

RISING RISK: AN OVERVIEW OF IDENTIFICATION AND INTERVENTION APPROACHES

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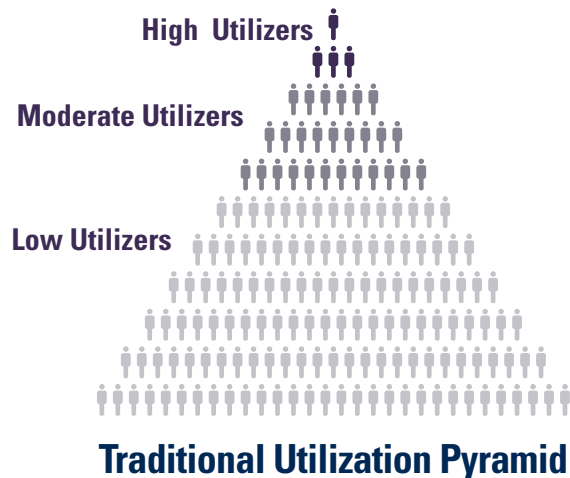
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INTRODUCTION

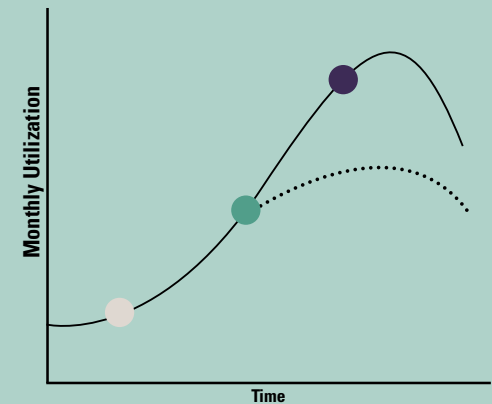
Health system policy makers, decision makers, and strategists have identified improvements for the small group of patients at the top of the utilization pyramid as a key opportunity for achieving the Triple Aim: reduced per capita cost, improved experience of care, and improved population health.¹ Collectively, those patients—often referred to as high utilizers, frequent flyers, or familiar faces—consume a vastly disproportionate percentage of health system resources: the top 5% of patients are responsible for more than 50% of utilization and have complex health challenges that require focused attention and a careful, coordinated response.^{2,3} National efforts such as Health Homes for Patients with Complex Needs (Section 2703 of the Affordable Care Act); state efforts such as Whole Person Care pilots in California; and payer- and provider-driven initiatives such as Partnership Healthplan of California’s Intensive Outpatient Care Management Program or Community Care of North Carolina’s care management program; are all looking to build on existing evidence that up-front effort and investment can result in improved health and financial outcomes.⁴



While emphasizing engagement with familiar faces is logical, one question naturally follows: **How could health systems prevent high utilization in the first place?** By the time individuals reach the top of the utilization pyramid, they are by definition expensive and suffering. Identifying risk in the population early and intervening effectively has the potential to save resources and improve health outcomes. This aligns with the growing movement in the field away from paying for volume and toward rewarding value (using resources efficiently to achieve outcomes).⁵

Focusing on “rising-risk” populations is also a bridge between after-the-fact treatment and broad public health prevention efforts aimed at the majority of the population, who make up the bottom of the utilization pyramid. However, after scanning the literature and speaking with a number of thought leaders in the field, we did not find an established definition of “rising risk” and discovered a wide range of ideas about how to approach identification of such patients or how to effectively intervene.⁶⁻¹¹ This variation is understandable given this is a new field in the early stages of development, innovation, and evidence generation. There is also a warranted concern that the concept of rising risk be developed with an awareness of potential adverse effects (such as stigma, anxiety, and criticism) that can result from labeling individuals and communities with labels such as “high risk” and “potentially high cost.”

Utilization as an indicator of rising risk across the lifespan



The utilization pyramid represents a point-in-time snapshot of population-wide utilization. However, the same categories can be applied to some individuals over time. Though risk and utilization are closely linked, they are not synonymous or interchangeable. The graph above represents a hypothetical utilization curve for one, ultimately high utilizing, patient: how far back in time is it possible to go and still have adequate predictive insight?

- **Low utilization:** Intervention at this point would prevent the most future utilization, but it is challenging to distinguish future high utilizers from other low-cost patients. However, in some cases a change in utilization or life circumstance may indicate a significant change in risk (e.g., a first opioid prescription, loss of housing, etc.).
- **Rising utilization:** The increase in utilization is a critical clue for predicting and avoiding future utilization, and when combined with additional analysis, can lead to successful population identification and intervention targeting.
- **High utilization:** By this point, the patient has already used a large amount of resources and suffered from illness/injury. Interventions can improve quality of life and bend the curve, but much of the opportunity to avoid utilization has been missed (additionally, some reduction would happen regardless due to regression to the mean).

APPROACH

We explored the concept of rising risk through an initial literature review, followed by in-depth interviews with leaders in the fields of care management, data and analytics, multisector initiatives, and innovative health programs. These interviews illuminated the cutting-edge work emerging in the rising-risk field and revealed the gaps in shared knowledge that still exist.

Framework: There are two sequential questions that emerge when investigating rising risk: How can populations be identified? and What are the most effective ways to intervene? We grouped methods to answer those questions in the following two sections. The methods are further organized along a continuum from focusing on one individual at a time to focusing on populations of increasing size. This order of the continuum is somewhat fluid as methods may be implemented in ways that trend toward one end or the other.

Examples: An example identified through the research process is included with each method. These real-world examples are intended to illustrate the methods and discussion and should not be construed as proven or recommended strategies.

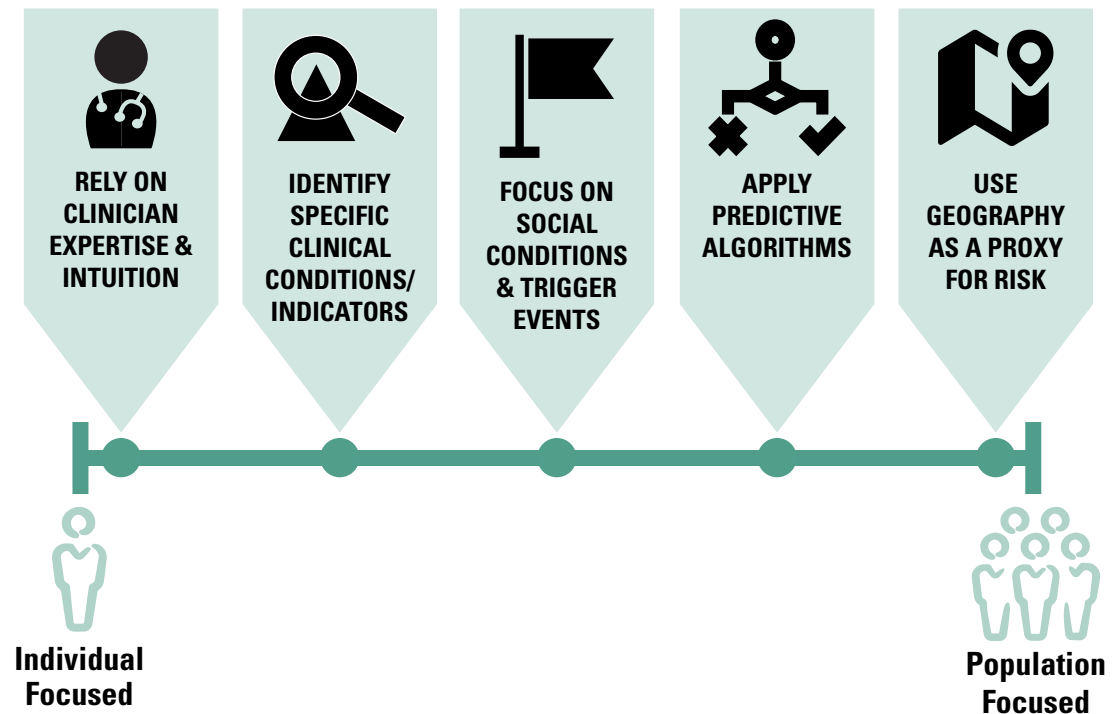
This document is not intended to be a prescriptive guide to rising-risk initiative development or a comprehensive review of the literature (reports, research papers, and case studies have been written about most of the topics below), but rather a high-level overview intended to bring the topic and its potential into clearer focus.

METHODS OF IDENTIFYING RISING-RISK POPULATIONS

Identifying rising-risk populations is an inherently predictive challenge—attempting to anticipate and prevent utilization long before it happens. There are many factors that lead to declines in health status and increases in utilization, and research and practice have not determined a standard approach to categorizing and investigating those factors. Some factors, such as visits to the emergency room or a new diagnosis, can be found in existing health datasets. Others, such as loss of a house

or job, are much harder to identify using existing health records but may be evident in data from other sectors, by looking at population trends, or may be revealed during a clinical encounter. As a result, providers and payers are currently applying a range of methods to the challenge of identifying rising-risk individuals and populations.¹⁰ Using multiple coordinated approaches may amplify the effectiveness and accuracy of any single approach.

CONTINUUM OF IDENTIFICATION METHODS





RELY ON CLINICIAN EXPERTISE AND INTUITION

Clinicians—including physicians, physician assistants, nurse practitioners, and case managers—can draw on their experiences and relationships with patients to identify those who are likely in the rising-risk cohort. These assessments may be the result of a change in the patient’s clinical presentation (e.g., new diagnosis, change in results on a diagnostic test, etc.) or a sense from interacting with the patient that they are struggling to maintain their health. This approach builds on existing structures and maintains the clinician’s role at the center of managing care. However, clinicians require training and on-going coaching in order to appropriately assess patient risk. In particular, only certain patients may be appropriate for intervention depending on the response mechanism(s) available, and there is a possibility that depending on clinician referral alone could lead to referrals based on factors such as interpersonal friction with a patient or implicit bias rather than likelihood of successful risk management.

EXAMPLE

Complex.care¹²

Complex.care is a training program for the clinical workforce, including physicians, advanced practice providers, nurses, therapists, social workers, and more, to help them recognize and respond to complex patient situations. They are working with the Camden Coalition of Healthcare Providers to expand and enhance the curriculum to be as inclusive as possible. This kind of training equips providers to recognize future high-utilizers earlier, and respond accordingly.



IDENTIFY SPECIFIC CLINICAL CONDITIONS/ INDICATORS

Instead of mining data of entire patient populations, it is possible to identify conditions that are highly prevalent among high-utilizers and track back to earlier utilization patterns among those patients. For example: pediatric asthma patients who have the highest rates of emergency department use may have previously shown poor medication adherence; patients with hypertension may manage their conditions effectively until they develop a behavioral health condition such as depression or a substance use disorder; and diabetes may become a predictor of future high utilization when combined with gastroparesis (a digestive condition). Looking for these sorts of patterns within a patient population requires significant time and attention but may be possible with in-house expertise or less-substantial external support than employing predictive algorithms. In order to strengthen predictive power when dealing with a small population size, it may be possible to draw on patterns in larger data sets (such as statewide Medicaid enrollees).

EXAMPLE

Marketplace Solutions and Incentives Project (MSIP)^{13,14}

MSIP is a non-profit violence-prevention initiative that partners with health plans to improve health and reduce costs by focusing on individuals with a history of utilization connected to violence. MSIP analyzes claims data to pinpoint reports of interpersonal violence, risk-stratifies patients, and develops personalized interventions to help patients develop strategies and skills to avoid future potentially violent situations.



FOCUS ON SOCIAL CONDITIONS AND TRIGGER EVENTS

Health is determined by a range of factors including social conditions and behaviors. Social adversity such as homelessness and engagement with the criminal justice system is disproportionately present in high-utilizing populations. Factors such as housing, employment, social support, and exposure to violence are likely to be critical in shaping the health and utilization of rising-risk populations. Similarly, the shift from well-managed health to rising risk may occur due to an adverse life event rather than a change in diagnosis or health indicator. For example, the loss of a job, death of a family member, or housing instability can lead to rapid changes in health.¹⁸ Such events and factors have not traditionally been identified or tracked in medical record keeping (unlike “Specific Conditions/Clinical Indicators”). In fact, such social factors may initially be seen at a population level (for example a rise in homelessness at a city or county level). There are a number of emerging efforts focused on both incorporating social data into health records and initiating discussion of potential trigger events into clinical encounters.

EXAMPLE

California’s Whole Person Care Pilots^{15,16}

California’s current Section 1115 Medicaid waiver, Medi-Cal 2020, includes a \$3 billion Whole Person Care (WPC) pilot program focused on the infrastructure and services necessary to respond to the health and social needs of complex individuals. The majority of WPC pilots are targeting populations with specific social conditions including homelessness.



APPLY PREDICTIVE ALGORITHMS

Many companies offer enterprise products that use sophisticated, proprietary algorithms to sort patient populations into stratified risk pools. The range of approaches can virtually all be customized in terms of target outcomes (e.g., reducing hospital readmissions), ranges of risk categories, and other priority metrics or categories. Taking such an approach requires a significant financial and staffing commitment and, as with all big-data solutions, there are issues with access to pooled data and data quality. The research literature has not conclusively weighed in on the relative value and effectiveness of predictive analytic approaches, though there are encouraging testimonials and self-reports and clearly enormous potential for using computational power to tease out patterns in longitudinal patient data sets. Integrating healthcare data (claims and health records) with data from other sectors (behavioral health, criminal justice, housing, social service, etc.) has great potential to increase the accuracy and utility of risk assessment.

EXAMPLE

FAIR Health¹⁷

FAIR Health is a nonprofit organization that supports the use of health data for prediction and management of health conditions. They do this through the provision of data analytics products, including custom tools and dashboards that facilitate predictive analytics for population health. They work with payers, consumers, government agencies, and healthcare facilities to maximize the use and impact of their data.



USE GEOGRAPHY AS A PROXY FOR RISK

The clinical and social conditions that lead to rising risk tend to be more prevalent in some areas than in others. An emerging strategy for targeting rising risk is to think in terms of place rather than people. In the past few years, this notion has gained currency through the concepts of neighborhood stress indices and hotspotting (the practice of identifying clusters of people based on cost, utilization, population, and clinical outcomes, such as falls resulting in injury among seniors).^{19,20} There are numerous public platforms for mapping health data, and virtually regardless of what combination of risk factors and preventable health outcomes are entered, the results will show certain geographies of need. In other words, the same neighborhoods that have the highest unemployment rates, worst air quality, and poorest school performance statistics also have the highest rates of diabetes, asthma, and substance use. Understanding what zip code patients live in can provide valuable insight into risks to their health.

EXAMPLE

Maryland Health Enterprise Zones (HEZs)²¹

The HEZ initiative is a four-year pilot that targets geographic areas with documented poor health outcomes and economic disadvantage. Community coalitions and local health departments that applied for HEZ status and funds had to develop a creative and comprehensive plan to reduce health disparities, improve health care access and health outcomes, and reduce health care costs and hospital admissions and re-admissions.

DISCUSSION

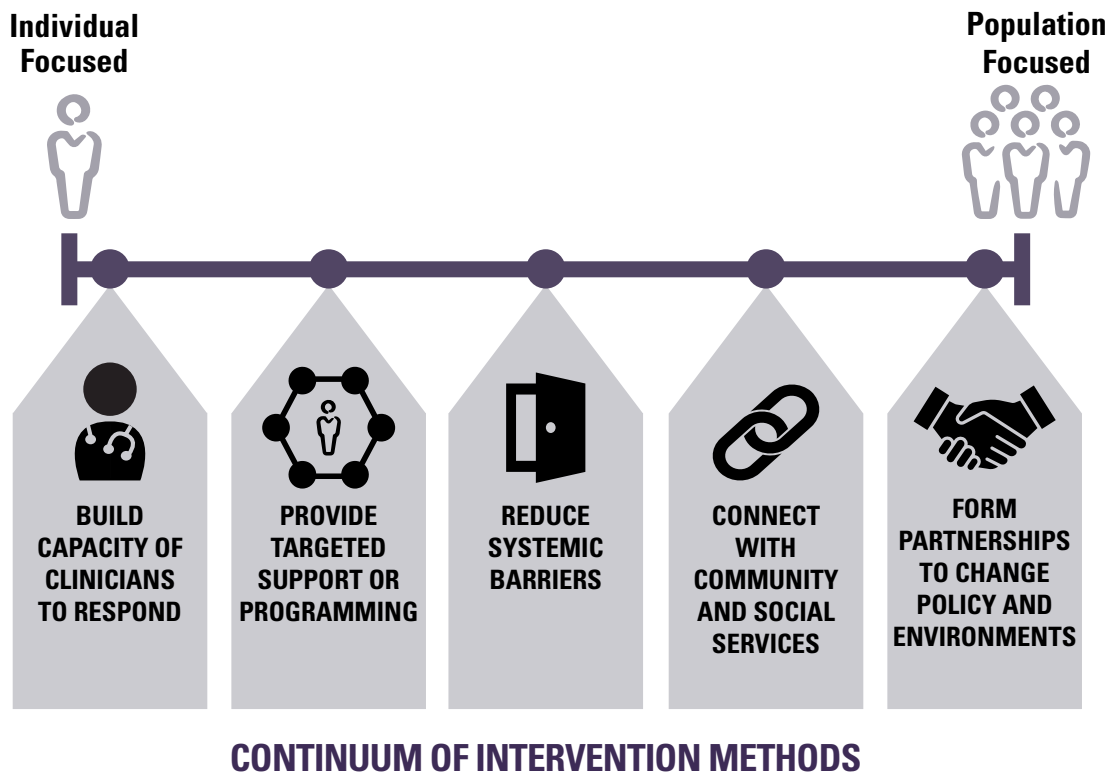
A few things stand out in reviewing this collection of identification methods:

- **Combining these methods** may be the most effective way to identify rising risk. For example, clinicians may be able to look at a list of rising-risk patients derived based on diagnosis or utilization patterns to discern which individuals are most likely to see their conditions escalate rapidly and/or who is likely to be responsive to intervention. Similarly, cross-referencing conditions that are highly prevalent among high-utilizers with high-risk geographies could lead to narrowing initiative focus and an effectively targeted approach.²²
- The approaches described vary substantially in terms of **cost and required staff capacity**, and those factors should be taken into account by anyone considering a rising-risk initiative. For example, engaging companies that provide data analysis and risk stratification is expensive and requires dedicating staff time for preparing data, troubleshooting, and managing the project. Incorporating tracking of social factors into health records requires conceptual work (which social factors? What questions get asked?), modifications to software and databases, training staff on the new approach, and having staff who can aggregate, analyze, and communicate results.
- **Identification methods should be developed in conjunction with intervention methods.** There may be cases where identification alone is justified (for example, in order to make the case that social risk factors are highly prevalent in a population), but such approaches should be adopted cautiously, and the intent should be explicit from the outset. Providers and patients become understandably frustrated and disengaged when needs are revealed without clear methods for responding.

METHODS OF INTERVENTION

There is a wide range of potential intervention methods to improve outcomes for rising-risk populations. The categories on the continuum below do not represent an exhaustive list but rather represent clusters of examples from our investigation. Similar to the identification methods, the continuum runs from methods focused on individuals to those focused on populations. This does not necessarily mean that identification and intervention methods should be paired for implementation based their position on the continuum, though there may be rational basis for doing so. For example, engaging clinicians in

identification could lead neatly to building clinician capacity to respond, and focusing on high-risk geographies seems to align well with forming partnerships to change policy and environments. However, it is also possible to envision any of the possible combinations from the two sets of methods. For example, focusing on high-risk geographies could lead to building clinician capacity to understand the issues and resources in the specified communities, and identifying specific conditions or indicators could pair with connection to community and social services that are frequently used by that population.



KEY CONSIDERATIONS WHEN DEVELOPING A RISING-RISK STRATEGY

Leadership commitment: Leadership is particularly important given the concept of rising risk is still emerging and, while the rationale may be sound, an approach that takes a commitment of resources will require extended attention of multiple collaborators.

Patient engagement: Patients have the most at stake in addressing rising risk. There is strong evidence that meaningful patient empowerment leads to improved outcomes.²³ Engaging patients is also a step to avoid stigmatization.

Community and provider partnerships: Many rising-risk strategies require strengthening partnerships with community groups and/or providers who may already interact with the target populations or have relevant expertise. That relationship building takes time, likely involves some level of formal agreement, and may require financial arrangements.

Clear financial implications: Evidence of cost-neutrality or potential cost-savings and the scale of start-up investment are key factors in building support among decision makers.

Staff capacity: Approaches to identifying and responding to rising-risk patients depend on staff buy-in and ability to perform in new ways. Data and analytics are complementary with, not a substitute for, human interaction, assessment, and monitoring.

Data capacity: Identifying patients, communicating with partners, monitoring progress, and evaluating success all require systems that provide access to data and staff ability to analyze and apply findings from data.



BUILD CAPACITY OF CLINICIANS TO RESPOND

In addition to playing a key role in identifying rising risk, clinicians can also lead response efforts. While it is common to create a separate care management infrastructure with designated staff and clear protocols and responsibilities, an alternative is to build that capacity into existing care teams. This approach can have the advantages of building on existing relationships (avoiding handoffs) and motivating clinician participation and buy-in if they are engaged in all phases of the response. This approach may be particularly well-suited for rising-risk populations as responding to their needs is likely not as time consuming or complex as engaging high-utilizing individuals.

EXAMPLE

Orange County Women’s Health Project (OCWHP)²⁴

One of the Orange County Women’s Health Project’s(OCWHP) initiatives provides on-site training to healthcare providers across the county to promote screening, counseling, and referrals for domestic violence. The training focuses on understanding the relationship between domestic violence and health; understanding issues such as confidentiality, mandatory reporting, and potential reimbursement; and how to set up systems to connect survivors with necessary resources and supports.



PROVIDE TARGETED SUPPORT OR PROGRAMMING

Health care institutions have developed a range of internally administered approaches to addressing modifiable risks. One such approach is providing a care manager for individuals when their health issues become more complex (but before their utilization has dramatically increased). This builds on the care management infrastructure that exists in many settings, and is supported by the body of literature highlighting the effectiveness of care management services in stabilizing high utilizers.³ Another set of approaches focuses on lifestyle factors and behavior change, including medication adherence and improved nutrition and physical activity. Some of these approaches involve contracting with external partners to facilitate workshops, provide individual follow up, etc. Regardless of the design of the intervention, focusing on patient engagement and motivation is key to achieving success and avoiding attrition bias (i.e., only helping individuals who were most likely to make changes on their own).

EXAMPLE

Off the Scale (OTS)²⁶

OTS is a behavior-change intervention developed by Mount Sinai Hospital with an explicit focus on rising risk, “lifestyle-driven chronic conditions” such as diabetes and heart disease, and achieving value-based care objectives. Similar to the Diabetes Prevention Program,²⁷ OTS includes an emphasis on achieving cost effectiveness and generating peer support through group meetings. The program also includes proprietary technology applications for participants and staff to increase communication and monitoring. The program has not been thoroughly evaluated but has self-reported encouraging retention results.



REDUCE SYSTEMIC BARRIERS

Rather than focusing on rising-risk individuals, some in the field are concentrating on identifying and reducing systemic barriers that are likely to prevent patients with certain risk factors from maintaining their health. For example, patients that are diagnosed with certain conditions may need frequent follow-up visits to manage their care or may require high-cost medications. In that case, high co-pays or transportation difficulties could lead to an inability to receive necessary preventative care and treatment, leading to increased utilization later. Responses such as increasing scheduling options or waiving co-pays could improve treatment plan adherence. Alternately, if the barrier is having a safe place to get regular exercise, subsidizing gym memberships or sponsoring classes may be useful. Identifying the barriers to lower requires both identifying the rising-risk population and investigating their experience of care and efforts to stay healthy.

EXAMPLE

Kaizen Health at the University of Illinois Hospital and Health Sciences System (UI Health)^{28,30}

UI Health partnered with Kaizen Health, a startup which coordinates non-emergency medical transport for patients. Kaizen is matched with patients ready to be discharged, and the hospital pays for the rides. Care Coordinators set up follow-up appointments, schedule rides to and from appointments and/or from the ED. Kaizen sends patients reminders for their rides and picks them up using a diverse fleet that includes medically equipped vehicles and vehicles with infant/child care seats.



CONNECT WITH COMMUNITY AND SOCIAL SERVICES

Issues such as housing instability, economic insecurity, food insecurity, or exposure to violence and trauma have traditionally been seen as outside the purview of clinical institutions, yet are significant risk factors for negative health outcomes. While clinicians have proximal relationships with patients and expertise in responding to injury and disease, other organizations have expertise in addressing patient social needs through access to social services, specialized support (such as medical-legal partnerships), and classes and counseling. There are a number of different models for clinical-community partnership including co-locating services, setting up referral networks, and reimbursing community-based organizations for supporting specific patients. Broadly speaking, clinical organizations are increasingly seeing the value of community partners in responding to patient risks and are spending the time and effort to develop those relationships.

EXAMPLE

Social-Health Information Exchanges (S-HIEs) at Rocky Mountain Health Plan²⁹

Broader than a typical Health Information Exchange, an S-HIE brings together community-based organizations that address the social determinants of health, and links their data with health care providers. Rocky Mountain Health Plan is working to develop S-HIEs across Colorado, in order to identify root causes of crisis and instability across the population.



FORM PARTNERSHIPS TO CHANGE POLICY AND ENVIRONMENTS

In addition to providing individual services and supports, community organizations can be partners in changing environments and policies to reduce risks affecting large numbers of patients. There are emerging examples of initiatives in which clinical and community partners pursue collective responsibility for community health. Accountable Communities for Health (ACH) initiatives in multiple states are examples of such an approach, as are many collaboratives that have formed to address priorities that emerge through community health needs assessments (CHNA). In some instances, the focus may be a particular risk factor or condition while in others the goal may be a broader improvement in health status. Such initiatives can pool resources to improve outcomes for patients at all levels of utilization, and rising-risk populations could be of particular interest since their response to community change strategies may be more significant than the low-utilizers (who aren't as likely to be affected by risk factors) and high-utilizers (who likely require a more intensive, individualized response).

EXAMPLE

California Accountable Communities for Health Initiative (CACHI)³¹

CACHI is a foundation-supported effort to transform health in 15 communities across the state. Each local CACHI site engages multiple sectors and key community leaders to address priority health and equity issues by developing, implementing, and pursuing sustainable funding for a portfolio of interventions (clinical, community, clinical-community linkage, policy and systems, and environment).

DISCUSSION

As with the identification methods above, the intervention methods are not mutually exclusive. There could be great power in combining the methods to, for instance, build out the tools that a case manager has to reduce systemic barriers and/or to refer patients to community-based interventions. Interest in the respective methods may depend on context and the characteristics of the population served by the decision-making entity. For example, a health plan with responsibility for the majority of lives in a community has a more obvious incentive to develop community partnerships (those community partners likely serve primarily the same population) than a small health center that may have more interest in focusing on staff capacity and response for those who come through their doors.

One of the key questions or barriers to implementing a number of these methods is the accurate measure of impact. Depending on organizational priorities, rising-risk efforts are likely to be reviewed in light of potential health and financial impacts over a given time horizon. More individual-focused methods may face challenges in collecting evidence that supports the claim that costs were avoided or that the approach is comparatively more effective than others. Population-focused methods will face those challenges as well as concerns about time frame since it may take some time to implement the methods and many of the impacts may not manifest for many years.

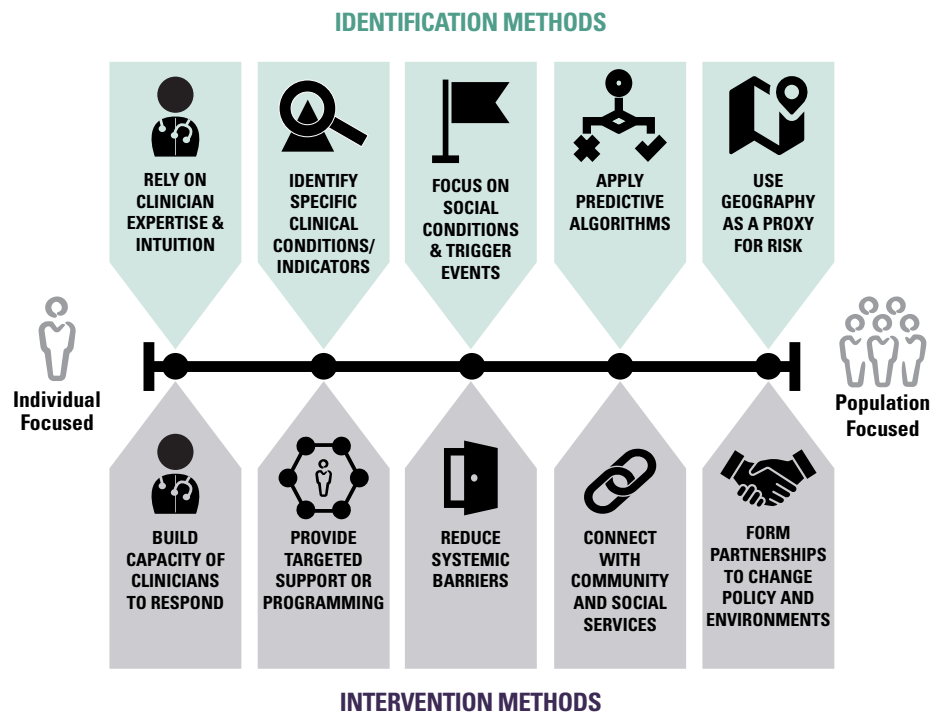
CONCLUSION

Focused attention on high-risk populations is far from a new imperative in health care and public health. What is new is an emphasis on efficiency and value, a new set of data collection and analysis tools, and the recognition that uncoordinated, after-the-fact response is not working. Those conditions support the development of responses to rising-risk populations.

There is emerging interest in rising risk, in part as a predictable follow-up to efforts to improve outcomes and reduce costs among high-utilizing populations. However, there is a great need for further development and review of potential rising-

risk models. In particular there is critical need for comparative effectiveness of identification and intervention methods and evaluation and dialogue about aspects of effective program design and implementation. That inquiry should consider a wide range of approaches and potential factors and emphasize the need for a coordinated system as opposed to a stand-alone fix. As Atul Gawande put it, "Having great components is not enough. We've been obsessed in medicine with having the best drugs, the best devices, the best specialists—but we've paid little attention to how to make them fit together well."³²

A CONTINUUM OF METHODS TO ADDRESS RISING RISK



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