

Health Risk Assessment and Risk Adjustment in the Context of Health Equity

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Key Points

- Risk assessment and risk adjustment—valuable tools that are used for a variety of purposes in health care and health insurance systems—are being re-examined to understand whether and how they should incorporate social risk factors.
- When risk-adjusting payments to health insurance plans, directly including social risk factors could exacerbate disparities, but other techniques are available so that plan payments can reflect social risk.
- When rewarding or penalizing provider performance, it may be appropriate to adjust for social factors when outcomes measures reflect factors outside of provider control.
- Care must be taken to ensure that algorithms used to help target care management to high-risk patients are not biased against patients with greater social risk.
- **Additional publications by the Academy's Health Equity Committee are available on the [Academy's website](#).**

Risk assessment and risk adjustment are valuable tools that are used for a variety of purposes in health care and health insurance systems. They are used to adjust premium payments to health insurance plans so that plans are not over- or under-paid relative to the health of their enrollees. They are also used in programs that reward or penalize health care providers based on health care outcomes so they are not unfairly rewarded or penalized for factors outside of their control. In both of these instances, the use of risk adjustment is critical to helping ensure access to health insurance coverage and health care services among people who are at higher risk of using health care services or who have more complex health care needs. These tools can also be used to help identify individuals who would benefit from care management programs.

The Health Equity Committee 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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As with many aspects of the health care ecosystem, risk assessment and risk adjustment are being re-examined to better understand their effects on health equity. For instance, do these tools exacerbate or mitigate health care disparities? Would incorporating factors that better reflect social determinants of health or social risk improve health equity?¹ If so, how should these factors be incorporated? Answering these questions can not only facilitate an improvement in health equity, but might also lead to a more efficient use of health care dollars.

To this end, this issue brief describes the different uses of risk assessment and risk adjustment and lays out issues to consider to ensure that these tools advance health equity. Although not the focus of this paper, it's important to recognize that incorporating social risk factors into risk assessment and risk adjustment would require data on social risk. At this time, however, available data are limited.

Health risk assessment is a means of determining the relative risks of an individual or group and quantifying the deviation of that risk from the population average. In a typical health insurance risk assessment, each individual is scored based on an algorithm that incorporates information on the individual's age, gender, illnesses, or other factors. Health risk assessments can be used to guide actions—for example, to identify individuals who would most benefit from care management or particular treatments. Or, risk assessments can be an input to health risk adjustment.

Health risk adjustment is the process of taking into account underlying health risks when predicting or evaluating health care costs or health care outcomes. For instance, risk adjustment is used to adjust payments to insurers to reflect the differences in their financial risks arising from differences in the expected medical care utilization patterns of their enrollees. Payments that better reflect financial risks reduce the advantages to plans of avoiding individuals with high expected health costs. Risk adjustment can also be used to adjust plan and provider quality and other outcomes measures to reflect underlying patient risk so that plans and providers aren't unduly penalized for caring for high-risk patients or unduly rewarded for caring for low-risk patients. Here, risk reflects expected differences in cost, quality, and outcomes measures unrelated to plan or provider performance differences.

¹ Although the terms “social determinants of health” and “social risk factors” are often used interchangeably, this issue brief uses “social risk” to refer to factors at the individual level that can affect health negatively (e.g., socioeconomic position, race/ethnicity).

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Using Risk Adjustment to Adjust Payments to Plans

Perhaps the most well-known health insurance-related use of risk adjustment is to adjust payments to health plans based on the relative financial risks of their enrollee populations. When insurance issue and rating requirements prohibit insurers from denying coverage (i.e., guaranteed issue) or charging higher premiums based on health status or expected health care costs (i.e., modified community rating), adverse selection or intentional risk selection can result. Greater adverse selection risk occurs when individuals or groups who anticipate higher health care costs are more likely to purchase coverage than those who anticipate lower health care costs. Even if adverse selection is minimized in an insurance market as a whole—for example, in a market where insurance is mandatory—a particular plan could end up with a disproportionate share of enrollees with higher health care costs. When payments to plans are not permitted to reflect the underlying health status of its enrollees, plans have incentives to risk-select by avoiding people with higher-than-average costs, in order to limit financial losses and improve profits. For instance, even if plans are not allowed to deny coverage, they could require high cost-sharing on drugs or other benefits that attract individuals with a given high-cost disease. They could also minimize inclusion of providers that treat certain conditions from their networks. Such strategies could make plans unattractive to individuals with high medical needs.

Risk adjustment is a primary policy mechanism to address the unintended consequences of issue and rating requirements, by increasing payments to plans with enrollees of higher relative expected costs and reducing payments to plans with enrollees of lower relative expected costs. This process compensates insurers fairly for the financial risks they assume and protects the financial soundness of the health insurance system. Risk adjustment also helps maintain multiple plan choices for consumers based on premiums that reflect plan design differences and relative medical and administrative efficiencies, rather than selection. Notably, risk adjustment is intended to reflect the average relative risk for a group of individuals with similar characteristics (e.g., age, gender, health condition), as opposed to predicting the risk for any particular individual. In addition, risk adjustment generally aims to adjust for *predictable* risks rather than those that occur randomly.

The earliest risk adjustment models were based primarily on age and gender. More complex risk adjustment models have been developed that incorporate health care diagnoses, health care service utilization, prescription drug use, or other factors.

Current Uses of Risk Adjusting Plan Payments

The Affordable Care Act (ACA) individual market and small group market each have a budget-neutral risk adjustment program that operates at the state level. Insurers with higher shares of enrollees with lower expected costs contribute to a fund that transfers payments to insurers with larger shares of enrollees with higher expected costs, such that the net impact is zero across all insurers. It is a concurrent program—diagnoses coded during the plan year are used to develop the plan year risk scores on which the risk adjustment transfers are based.

The Medicare Advantage (MA) and Part D prescription drug coverage programs also use risk adjustment programs, but their programs are prospective in nature—diagnoses of individuals coded during the prior year are used to develop the risk scores and corresponding payments from the Centers for Medicare and Medicaid Services (CMS) for the current year. The underlying MA risk adjustment model is based on health care spending and diagnoses of beneficiaries in traditional fee-for-service (FFS) Medicare. Unlike the ACA program, the MA risk adjustment program does not transfer money among participating MA sponsors and is not a zero-sum exercise. Instead, MA plans receive higher payments when they have higher risk scores, regardless of the risk scores of other MA plans. Nevertheless, the intention is to pay MA plans amounts reflecting what beneficiaries of similar risk would have cost in FFS.

States have discretion to apply risk adjustment to their Medicaid managed care programs. These programs must be budget-neutral and tend to be prospective.

Although risk adjustment can help account for the differences in participant health status across plans, no current risk adjustment system is designed to compensate each competitor for the full financial effects of adverse or favorable selection. A well-designed risk-adjustment system is one that appropriately reflects risk, properly aligns incentives, limits gaming, and protects risk-bearing entities. Many aspects of risk adjustment programs are under review, including concerns regarding how differences in coding intensity can affect risk adjustment payments, ways in which the system can be manipulated, whether particular types of insurers or plans are disadvantaged by risk adjustment, and whether risk adjustment models can be improved to better reflect risk. This issue brief focuses on risk adjustment issues within the context of health equity.

A plan's health care utilization and costs are driven in large part by social determinants of health (SDOH) factors or social risk factors of its enrollees.² It's important to consider how the structure, components, and application of a risk adjustment model affect payments to health plans with enrollee populations with higher or lower social risk. Groups that have been economically or socially marginalized may have higher health care needs, but risk adjustment models largely exclude income and other social risk factors. The ACA's risk adjustment model does not include any explicit adjustment to account for income-based variation in claims costs and there are no direct factors in the model that account for social risk. The model does include some implicit recognition of the differing costs of low-income people enrolled in cost-sharing reduction (CSR) plans.

² [County Health Rankings Model](#); University of Wisconsin Population Health Institute; 2014.

The Medicare Advantage (MA) risk adjustment model calibrates the model separately for fully dual eligible beneficiaries, partially dual eligible beneficiaries, and non-dual eligible beneficiaries, resulting in more dollars being shifted to plans with low-income beneficiaries. However, other social risk factors are not accounted for.³ In Massachusetts, for instance, the Medicaid risk adjustment model includes a factor for homelessness or unstable housing as well as a composite measure of neighborhood economic stress.

Accountable Care Organizations Spending Targets

Accountable Care Organizations (ACOs) are groups of health care providers that come together to coordinate the care of their patients. Although ACO payment models can vary in their details, in general, providers can receive bonuses if the total cost of care for their patients is less than a target cost of care. Typically, that target is based on historical spending, adjusted for market health spending growth and ACO-specific risk score changes. As a result, the spending target will be adjusted upward (or downward) relative to the ACO patient's historical health spending levels if its patients have higher (or lower) health needs, as reflected by higher (or lower) risk scores. This adjustment can help ensure that ACOs are not penalized merely for enrolling individuals with higher health care needs, which would cause ACOs to avoid those individuals. It also helps ensure that ACOs are not rewarded merely for enrolling individuals with lower health care needs.

Questions about whether and how to risk adjust ACO targets (and targets for other alternative payment models) for social risk are similar to those discussed in this section regarding payments to health plans.

Regardless of the health insurance market, risk adjustment—and plan payments in general—reflect expectations of how health care *costs* will differ for people with different characteristics. Expectations are generally determined using historical data, so if certain populations are historically underserved, the risk adjuster might create an expectation of less spending—even if the needs are higher. In other words, risk adjustment models do not necessarily reflect expectations of health care *needs* or the optimal level of care. As a result, any inequities in access to care that lead to underutilization among particular groups could be perpetuated. For example, underutilization of health care among populations that are under-resourced or underserved—due to a lack of nearby or culturally competent providers, transportation barriers, or financial barriers—can lead to lower risk scores for these populations, even when they have the same or higher clinical needs than more advantaged populations. These lower risk scores can lead to lower payments to plans for underserved enrollees, giving plans fewer resources to meet the needs of these enrollees.

³ [Risk Adjustment Based on Social Factors: State Approaches to Filling Data Gaps](#); State Health Access Data Assistance Center at the University of Minnesota; August 2020.

Among the options being explored for improving risk adjustment methodology is adding indicators of SDOH or other social risk factors into the risk adjustment methodology. As mentioned above, some state Medicaid programs incorporate social risk factors into their risk adjustment models. However, adding such indicators will not necessarily result in risk adjustment payments that better reflect health care needs. If individuals with greater social risk factors receive less care with lower resulting health care expenditures, the coefficients on those risk factors could be negative, meaning that plans would receive *lower* payments for those enrollees, rather than *higher* payments. Ultimately, such negative factors should not be included in a risk adjustment model, as they could disadvantage plans that strive to better meet the needs of patients with social risks.

Another option would use constrained regression techniques to increase the risk adjustment factors for conditions more prevalent among underserved groups.⁴ Similarly, a social risk factor could be included in the risk adjustment model, with the coefficient for that factor constrained to be positive. Or, the risk scores for particular subgroups of enrollees could be adjusted upward.⁵ These approaches would represent a shift in the nature of risk adjustment, from a predictor of relative expected costs toward a model that predicts relative needs. Such risk adjustment changes could help redirect payments to plans to achieve a more efficient use of health dollars. If the risk adjustment system is not budget-neutral, however, payments in the aggregate could increase.

Rather than constraining or adjusting the regression model coefficients when developing the risk adjustment model, another approach would be to adjust the spending data to better reflect health care needs.⁶ Social risk factors could then be incorporated into the model and funds would be directed to plans with enrollees with greater health care needs.

A different approach would be to make an extra payment outside of the risk adjustment mechanism to provide plans additional resources to address the unmet needs of enrollees who are underserved. These funds could be targeted to plans based on the social risk factors of the enrollees. Unless payments to plans for more advantaged enrollees who do not face barriers to care are reduced, this approach would increase spending.

Requirements may be needed to ensure that any additional social-risk-related payments to plans are used to better meet the needs of enrollees with unmet needs—for instance, by expanding provider access in underserved communities or implementing other programs targeted to reduce barriers to care. Otherwise, plans may prefer to use the increased risk adjustment payments to reduce premiums (especially in competitive markets) or

⁴ [“Improving Risk Equalization with Constrained Regression”](#); *European Journal of Health Economics*; December 2017.

⁵ [“Medicare Payment Reform: A Blueprint for Population Based Payments”](#); USC-Brookings Schaeffer Initiative for Health Policy; October 2021.

⁶ See, for example, a [letter](#) from the USC-Brookings Schaeffer Initiative for Health Policy for CMS Administrator Chiquita Brooks-LaSure.

⁶ [“Data Transformations to Improve the Performance of Health Plan Payment Methods”](#); *Journal of Health Economics*; 2019 (pages 195-207).

increase profits rather than implementing programs to address unmet needs. In addition, indicators of access to care (e.g., utilization of preventive screenings) could be monitored to determine whether they have improved for the populations of interest.

Whether incorporated as part of the risk adjustment model directly or as an extra payment outside of the risk adjustment model, if enhanced payments for social risk work as intended, the health care utilization of underserved individuals should increase. If so, incorporating social risk factors more directly into the risk adjustment program over time is possible, as health care expenditures would better reflect health care needs rather than the underutilization of health care services by the underserved populations. And in conjunction with revising the risk adjustment model over time, the enhanced payments (or adjustments to spending to better reflect need) could be reduced. Importantly, however, increased utilization (or health care spending) is not the end goal, because it is not necessarily indicative of better care or improved health outcomes. Some health care, for instance, could have been avoided with earlier treatment. And use of low-value care can contribute to costs but not to improved health. Therefore, the ultimate goal is improved health outcomes rather than simply more utilization.

Using Risk Adjustment When Evaluating Provider Performance

Provider performance is evaluated for numerous reasons, including:

- To help insurers identify providers for network inclusion,
- To assess payments and rewards under value-based purchasing arrangements, and
- To develop quality ratings.

In each of these areas, provider performance can be risk adjusted to account for differences in patient characteristics that can affect costs and other outcomes, especially when outcomes are affected by factors out of the control of the health care provider. Risk adjustment can improve provider comparisons and facilitate the identification of high-quality providers. In the absence of risk adjustment, providers treating higher-risk patients could be at a disadvantage, potentially leading to providers avoiding these patients. For example, it can be more difficult to achieve the same outcomes for higher-risk patients (e.g., those with more severe conditions or comorbidities) leading to lower performance scores for providers treating more complex patients.

When developing and maintaining provider networks—especially narrow networks—insurers may subject providers to performance requirements related to cost or other outcome and quality measures, such as hospital readmissions or preventive screenings.

Risk adjustment can be used to account for differences in the patient population that could affect costs and other outcomes. Otherwise, providers treating patients with more costly or severe conditions could be disadvantaged, leading to their exclusion from networks and reduced patient access to care.

Scoring methodologies for these network participation requirements do not typically account for differences in these measures caused by social risk or other factors associated with health and cost outcomes (e.g., the ability for the patient to adhere to medical recommendations and treatment plans). Such unadjusted requirements could further prevent access to providers who are likely to serve groups who experience disadvantages that negatively impact their health, and could cause providers to avoid patients who experience such disadvantages.

Value-based purchasing arrangements adjust payments to providers based on measures of quality, resource use, and patient experience. In general, providers meeting certain thresholds regarding these metrics are rewarded with extra payments, whereas providers not meeting those metrics are penalized by receiving lower payments. For example, the Medicare program includes a hospital value-based purchasing program that provides incentive payments for hospitals based on how well they perform on quality measures pertaining to mortality and medical complications, hospital-acquired infections, patient engagement, and efficiency and cost reduction. To better assess provider performance, some of these measures are risk adjusted by age, comorbid conditions, diagnosis, functional status, and/or other factors. For the most part, however, value-based purchasing programs do not directly incorporate health equity measures or adjust measures by social risk factors. An exception is the Medicare Hospital Readmission Reduction Program (HRRP). The HRRP uses a stratified methodology in which hospital readmission measures are compared among hospitals with similar shares of patients who are dually eligible for Medicare and full Medicaid benefits. Such peer groupings that control for dual eligible status or other characteristics are in effect akin to risk adjusting by those characteristics.

In addition to being used to adjust payments to providers, quality measures can be used to help consumers make informed health care decisions. For instance, the Medicare Care Compare tool⁷ provides quality-related information on hospitals, physicians, and other health care providers. An overall rating is available as well as information on specific quality metrics. Certain quality measures can be risk adjusted to account for differences in patient characteristics across hospitals. Social risk factors are not typically included in such adjustments.

⁷ Found at <https://www.medicare.gov/care-compare/>.

Risk adjusting provider performance measures allows for a more apples-to-apples comparison of providers treating populations with different health risks. At issue is whether and how such measures should be adjusted to reflect the social risk of the population.⁸ Without effective ways to recognize that a vulnerable population may have special challenges (e.g., low adherence to medication or treatment plans), providers that disproportionately serve this population may be disadvantaged in their ability to achieve high quality outcomes. However, adjustments should be designed to promote fairness without introducing rationales for poor quality that can exacerbate disparities.

Two schools of thought have emerged regarding the appropriateness of incorporating social risk into the risk adjustment of quality and other performance measures. One, exemplified by the 2014 National Quality Forum (NQF) report *Risk Adjustment for Socioeconomic Status or Other Sociodemographic Factors*, argues that sociodemographic factors should be included in risk adjustment if they affect a health care process or outcome, as reflected in the performance measure.⁹ The idea being that these other factors, like patient age or comorbidities, can affect health care outcomes in ways that are unrelated to the quality of care provided and out of the provider's control. If these factors cannot be addressed by the providers, incorporating them in risk adjustment can help ensure that providers are not penalized for factors outside of their control. Otherwise, providers might avoid treating individuals with higher social risks or might have fewer resources to do so. Incorporating social risk factors can also avoid rewarding providers when their better patient outcomes merely reflect serving individuals with lower social risks. Measures unadjusted for social risk could also be misleading to consumers using publicly reported quality information in their health care decision-making. The NQF report notes that it is not appropriate to incorporate social risk factors into all quality and performance measures and highlights the need to make determinations for each measure separately.

The other school of thought, which argues against adjusting process and outcome measures for social risk, is reflected in a report by the Office of the Assistant Secretary of Planning and Evaluation (ASPE) of the Department of Health and Human Services. In its *Second Report to Congress on Social Risk and Medicare's Value-Based Purchasing Programs*, ASPE evaluates the effects of socioeconomic status on measures of quality and resource use under the Medicare program and develops a three-part strategy to account for social risk: (1) measure and report quality for beneficiaries with social risk factors; (2) set high, fair quality standards for all beneficiaries; and (3) reward and support better outcomes

⁸ See [Risk Adjustment in Quality Measurement](#), CMS Measures Management System (May 2022), for an overview of the features of risk adjustment strategies, including risk adjustment models and procedures, as well as a discussion of the use of social risk factors.

⁹ [Risk Adjustment for Socioeconomic Status or Other Sociodemographic Factors](#); National Quality Forum; August 15, 2014.

for beneficiaries with social risk factors.¹⁰ The report recommends using the same quality standards for all Medicare beneficiaries and not adjusting quality measures or value-based purchasing structural, process, or outcomes measures for social risk, even via peer groupings. For these measures, ASPE asserts that provider factors are more influential than some other types of measures (i.e., resource use measures) and that poor quality rather than patient needs or complexity are driving differences in outcomes as compared to other types of measures. Rather than adjusting these outcomes by social risk, the report recommends that providers treating patients with more social risk get additional resources to help meet their patients' needs, and then outcomes would be assessed using the same standards as providers treating other patients. In contrast, ASPE recognizes that patient experience measures and resource use measures are more affected by patient factors and patient need or complexity drives more of the differences in outcomes. Therefore, these measures are more appropriate to adjust for social risk.

Types of Performance Measures

Structural Measures. Structural measures indicate a health care provider's capacity to provide high-quality care. Examples include: whether the health care organization uses medication order entry systems; the ratio of providers to patients.

Clinical Process Measures. Process measures indicate what a provider does to maintain or improve health, including both preventive measures and processes for those diagnosed with a health care condition. These measures typically reflect generally accepted standards of practice. Examples include: the percentage of people receiving a preventive service, such as colorectal cancer screening or influenza vaccine; the percentage of people with heart failure who were prescribed beta blockers.

Outcomes Measures. Outcomes measures aim to reflect the impact of the health care provided on the health status of patients. Examples include: mortality rates; hospital-acquired infections; unplanned hospital readmissions; pain brought under control.

Patient Experience Measures. Patient experience measures reflect the interactions patients have with their health care providers. Examples include: ability to get timely appointments, communication with nurses and doctors, discharge information, hospital cleanliness.

Resource Use Measures. Resource use measures reflect costs and health care efficiency. Examples include: payment for an episode of care for a particular diagnosis; overall per capita spending; percentage of low-risk births by cesarean.

¹⁰ [Report to Congress: Social Risk Factors and Performance Under Medicare's Value-Based Purchasing Programs](#); ASPE; Dec. 20, 2016. [Second Report to Congress on Social Risk and Medicare's Value-Based Purchasing Programs](#); ASPE; June 28, 2020.

Using Risk Assessment to Target Disease Management and Care Management Programs

Risk assessment and related algorithms can be used as part of efforts to identify individuals for targeted interventions, such as disease management and care management programs.

Disease management programs are 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.

Care management programs are comprehensive programs designed to coordinate the care and improve the health outcomes of high-risk patients and those with complex health needs. The identification of high-risk patients or those with significant gaps in care is typically done through a process of risk stratification, based on risk assessment of the acuity of the underlying chronic or complex conditions and whether the condition's or conditions' health outcomes can be affected by intervention.

Many disease management and care management programs use claims and other data to identify potential program participants. 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. Predicting costs may be part of this process. However, because cost is not perfectly correlated with need—particularly across racial and ethnic minority groups or members of other marginalized or underserved communities—relying solely on costs to identify beneficiaries of a program may exacerbate inequity. This bias could cause algorithms to deprioritize 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.

For example, an examination of a commercial prediction algorithm aiming to predict complex care needs revealed that at a given risk score, Black patients were considerably sicker than white patients.¹¹ As a result, Black patients would be less likely to be identified for care management programs than whites, even if they would be more likely to benefit from the programs. Because the algorithm predicts health care costs rather than health care needs, it could inadvertently understate the need for and value of care management programs for individuals who have experienced less access to care. The study authors conclude that basing the algorithm on other predictors of need—such as avoidable costs or chronic conditions—would reduce the model’s unintended racial bias.

There may also be other techniques, such as those that could be used to incorporate social risk when using risk adjustment to adjust plan payments, that may be appropriate to consider when developing algorithms to better target care management— for example, adjusting the spending data to better reflect health care needs, using constrained regressions, or incorporating social risk factors.

Regardless of the data and technique used, concerns raised in research on algorithmic bias highlight the need to interrogate data and algorithms for bias. Examining the data and how they were derived can help data users understand any biases in the data and whether there are limitations to using the data for the intended purpose. In addition, testing predictive models and other algorithms for bias can help guard against unintentional exacerbations of health disparities.

Conclusion

Risk adjustment is a valuable tool that can be used to help avoid unintended consequences of policies aiming to increase the access to and affordability of health insurance and to improve health care outcomes. Such consequences include disadvantaging insurers that cover and providers who treat high-risk individuals, and rewarding insurers and providers merely for covering and treating low-risk individuals. Risk assessment is an input to risk adjustment and can also be used to help direct resources to those most in need of specialized care. Importantly, risk assessment and risk adjustment models need to be developed specifically for the purpose they are being used. Otherwise, they could misallocate resources or predict an outcome other than the variable of interest. However, if not used appropriately, risk adjustment can also exacerbate disparities and worsen affordability and lead to worse outcomes.

¹¹ [“Dissecting Racial Bias in an Algorithm Used to Manage the Health of Populations”](#); *Science*; October 25, 2019.

The increased focus on health equity has led to a reexamination of risk assessment and risk adjustment tools, with a specific focus on whether and how to incorporate social risk factors. When risk adjusting payments to insurance plans, it's not as easy as simply including such factors into the model, as doing so could actually exacerbate disparities. However, other techniques such as constrained regression can be explored so that plan payments can reflect social risk. Any revisions to risk adjustment to address social risk may need to be accompanied by enhanced requirements for plans regarding access to care or monitoring for whether outcomes for enrollees with greater social risk have improved.

When assessing provider performance, the question is whether to adjust outcomes measures by social risk. Ultimately, it is appropriate for providers to be rewarded or penalized for factors in their control, but not for those out of their control. In addition, providers treating populations with higher social risk need to receive the resources to do so. The aim should be to provide all patients with high quality of care, regardless of their circumstances.

Improving health outcomes also entails targeting care management to high-risk patients and those with complex health needs. Risk assessments are used in conjunction with techniques to identify patients who would benefit most from these programs. However, care must be taken to ensure algorithms are not biased against patients with greater social risk.

Risk assessment and risk adjustment tools have evolved over time and will continue to be refined. Improvements to these models are in the process of being explored, tested, and implemented so that they don't exacerbate disparities and instead can be used to help reduce them. These improvements are a small but important part of the more comprehensive efforts to improve health equity.

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