Johnson Foundation, 2017.

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Population health refers to the health outcomes of a defined group of individuals (population), including the distribution of such outcomes within the group. Population health management refers to the processes used to improve health outcomes of a population.

Populations could be defined in many ways, ranging from everyone in a neighborhood or community, to participants in a government health program such as Medicare or Medicaid, to participants in a particular large hospital system or employer group. The issues that may arise in the context of population health could be quite different, depending on the population of focus. For example, the population health issues and goals related to beneficiaries in a state Medicaid program may vary significantly from participants in a large, self-insured employer group plan.

Many population health management programs use large data sets and complex algorithms to design, monitor and assess models of proactive care that deliver improvements in health and wellbeing to the populations of focus. Actuaries work with a team of other professionals—such as a health plan's medical management, clinical, and provider contracting departments—to create, monitor and evaluate the effectiveness of population health programs. Actuaries may analyze data and develop predictive models to assist with the design of medical management programs, provide technical expertise to determine the program's return on investment (ROI) and develop leading and lagging metrics to measure a program's success. An important question to consider is how the choice of data, the structure of algorithms used to design, monitor, and manage these programs, and the choice of program assessment metrics affect health disparities.

The development of an effective population health program requires consideration of many factors, including cost, financial risk, and what conditions can be impacted by the program, all of which can vary by the population for which the program is designed. How a health plan or health system allocates resources to meet a specific program's goals will vary based these considerations, and they may measure success differently. For example, a community hospital system might develop an antibiotic stewardship program to improve antibiotic use, and an employer group may prioritize disease management programs that control existing conditions more effectively to better manage employee absenteeism. The decisions driven by these different priorities can result in disparate health outcomes and could impact health equity when comparisons are made between populations served by these health system stakeholders.

This paper discusses in more detail the questions that the Health Equity Work Group is exploring regarding whether the data chosen and the structure of algorithms used to design, monitor, and manage these programs may contribute to or mitigate health disparities. Additional discussion will focus on whether program assessment choices around metrics and monitoring contribute to health disparities or whether they might help to mitigate disparities.

How do algorithms that are designed to identify enrollees for disease management, care management, or wellness programs—and the proxy data underlying the algorithms—affect disparities?

Disease management programs are member-centered structured treatment plans for certain chronic diseases such as asthma, diabetes, and coronary artery disease that aim to teach program participants to better manage their chronic disease and to maintain and improve their quality of life. Eligible health plan members diagnosed with any of the chronic conditions supported by the program are identified through claims mining algorithms and referrals from providers. Occasionally, members can also self-select into these programs.

The design of a care management program includes many steps, including the identification of high-risk patients, defining the care management team and required interfaces, creating care plans, documentation, and measuring outcomes. Actuaries may be involved in several of these activities, including the identification of high-risk patients and/or members with significant gaps in care, developing payment methodologies, and measuring outcomes. The identification of high-risk patients and/or significant gaps in care is typically done through a process of risk stratification, based on an assessment of the acuity of the underlying chronic or complex conditions and whether the condition's health outcomes can be affected by intervention.

The purpose of employee wellness programs is to improve a population's health and well-being, often through preventive care. Wellness programs may include smoking cessation, weight loss education, fitness challenges, therapy, and many other plans designed to increase the overall health of program participants.

Many disease management, care management, and wellness programs use claims data to identify potential program participants. Many care management programs rely on algorithms that use cost to identify members to prioritize for more intensive case management. However, because cost is not perfectly correlated with need—particularly within racial and ethnic minority groups or members of other marginalized communities—relying on it to identify beneficiaries of a program may exacerbate inequity. This bias could cause algorithms to de-prioritize members with lower historical health care costs, even if they have the same underlying conditions as patients whose historical claims patterns indicate greater utilization, which may imply greater historical access to care.

Questions to consider are whether the data being used, including any proxy data, incorporate the information needed to identify program participants based on their medical needs, and how algorithm results are tested for racial, gender, or other types of bias. The collection of demographic data could facilitate testing to ensure that algorithms are used to equitably identify those who would benefit the most from care management, disease management, or wellness programs, regardless of their historical spending levels.

Questions also arise regarding the data. For instance, does the lack of consistent race and ethnicity data collection, and the misclassification of race and ethnicity, perpetuate or exacerbate health disparities? Does the lack of widely accepted mechanisms to test the bias created by concentrations of subpopulations create unintended disparate health outcomes?

When designing care management programs for specific populations, how are factors other than those directly related to health care, such as the social determinants of health (SDOH), considered? How does applying the same rules and methods to different populations and markets affect health disparities?

Examples of initiatives to improve population health that are not directly related to healthcare improvement include renovating public housing to help with the control of asthma, building a supermarket in a "food desert," and investing in telehealth or transportation to improve access to care for members in rural areas. Actuaries may use predictive analytics and data mining techniques to identify individuals needing SDOH support. They may also design response protocols for connecting patients to appropriate resources to address health disparities and promote illness prevention and healthy behaviors to impact equity through these types of programs. There are several questions regarding program design to consider:

- Do the current methodologies adequately identify service delivery gaps and barriers to care so that meaningful interventions that decrease health disparities may be developed?

- Are the methodologies and rules used for different populations customized for the population of interest, and, if not, does the lack of customization have an impact on health disparities?

- Are there legal or regulatory hurdles to designing care management programs to address not just health needs but also SDOH needs?

- Does a "one size fits all" approach to providing health educational resources associated with wellness programs not take into account cultural and social differences, which may perpetuate or exacerbate disparities?

Does the focus on a one-year time horizon for program costs and benefits perpetuate disparities?

Heath intervention activities such as disease management or care management programs are often evaluated for success (or failure) over a one-year period. This annual evaluation process is used because health plans and providers often participate in programs that financially reward improved clinical performance on an annual basis. Additionally, if membership turnover is high, especially among potential program participants, longer-term investments in member health can be less financially feasible or attractive. It is important to understand whether the focus on health care programs and policies that inherently encourage short-term or long-term investment in population health have an impact on health equity. For instance, a question to consider is whether health interventions with greater opportunity for near-term savings are being prioritized over longer-term, potentially more effective programs that may have a greater impact on the health and well-being of under-represented or under-resourced groups. In particular, a number of childhood interventions have lasting health improvement impacts in adulthood, and many interventions for working-age adults may not be expected to produce financial results until the member is eligible for Medicare, resulting in another party benefiting from the investments made by the current insurer.

When health intervention strategies are focused on near-term results, the intervention design may be structured toward members with the highest near-term impact. However, a question to consider is whether outreach efforts are at a reduced level for already disadvantaged groups due to lack of appropriate technology, transportation, or even cultural barriers that may require additional investment to engage the member. Behavioral interventions designed to target specific segments of the population, particularly those facing social and economic challenges, may require longer timeframes to realize a positive return on investment. Additionally, members of racial and ethnic minority groups or other marginalized communities may utilize health care services at a lower rate than similarly situated members of non-minority groups, causing a further reduction in the possibility for near-term savings.

Are financial metrics, such as return on investment (ROI)—commonly used to quantify the impact of disease management, care management, or wellness programs—aligned with the goal of improved health outcomes in under-served or under-resourced groups? Do they widen or narrow health disparities? To what extent are nonfinancial metrics incorporated?

Return on investment (ROI) is a common way of evaluating the success of a company's initiatives. Using ROI as a metric to evaluate a population health management program puts it on par with other priorities of a company or organization and allows comparison among different initiatives of the organization. This approach may help with the monitoring of the success of the business, determining where capital and investment may be needed, and assessing the risks faced by organizations. However, when designing or assessing a population health management program based on ROI, it may be helpful to consider the following questions: Could too much emphasis on financial measures to evaluate the efficacy of a population management program obscure indirect or nonfinancial benefits? Could an ROI approach add to health disparities experienced by groups facing socioeconomic disadvantages? Additionally, does a focus on overall financial measures obscure disparate results achieved for subpopulations that may belong to racial or ethnic minority groups or that may be experiencing socioeconomic disadvantages? Do the metrics used to quantify the impact of disease management, care management, or wellness programs widen or narrow disparities, particularly for new programs where the investment may be known but the return has not yet been demonstrated?

Metrics to measure the impact of these programs are usually expressed as averages or changes over an entire population. This can produce obscure results for programs that may benefit particular subgroups. For example, a program that produces significantly better health outcomes for an under-represented group but does not improve overall health outcomes for the entire program population could be terminated if, on average, it was not determined to be successful.

Another question to explore is whether and what nonfinancial metrics, such as quality metrics, are incorporated into the evaluation of population health programs. Does the use of nonfinancial metrics lead to a more equitable evaluation and targeting of population health programs?

NEXT STEPS

The questions raised in this discussion brief provide a context and framework for considering the impact of population health programs on health disparities. A thorough examination of these questions can help actuaries, public policymakers, and others better understand whether current methods used to develop and implement care management, disease management, and wellness programs are inherently biased in ways that contribute to disparities and whether actuarial methods could be used or adapted to help reduce disparities. The aim is to comprehensively capture aspects of these areas that may directly or indirectly be increasing or decreasing health care disparities.

The work of the American Academy of Actuaries Health Equity Work Group involves a further investigation of many of these questions to analyze how actuarial practices could affect health disparities, either positively or negatively. Each of these questions is being considered independent of others, but the interactions of multiple factors will also be considered. If the analysis suggests that certain practices contribute to disparities, options for making changes—including the potential for actuarial principles to help reduce disparities—will be explored.

The American Academy of Actuaries is a 19,500-member professional association whose mission is to serve the public and the U.S. actuarial profession. For more than 50 years, the Academy has assisted public policymakers on all levels by providing leadership, objective expertise, and actuarial advice on risk and financial security issues. The Academy also sets qualification, practice, and professionalism standards for actuaries in the United States.

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