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The Challenge of Attribution:

Responsibility for Population Health in the Context of Accountable Care

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One of the three goals for accountable care organizations is to improve population health. This will require that accountable care organizations bridge the schism between clinical care and public health. But do healthcare delivery organizations and public health agencies share a concept of “population”? The authors think not: whereas delivery systems define populations in terms of people receiving care, public health agencies typically measure health on the basis of geography. This creates an attribution problem, particularly in large urban centers, where multiple healthcare providers often serve any given neighborhood. The current paper makes suggestions for potential innovations that could allow urban accountable care organizations to accept accountability, and rewards, for measurably improving population health.

The U.S. has the highest per capita investment in health care of any nation in the world,¹ but the health of Americans is poorer than that of people in other industrialized nations. The U.S. ranks 36th for life expectancy and 39th for infant mortality,² and has a higher diabetes prevalence than any country in Western Europe.³ Improving health in America will require a greater emphasis on public health programming because the delivery of medical care, which consumes most health-related spending, has a relatively modest impact on population-level measures of mortality.^{4,5} As it happens, the U.S. is in the midst of reforming its healthcare financing and delivery system. Does this afford an opportunity to improve population health?

A central instrument of reform is accountable care contracting, which occurs when a healthcare payer forms an agreement with an incorporated group of healthcare providers, called an accountable care organization (ACO), that commits to delivering an integrated range of healthcare services including prevention, care coordination, and disease management. The Patient Protection and Affordable Care Act⁶ authorizes the Centers for Medicare and Medicaid Services (CMS) to issue accountable care contracts to providers caring for Medicare beneficiaries. Patients will be retrospectively assigned to an ACO based on their history of health services utilization, such that participation in a particular ACO

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would reflect choices an individual has already been making regarding where they seek their care.⁷ An accountable care contract has the potential to align financial incentives across a system of care such that quality outcomes improve and reductions are achieved in unnecessary procedures and preventable hospitalizations. If the overall cost of care for an ACO's patients decreases, and quality benchmarks are met, the ACO shares in the savings. In some models, the ACO may also bear financial risk if targets are not achieved.⁸

The primary goals of the Medicare ACO program are to reduce fragmentation of care, reduce healthcare costs, and improve population health. In some rural or suburban areas where a single ACO may be dominant, the ACO's prevention and disease management efforts might naturally align with population health improvement programs being implemented and measured by local health departments. However, in the complex urban areas that collectively contain 80% of the U.S. population, it has been found that population-level interventions undertaken by ACOs for their patients are unlikely to align with those of public health agencies in a geographic community.⁹

Diverging Concepts of Population

A central and long-recognized misalignment in historic and current efforts to coordinate health care and public health systems lies in this question: How should "populations" be defined, and by what criteria should individuals be attributed to a particular population for measurement?

Public health agencies characteristically define populations on the basis of residential location, stratified, perhaps, by race, ethnicity, gender, age, language spoken, disability, or disease status.¹⁰ In New York City, for example, the Department of Health and Mental Hygiene (DOHMH) tracks population health via multiple data sources to depict health status in 42 ZIP code-defined neighborhoods.¹¹ If a person lives in the Brownsville neighborhood of Brooklyn, the DOHMH includes him or her in the Central Brooklyn Community Health Profile,¹² and he or she counts toward the County Health Ranking for Brooklyn (Kings County), regardless of where he or she receives healthcare services.

This approach makes sense given that many major determinants of health are indeed local to geographic neighborhoods, such as availability of healthy foods, parks and other safe places to play and exercise, schools with physical education programs, and safe housing.^{13,14} In general, public health agencies have expertise in and infrastructure for implementing neighborhood-level interventions to improve population health. The comparability of data at the county level can foster cross-state comparisons to spur improvements, an approach supported by the Robert Wood Johnson Foundation in the Mobilizing Action Toward Community Health (MATCH) initiative.¹⁵

By contrast, healthcare delivery organizations focus on the health outcomes of "individuals,"¹⁶ and define populations by aggregating the individual patients to whom they have delivered health services during a particular period of time. Quality measures for health care, such as the National Council on Quality Assurance's Healthcare Effectiveness Data and Information Set (HEDIS) measures, typically have attribution equations that draw on insurance claims to attach a particular patient to a particular physician, healthcare practice, or hospital.^{17,18} Accountable care organizations, as issued by CMS, follow this approach. A person is a part of the population for which the ACO would be held accountable if physicians within the ACO have delivered a plurality of that person's primary care services in the past year. Thus, a New Yorker receiving primary care at a hospital in Manhattan would be counted in the quality measures of an ACO to which that hospital belonged, even if he or she lives in Queens.

In densely populated urban areas, does “accountable care” hold out the prospect of aligning these two paradigms of population health? Not at first blush: as set forth in the ACO regulations, Medicare will adopt a delivery system–based, not a geography-based, definition. For example, a study of patients’ nonurgent care from a large municipal hospital emergency department in Manhattan found many coming from distant Brooklyn neighborhoods,¹⁹ prompting the following questions: Should a Manhattan hospital be responsible for addressing neighborhood-based determinants of health? If so, in which neighborhoods? In its own neighborhood regardless of the number of “users” living there? In Manhattan neighborhoods from which it draws a plurality of its patients? Or in other boroughs from which a substantial number of its patients are drawn? If the hospital were part of an ACO, according to regulations, the answer to the first question is no, as a delivery system’s responsibility is limited to those patients for whom the system is actually providing care.⁷ This model is unlikely to create incentives or financing for health system–originated initiatives to improve health at the neighborhood or community level.

Would such initiatives be sensible investments under an accountable care contract? In areas where a single health system is a dominant provider, the answer may be yes. But in densely populated urban areas where a given health system provides care for only a modest proportion of people living in a particular city block, and in which community-level determinants of health outcomes are largely beyond the ACO’s control, the economics of such investments in terms of cost savings to the provider system are much more difficult to justify to the leadership of hospitals with razor-thin margins.

For example, for a hospital-led ACO held responsible for the cost and quality of asthma care within its patient population, a \$100,000-per-year investment in an additional nurse for patient counseling and care management is likely to have greater return to the ACO as shared savings than an equivalent neighborhood-level investment in household allergen abatement programs,²⁰ even though the community-based intervention has a greater long-term impact from a geographically defined population perspective.²¹

New Paradigms Needed to Link Delivery System and Public Health Agendas

What, then, can be done to better align these two concepts of population and so to advance health goals through accountable care contracts? The measure set for which ACOs will be accountable under Medicare contracts, together with the imperative to create aggregate savings, suggests that ACOs will focus substantial effort on care coordination among primary care providers, specialists, and hospitals. For some measures that reflect both ACO and public health objectives, however, a collaborative framework might be developed by an ACO and a public health agency for reaching aligned targets. Improving blood pressure control, for example, is an ACO measure as well as a core public health objective, amenable to health system–based as well as community-level efforts such as screening, initiatives to foster physical activity, and, possibly, salt intake reduction.

Such alignments represent opportunities for cross-sectoral initiatives, and offer a challenge to define the relative roles of ACOs and public health agencies in reaching specific targets in populations for which responsibility is shared. Models for bridging delivery system and public health department accountability would require definition of the population(s) in question and new models by which resources and responsibility are apportioned across the two entities, whether through a contractual mechanism or simply the coordination of existing resources.²² Such efforts would have to overcome barriers to organizational change which, already substantial when single institutions ready themselves for accountable care,

would be compounded if accountability for specific population-level outcomes were in fact shared across sectors.²³

One approach to this challenge comes from Colorado's Medicaid program, which contracts with ACOs in geographic regions.²⁴ With properly structured incentives, such geographically defined ACOs could more readily be held accountable for population health measures, including evidence-based community prevention interventions to address the underlying causes of early death and morbidity, such as tobacco use, unhealthy eating, and physical inactivity. As such, they would also support the development of relationships among healthcare providers, public health agencies, and community organizations, as well as meaningful community input into ACO management, as suggested by Springgate and Brook.²⁵

In large urban settings, however, aligning ACO financing with population health will require some inventive new approaches from both health care and public health, leveraging new technology and data sources, such as GIS, that have altered the way we define populations from the perspective of determinants of health and disease. Three examples are proposed of research and pilot programs that might facilitate progress:

1. Conduct empirical mapping of patients' health care-seeking patterns in urban areas to identify constellations of providers that might serve as "naturally occurring" ACOs for a substantial portion of the people who live or work in specific neighborhoods characterized by poor health outcomes. Health information exchanges could enable such analyses, enhanced by health department data on health indicators by community.²⁶ Similar approaches are made possible by interfacing delivery system outcomes data with the increasingly granular data sets on indicators of community health status maintained by public health agencies, many of which are involved in assessing neighborhood-level impact of targeted interventions.
2. Incentivize ACOs to select one or more quality measures and commit to improvements among those of their patients that reside or work in well-defined regions or neighborhoods with poor health status. Such improvements could be rewarded through an increased portion of shared savings, a separate pay-for-performance fund, social impact bonds,²⁷ or some combination thereof.
3. Require or incentivize ACOs to establish formal partnerships, perhaps including shared governance arrangements for some components, with local public health agencies and community organizations (e.g., schools, senior centers, faith-based organizations). Including public health and community health competencies within an ACO would make it more feasible and acceptable to hold ACOs and public health agencies jointly accountable for geographic measures of health, based on neighborhood-level survey data. If federal funding streams were truly aligned to maximize health, public health agencies might be incentivized for advancing delivery system objectives in the realm of population health.

Conclusion

Accountable care is in its nascent stages, and there is much room for experimentation and innovation in incentive and measurement models, within Medicare and more broadly in Medicaid and commercial insurance. Public health institutions and advocates for patient-centered care have an opportunity to develop models that better align healthcare delivery financing with population health actions.

As currently configured, the advent of ACOs may do little to advance population health in urban areas. The healthcare delivery– and geography-based paradigms of population health remain like parallel lines, aiming in the same direction but without synergy. Although substantial cultural, practice, and financing differences exist between healthcare delivery organizations and public health agencies, new opportunities offer the potential to better integrate and align action and investments for health at the individual, delivery system, and community levels. Such collaborations could, over time, create truly transformational change in the health of the U.S. population. Now is the time for innovative approaches to get this right.

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