

Getting From Here to There: Health IT Needs for Population Health

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Incorporating Meaningful Use (MU) into the Medicare Access & CHIP Reauthorization Act (MACRA) of 2015's Quality Payment Program signals that healthcare organizations are expected to use health information technology (IT) to improve care. One focus of these improvements is population health, which requires managing the risks, outcomes, utilization, and health of entire groups of individuals. For example, both of the Quality Payment Program's pathways—the Merit-Based Incentive Payment System (MIPS) and Alternative Payment Models (APM)—include population health in calculating payments. MIPS requires population health quality measures and population health–based clinical practice-improvement activities.^{1,2} APMs promote organizational accountability beyond the individual patient encounter and are expected to reduce utilization through improved health.

The changes wrought by MACRA are just one indication that population health increasingly matters. The CMS Hospital Readmission Reduction Program penalizes hospitals for excess readmission rates.³ Nonprofit hospitals and health systems now must assess and adopt strategies to address community health needs to retain their tax exempt status.⁴ Moreover, influential projects like the “Culture of Health” initiative of the Robert Wood Johnson Foundation and “Health in All Policies”—which is promoted by numerous public health entities—foster an environment that emphasizes population health over the provision of medical care alone.^{5,6}

The decades-long transition from a paper- to a technology-based information infrastructure in the United States has always been recognized as an initial step, laying a foundation for fundamental care delivery changes. Nonetheless, current health IT systems are not ready to support population health improvements effectively and efficiently. Existing health IT systems were designed for organizations that are structurally, operationally, and culturally focused on individual care delivery rather than improving health for groups of people.⁷ For example, electronic health records (EHRs)—primarily designed as clinical documentation tools—often lack sophisticated risk stratification and targeted case-management functionalities.⁸ Even when possible, healthcare organizations

ABSTRACT

The United States' decade-long transition from a paper- to technology-based information infrastructure has always been recognized as an initial step—a laying of the foundation—for future changes to the delivery of care. An increasingly important focal area for improvement is population health. Numerous policies and programs now require healthcare organizations to manage the risks, outcomes, utilization, and health of entire groups of individuals. Nonetheless, current health information technology (IT) systems are not ready to support population health improvements effectively and efficiently. Existing health IT systems were designed for organizations that are structurally, operationally, and culturally focused on individual care delivery, rather than improving health for a population. Opportunities exist to align health IT resources and population health management strategies to fill the gaps among technological capabilities, use and the emerging demands of population health. To realize this alignment, healthcare leaders must think differently about the types of data their organizations need, the types of partners with whom they share information, and how they can leverage new information and partnerships for evidence-based action.

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TAKE-AWAY POINTS

- ▶ Existing health information technology systems were designed for individual care delivery rather than population health.
- ▶ Healthcare organizations need to expand data collection efforts beyond “sick care” information to information on actual health behaviors and social determinants.
- ▶ Health information exchange can better support social determinants of health by including new partners, like social service organizations and public health agencies.
- ▶ New data sources and information-sharing partners may lead to more predictive models.

are not widely deploying health IT systems in ways that support population health.^{9,10}

Opportunities exist to align health IT resources and population health management strategies to fill the gaps among technological capabilities, use, and the emerging demands of population health. To realize this alignment, healthcare leaders must think differently about the types of data their organizations need, with whom they share data, and how they can leverage these data for evidence-based action.

Embracing Novel Health Data Sources

Supporting decision making for population health requires expanding the fundamental types of data collected, integrated, analyzed, and used. Today, healthcare organizations collect what can be labeled “sick care” information (eg, diagnoses, encounters, symptoms, medications, procedures, tests). These data only present a “keyhole view” of a patient’s overall health; population health also requires “nonhealth” data about a population. Yet, notably absent in most current health IT systems are comprehensive data on health, behaviors, and social determinants, which are more significant drivers of health than medical care service utilization.¹¹ For example, socioeconomic status, housing stability, nutrition habits, language, and location are all associated with poor postdischarge outcomes.¹² Healthcare organizations traditionally collect and/or use these data in day-to-day operations only to a limited degree, however.¹³ Thus, healthcare organizations must expand data collection and usage to better understand how health within populations is created and maintained.

The good news is that many of these data exist and are available for when healthcare organizations choose to embrace them. Society is in the midst of a health data revolution. Estimates suggest that 1 in 5 adults uses a wearable fitness device,¹⁴ and similar numbers are actively measuring their own health indicators electronically.¹⁵ Beyond exercise, sleep, and physical activity monitors, retail loyalty programs generate information on purchasing behaviors, which provide objective measures of nutrition, medications, and even tobacco usage. Opportunities to leverage these information sources for educational, motivational, and communication functionality in health consumer IT abound. Beyond data about individuals, an unprecedented amount of information is available on the environment, public safety, traffic, neighborhood context, and

public health.¹⁶ The opportunity to move from measuring how sick to how healthy populations are is within easy reach.

Broaden Health Information Exchange

In the pre-MU era, health IT and EHRs were data silos and repositories of information that could not easily be shared between care providers. Health information exchange (HIE) was developed to share critical patient information.

To date, however, HIEs have minimally supported population health initiatives. For one, social service organizations and public health agencies are rarely partners in an HIE.¹⁷ Population health requires collaboration, partnership, and cooperation with social service organizations and public health agencies because healthcare organizations lack the services, programs, or expertise to address many of the determinants of health. Likewise, many healthcare organizations’ HIE activities are narrow in scope. Factors such as limited participation in community-based HIE organizations, the growing use of enterprise HIEs, or single-vendor mediated EHR strategies limit the widespread availability of patient data in a given market. Such strategies make it difficult—if not impossible—to assemble comprehensive patient histories, aggregate data for population health, and coordinate care.¹⁸ In addition, even when available through HIEs, information from external providers is rarely integrated into clinical systems,¹⁰ resulting in limited ability to leverage exchanged information for clinical decision making.

Avenues to expand organizational participation in HIEs exist. For example, healthcare organizations can identify social service partners (eg, 2-1-1 listed programs) and assist them in connecting to an HIE network or obtaining direct secure messaging accounts. Such arrangements would facilitate patient transitions to service providers capable of addressing a broader set of health determinants. Also, these arrangements could facilitate communication from the social service organizations and supplant the need for healthcare organizations to directly capture social determinants in health IT systems at the point of care.

Similarly, simply considering who has the ability to act upon HIE information could suggest new priority partners. For example, emerging HIE event notification systems alert providers about key patient events like hospitalizations. Although small medical practices may not have the capacity to respond to these events,¹⁹ case management and home health agencies have the expertise and staff capable of coordinating care in response. Additionally, partnerships with public health agencies, which often maintain data on geographic populations, could provide access to data on social, behavioral, and environmental factors currently absent from health IT systems.

Lastly, HIE will be most effective if data-sharing partnerships accurately reflect patients’ care patterns within the community. This may require healthcare organizations to consider HIE needs beyond

a single vendor and novel approaches for engaging new partners (and even competitors) to the mutual benefit of a given population.

Translating Data to Actionable Information

Today, healthcare organizations typically estimate risk using only clinical and care utilization measures, even though social, behavioral, and environmental factors are also relevant. Thus, prediction models, such as those for hospital readmission, often perform poorly.²⁰ Armed with expanded and widely shared data reflecting the contexts and behaviors that influence health, the next step is to transform these data into actionable information to achieve population health goals. A clear application is to augment current risk stratification approaches, which attempt to divide populations into groups for targeted interventions. New data sources and information-sharing partners may lead to better-performing models, and they may allow us to characterize and predict more population health–relevant outcomes. For example, many existing risk models predict outcomes like death, care costs, or care utilization. Although these are important, they are distal from the basic goals of population health. Instead, data on health behaviors and other social determinants may be a means to predict upstream factors, such as physical function and quality of life, which are more relevant to population health goals of widespread physical, mental, and social well-being.²¹ Finally, this new information must be put in front of the users and shared with partner organizations so they can take action.

Conclusions

A shift in how healthcare leaders think about data collection, data sharing, and translating data into actionable information is neither insurmountable nor technologically difficult. The capabilities exist to collect, integrate, and analyze large bodies of data relevant to human health, including social, behavioral, public health, and environmental factors. Instead, as healthcare organizations establish population health goals, leaders must ensure their organizations' data collection and analytic capabilities align with their changing business needs. As organizations become accountable for population health, their leaders will need to initiate collaborations and agreements with non-traditional partners to obtain, share, and use social indicators and service information in order to optimally leverage health IT resources in pursuit of enhanced healthcare and population health. ■

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