OVERVIEW OF PROPOSAL

In recent months, a series of high-profile reports have noted critical gaps in authority and resources for Federal, state, and local public health agencies to fulfill their mission of preventing disease and advancing population health at the community level. In many ways, these gaps are not new: funding has largely been flat or negative for decades, and much of actual expenditures are for programs targeted to fill gaps in particular health care needs for uninsured and underinsured individuals with certain conditions, particularly infectious diseases. But in other areas, such as trust in public health, the challenges seem to be worsening.

Several other simultaneous trends increase the urgency of addressing these gaps, but also suggest opportunities for a new approach to support and leverage efforts of public health agencies to improve population health. The first is the continuing rise in biomedical capabilities to help address population health threats. This was apparent in the COVID-19 pandemic, which saw an unprecedented pace of biomedical developments to contain the virus, including fast identification of the pathogen, rapid deployment of repurposed treatments, development of targeted new treatments like monoclonal antibodies, and the rapid development and large-scale production of multiple safe and effective vaccines. Indeed, the capacity to deliver “test to treat” interventions is feasible for more and more high-burden diseases, ranging from infectious disease threats like COVID-19, hepatitis C, and HIV, to common chronic conditions like diabetes and other cardiovascular risk factors.

However, despite the US being the best-equipped country in the world in terms of its access to these biomedical capabilities, the largely private American health care system faced challenges in working with public leaders to limit the population health impact of COVID-19. The gap between other test to treat biomedical capabilities and their impact on population health is also substantial.

Likely reflecting this challenge, the second trend is the development of partnerships between health care, public health, and other public and private entities to address these challenges. Health care organizations became a primary source of data on COVID-19 cases, identified by laboratory tests and in emergency departments, and severe complications, identified from intensive care unit data. Such partnerships are far from systematic, but they are likely to become more important. For example, to accelerate broad and timely access to MPOX diagnostic tests, CDC shared its validated PCR test with medical centers and commercial labs, which in turn facilitated more timely and widespread use of accurate diagnostic tests. In contrast to the delays in such public health and health care collaboration in the early months of the COVID-19 emergency, this experience suggests that better mechanisms for collaboration to achieve public health goals are possible now.

Related to enhanced potential to mitigate, intercept, and cure diseases, a third trend is the growth of health care resources rapidly outpacing those for public health. Additional public health care funding over the last two decades have supported interoperable medical records, registries, and other health care data systems which are leveraging advances in digital technologies to enable real-world evidence, decision support, and AI-based approaches to facilitate coordinated, personalized care that identifies and intercepts health risks earlier.

With these trends in technology and spending has come more recognition that simply employing biomedical products and services in traditional “medical” models for
improving individual health outcomes may be making a difference for some individuals, but it is not reversing a years-long slide in US life expectancy that predates the pandemic. Rather, health care has increasing opportunities to move upstream. Going further, care organizations are increasingly engaged in addressing social factors that create barriers to care and health, including food insecurity, inadequate housing, and other “non-medical” barriers to access. In many cases, innovative health care organizations are using community health workers and community health networks (often supported or guided by public health leaders) that can build on ongoing trusted relationships to help individuals improve their health and address misinformation.

Finally, building on trends in bipartisan health care reform proposals going back over a decade, Federal government, state, employer, and other purchaser efforts are supporting payment and care reforms aiming to achieve better health care results through greater accountability for health not just excellence in traditional medical services. This includes efforts to shift from traditional “fee for service” (FFS) payments linked to the delivery of traditional medical care, to person-level “accountable care” payments and models that focus on tracking and improving longitudinal patient outcomes. Accountable care payment reforms are helping health care organizations develop and sustain capabilities to improve outcomes that matter for the populations they serve. The resulting population-level data on local opportunities to improve population health, coupled with health care resources, can add up to substantial regional supports for public health goals. A growing number of states and local governments are using such capabilities to provide trusted linkages to social services and community supports, where these nonmedical interventions can help avoid costly downstream medical complications.

Altogether, these trends could support a re-envisioning of how public health, health care, and social service systems can work together to address population health challenges. But there is not yet a systematic vision or strategy for whether and how these trends in health care capabilities and financing can best support public health goals, including addressing disparities in health and the downward trend in health outcomes in many population groups. Here, to advance this re-envisioning, we describe a path toward Accountable Population Health with better, more intentional partnerships between health care and public health to achieve population health goals - including building community level resources and accountability to track and improve population health outcomes.

Background: The Evolution of Public Health in the United States

Public health in the United States has greatly evolved over the past 150 years. In the late 19th century and first half the 20th century, growth in knowledge and basic scientific understanding of disease transmission and control led to substantial improvements in public health. Academic institutions and government agencies such as the Center for Disease Control and Prevention (CDC; originally the Communicable Disease Center) were formed, focused on promoting safety, sanitation, and nonmedical approaches to infectious disease control.

In the latter half of the 20th century, public health developed further. New tools and approaches to addressing disease prevention at the population level were implemented on a national scale, including biomedical interventions such as vaccines to reduce childhood mortality and eliminate polio. Improved infectious disease containment strategies and some treatments led to significant reductions in diseases such as tuberculosis. Public health campaigns also led to improvements in safety and promotion of healthy behaviors, such as smoking reduction. With these advancements in public health, life expectancy continued to rise and the health challenges facing Americans shifted over the course of the 20th century to noncommunicable diseases and emerging infectious disease threats accelerated by increased global mobility. In response to these new challenges, a new concept emerged in the late 20th century: “population health,” which has been defined as “the health outcomes of a group of individuals, including the distribution of such outcomes within the group,” with a focus on the intersection of health outcomes and social determinants of health.
In the early 21st century, public health leaders described a revamped “Public Health 3.0” vision of greater cross-sector engagement, including collaboration with community partners and health care providers and a focus on addressing social determinants of health. Under this vision, public health officials should see their role as “Chief Health Strategist” for their community or region, including a focus on improving community health through cross-sector partnerships, providing timely and reliable data and action-oriented analysis to support these partnerships, and developing greater and more flexible funding that can be better directed toward achieving population health goals. This includes more attention not only to the increasing opportunities for prevention-oriented health care through early diagnosis and treatment, but also actions to address the behavioral, social, and environmental determinants of poor health outcomes.

However, this expansion of focus was not accompanied by any commensurate increase in resources. Although government spending on public health activities has increased each year, growth has been slow and has held steady at approximately 3% of total national health expenditure from 2000 to 2019. Most public health funding comes through state and local programs, but spending trends in the past 10 years show uneven allocation of resources for various public health activities. One analysis found that only injury prevention demonstrated statistically significant growth in resources over a ten-year period. Further, many of the major activities funded by public health relate to health care programs for the uninsured and underinsured, who often do not have easy access to traditional health care providers – people from marginalized communities with higher rates of HIV, people who use intravenous drugs, unhoused individuals, undocumented immigrants, and others.

Public health advocates have diligently called for greater resources and authorities for a broad set of essential public health activities. For example, they have proposed substantial additional spending that could be linked to developing capabilities likely to improve capacity to monitor population health, address health hazards, communicate and educate, create and implement community health plans, and build a strong state and local public health infrastructure to improve community health. But even rapid relative growth in public health funding – say $50 billion per year, which would increase national public health spending by more than a third – would by itself likely fall short of reliably providing the capabilities needed to broadly improve population health. For example, a detailed framework developed by the Public Health Accreditation Board describes a voluntary certification program for essential public health services that could potentially be linked to such additional public health funding. But these capabilities mainly relate to structural or process steps, such as “participate in or lead a collaborative process resulting in a comprehensive community health assessment,” or “analyze public health data, share findings, and use results to improve population health.” Certification does not even envision accountability for obtaining systematic data for public health awareness, producing priority population health measures and gaps, and leading specific initiatives that achieve measurable and sustainable improvements in population health in a community.

Meanwhile, spending on health care has continued to increase year on year for decades and has grown at a more rapid rate since the COVID-19 pandemic. As of 2021, average health expenditure in the US was $12,914 per person. Similarly, spending on social services and safety net health programs has been increasing as well. In recent years, concerns about the impact of this funding on population health has been accompanied by greater accountability for results. The Centers for Medicare and Medicaid Services (CMS) and many states have begun setting goals to hold health care organizations accountable for improving specific aspects of population health, including addressing social needs and health disparities. CMS has set the goal of enabling all Medicare beneficiaries and most Medicaid beneficiaries to have access to such coordinated, accountable care systems over the next six years, as a key strategy for improving population health and health equity. With other purchasers implementing aligned goals, health care organizations are increasingly accountable for addressing the key health needs of the populations they serve and collaborating with social and community programs to do so.
Amidst these trends, US public health institutions and health care systems faced COVID-19. The US response, which was supported and guided nationally but carried out locally across a diverse federated system of states and communities, consisted of at least three core components: 1) emergency response to save lives of those infected; 2) biomedical solutions; and 3) community-based measures to contain spread and limit poor health outcomes. The first component saw heroic steps by local health care organizations in hard-hit areas, often supported not just by public health guidance but “whole of government” responses to bring community resources and social services to bear. The second component of response, biomedical solutions, more rapidly created clinically proven tests, treatments, and vaccines than in any previous health emergency – relying on improved technology platforms and synthetic biology that bode well for the future of emergency response countermeasures. Operation Warp Speed – now retitled H-CORE, extended to therapeutics and potentially better rapid point-of-care diagnostics and surveillance tools – could enable these critical biomedical capabilities for future preparedness.

However, the third component, community response capabilities, showed significant fragmentation and gaps including in identifying local outbreaks, reducing and containing transmission, and connecting people to vaccines and “test to treat” capabilities that could avert serious population health complications while enabling relatively normal lives. Despite its biomedical capabilities, the US faced substantial excess mortality (179.3 excess deaths per 100,000) compared to other high-income countries, as well as substantial health disparities. Further, and related, the public health response failed to garner and maintain the population’s trust, connect with the concerns of many about the burdens of public health responses, or prevent the spread of misinformation. This failure hampered traditional infectious disease containment efforts and non-pharmaceutical interventions, such as distancing and masking, and undercut the benefits of the biomedical successes, such as vaccines. Public trust in government-led public health institutions – including CDC, state, and local agencies – and confidence in the health system as a whole has fallen, even as trust in local health care providers continues at high levels across diverse groups.

These complex failures and their underpinnings have been detailed in a number of books and reports, including the recent Lessons from the Covid War led by Phil Zelikow. But as Zelikow and colleagues note, throughout the country we also saw successful examples of health care and public leaders – including public health and other government agencies – coming together to share data and goals and set up new systems that enabled accountability for addressing population health gaps. These approaches, often supported by prevention-oriented health care payment reforms and capabilities, provide the foundation for the accountable population health partnership approach that follows.

An Updated Vision for Accountable Population Health Partnerships

Traditional approaches to public health and health care were not adequate to deal with COVID-19. Preventable hospitalizations and deaths are still occurring even after the end of the PHE, in addition to the continuing burden of other major infectious and chronic disease threats that are increasingly amenable to interventions that can prevent complications. Public health institutions have critical analytic capabilities and expertise to support these efforts, but lack funding and local intervention capabilities to be accountable for public or population health goals. Health care providers have considerable public trust through ongoing relationships, but mostly continue to rely on payment models that provide limited support for “upstream” measures such as surveillance of health risks, preventive steps, early detection, and treatment – despite advancements in biomedical technologies, data, and support systems that enable coordination of programs to improve population health and address health inequities.
Consequently, there is an opportunity to re-envision Public Health 3.0 as a partnership with increasingly important health care and social service programs through Accountable Population Health to implement more sustainably-funded data, support, and care delivery capabilities in communities to address these population health challenges. In this approach, Public Health 3.0 priorities can be addressed by updating the expectations and responsibilities of public health and publicly-supported, largely private health care systems. Accountable health care, using advanced primary and home health care teams with enhanced capabilities and data support, can focus on traditional and innovative clinical prevention, while person-centered social services can augment these capabilities. Together with public health guidance, they can support community-wide prevention services outside the clinical setting, where such community-based approaches can achieve greater impact on population health and well-being outcomes.

The capabilities and resources across accountable health care organizations and connected social service programs, for example, can drive initiatives that address major determinants of population health – medical, behavioral, social, and perhaps environmental – as envisioned by but not funded under Public Health 3.0. Building on current steps that link the accountable care approach to cross-sector community partnerships can form the basis of more extensive Accountable Population Health efforts. State and local governments can lead on setting measurable goals, accountability, and financial alignment with Federal support. Accountable Population Health can be further supported by public health analytics, using richer and more timely standard electronic data from health care organizations, to enable better-focused and timely actions and to better inform what actions are effective. These steps will help create a more integrated and impactful public health system, one that can support more coordinated action by health care organizations to address measurable goals in terms of population health, health disparities, and community resilience.

We describe three major elements of how the Accountable Population Health approach could be initially applied. The first involves providing foundational data for situational awareness of urgent community health risks and for determining actionable, feasible steps to make measurable progress across health care, public health, and social services. During the COVID-19 PHE, health care organizations were required to report a wide range of potentially relevant health data to local, state, and Federal public health authorities. Standard electronic medical record data from private laboratories on cases and test positivity rates, from health care facilities on patients and on capacity (i.e., emergency department, ICU, available beds), and from frontline clinical practices on at-risk patients who could benefit from treatment (and whether they received treatment) are critical inputs during a PHE. Such data supports the allocation of resources and development of response plans. But public health data systems and authorities are not standardized or consistently able to use such data, placing additional reporting burdens on stressed and stretched health care providers in public health reporting.

Many health care organizations have developed data dashboards derived from their electronic data systems for their own planning and to contribute to regional planning in an emergency. Some regions and states have developed collaborations for sharing such data across health care and public health to guide local public-private responses. However, these organizational and local approaches do not consistently rely on national standards for electronic data reporting, and they are not reliably funded.

A more efficient and consistent approach would rely on CMS-related authorities and data standards, implemented through nationally consistent CMS notice and comment rulemaking in advance of emergencies, to provide situational awareness for public health agencies, affected health care organizations, other key public decisionmakers, and potentially the broader public. Duke-Margolis and the Healthcare Leadership Council recently released a report with recommendations for administrative actions to implement such a system. Any reported data would be clearly related to emergency response (e.g., bed capacity, cases requiring hospitalization, relevant lab test results) and supported by national standards developed through a collaborative public-private process coordinated by the Office of the National Coordinator for Health Information Technology (ONC). Data would be checked and aggregated by a CMS contractor to produce group-level, deidentified data to guide local responses (e.g., affected cases and trends in specific demographic or health risk groups in specific geographic areas). Health care providers and labs submitting data, and their local partners in emergency response, would receive timely standard reports. Public health agencies would have more complete and timely data for assessing the emergency, predicting trends, and
Many high-risk individuals received COVID-19 home tests (and/or high-risk patients. In particular, older patients and other have successfully piloted test to treat approaches for their health care organizations (e.g., Intermountain and Optum) of-care tests are increasingly available at home. Many primary care offices, and commercial labs, and rapid point-of-care conditions are now widely available at pharmacies, COVID-19 and other infectious diseases; tests for many Americans are familiar with the test to treat concept for treat initiatives related to public health goals.

This leads to the second element of an Accountable Population Health approach – the use of accountable health care reforms to advance population test to treat initiatives related to public health goals. Many Americans are familiar with the test to treat concept for COVID-19 and other infectious diseases; tests for many conditions are now widely available at pharmacies, primary care offices, and commercial labs, and rapid point-of-care tests are increasingly available at home. Many health care organizations (e.g., Intermountain and Optum) have successfully piloted test to treat approaches for their high-risk patients. In particular, older patients and other high-risk individuals received COVID-19 home tests (and/or instructions on how to get a laboratory test) and guidance on how to get tested after exposure or with symptoms, along with information of their risks from COVID and the availability of treatment. The health care organizations enabled electronic notification data reporting of positive tests to activate telehealth or other convenient and timely follow-up to advise the patient about treatment (e.g., with Paxlovid) and other steps they could take to reduce spread. Similar test to treat capabilities with convenient home testing are also emerging for common respiratory infections, such as flu, and other infectious diseases. However, even though these evidence-based approaches can help with both identifying and reducing disease spread, and especially with avoiding serious and costly medical complications, they are not yet widely adopted. FFS payments often do not provide strong financial support for a reliable care infrastructure that facilitates timely detection and treatment at home and in the community.

Accountable care payment reforms are increasingly providing better support for population health models like test to treat, as well as accountability for improving population-level performance. For example, CMS has implemented initiatives for test to treat-like programs for diabetes and some cardiovascular risk factors, in which accountable health care organizations are accountable for reporting and improving on screening or testing results for these health risks, and for patients receiving effective treatment that addresses them. With better early testing and evidence-based treatments available for most common health problems, these accountable population health reforms could substantially advance a range of public health goals, especially involving Medicare and Medicaid populations. These efforts would also make it easier for employers to support aligned goals in their covered populations.

However, so far CMS has implemented accountability measures in Medicare Advantage and its ACO programs for only a limited number of major chronic conditions. CMS is also supporting the development of outcome measures that could help implement similar approaches for depression and other undertreated behavioral health conditions, and could extend “screening” measures to include accountability for successful treatment to align with Federal and state public health initiatives to address additional major public health threats such as hepatitis C. For this approach to work for a broader range of population health threats, CMS and health care
organizations would need to develop more reliable and less burdensome approaches to implementation. This includes less burdensome and more automated reporting, such as through “bulk FHIR” capability requirements in electronic medical records like those required for Medicare certification now (but not yet widely utilized for reporting) for tracking blood pressure and diabetes control. It also requires public and private technical assistance to help health care organizations succeed, especially those with limited resources and experience.

Even with these steps, health care providers cannot easily address public health goals alone. In particular, many patients face social barriers to care, like not having stable housing or insecurity in other basic needs. While health care providers are increasingly screening for such social needs, they would benefit from stronger community partnerships in addressing them. A growing number of states supported by Medicaid state plan amendments and waivers, CMS funding for community-based social services to improve health outcomes, and Federal public health agency contributions to community health hubs are demonstrating how state and local governments can better connect prevention-oriented health care to their social service programs around individuals to make progress on priority population health issues – especially health inequities. Public health agencies can help guide and support these efforts.

The multiple payers and shifting insurance arrangements for individuals in a fragmented US health care system might seem to complicate these goals. But there are lessons from states and regions that have implemented systemwide coordinated response efforts. For example, North Carolina organized its COVID-19 response through the Governor’s office and Department of Health and Human Services, which oversees not only state health care and public health programs, but also social service programs. The response built on existing multi-payer health care reform efforts in the state to move to “paying for health” and to coordinate social service supports with initiatives to use health care data to inform response planning. Additionally, the response established regular communication mechanisms to support both treatment access and up-to-date, accurate communication through health care providers and employers – all informed by the state’s public health programs. North Carolina was able to leverage Federal emergency funding and these emergency needs to accelerate and extend its existing plans to strengthen the data infrastructure “backbone” enabling a multi-sector responses across health care, public health, and social services. Other countries with multiple health care organizations – such as Israel – have successfully implemented this approach to improve treatment rates for infectious diseases such as COVID-19.

A third element of an Accountable Population Health strategy that builds on better situational awareness and improving test to treat capabilities involves **addressing other public health threats that are not well supported in most FFS-based health care systems today.** An example with major public health consequences is opioid use disorder (OUD). With limitations in health care response, public health programs play a major role in addressing OUD, now supported by temporary increases in funding for state and local governments through opioid settlements. Public health agencies have implemented prevention and anti-stigma campaigns such as harm reduction programs, enhanced provider education on pain management and opioid prescribing, and focused clinical support programs for underserved individuals. However, relapse rates from short-term OUD treatment programs not integrated with ongoing care and support are high. In contrast, there is growing evidence that primary care providers can effectively implement OUD treatment and maintenance programs. Under traditional FFS payment methods marked by episodic, fragmented care delivery and pressure to see patients quickly, it is not surprising that such models are not widely adopted. Instead, people with OUD are often “fired” by their health care providers, or health care providers simply do not coordinate services for their patients with OUD needs because current payments and care models provide few supports or accountability for effective OUD management. Better health care financial alignment and accountability for detecting and preventing complications for OUD patients could substantially augment stretched public health capabilities.

Indeed there are some leading partnerships like Shatterproof, where opioid response leaders, experts, and stakeholders are testing and developing alternative payment models that focus on long-term OUD outcomes. Some state Medicaid programs and managed care organizations are exploring subcontracts with specialized, technology-supported providers like Eleanor Health that can partner with accountable primary care practices and health plans to improve access to evidence-based OUD care and **outcomes.** These coordinated, comprehensive
community-based health care models could support whole-person care for many more individuals at risk for OUD complications.

Finally, all three of these elements of Accountable Population Health address a fourth critical gap in current public health strategies: building and maintaining trust across diverse populations with different values and frames of reference that influence views on public health. Consideration for how personal and public health choices are framed, as well as the sources of information that individuals rely on, all can impact decisions. Building trust among diverse groups was a key challenge in the COVID-19 response, and lessons from this experience can inform how to increase trust in public health messages. First, the experience showed that maintaining public trust depends on maintaining the public's confidence that authorities are following scientific guidance, and that recommendations for individuals' actions are clearly linked to evidence and free from inappropriate influences. More accurate community public information, as described here, can help with that challenge. On a state and local level, demonstrating compassion and care is also critical to maintaining trust. Frontline clinicians already have such relationships, and many partnered in the PHE with trusted employers and community leaders – often supported by local public health officials. Another important learning is that messages should be tailored to populations with different frames for new information. Public health agencies should be able to achieve more transparency and deliver more locally-informed guidance with the additional sources of timely data we have described. But it is very difficult for public health agencies alone to directly engage diverse local populations with varied levels of confidence and experience with public health recommendations, without a longer-term foundation of trust.

However, public health authorities can use their communication resources to support effective and accurate communication by local health care providers and their community partners, who often have ongoing, more personal trusted relationships. These approaches can work: North Carolina took steps to implement such partnership-based, straightforward communication strategies in COVID-19, and tracking surveys showed an increase in North Carolinians' trust in the state public health information over the course of the pandemic.

If local health care providers are increasingly accountable for population health goals, communication support from public health experts will be increasingly in demand.
Feasible Steps for Progress on Improving Population Health - with a Feasible Implementation Path for Public Health 3.0

The approach outlined here for Accountable Population Health, in a partnership guided by public health expertise to understand and take actions to address major public health threats, is not a silver bullet for the public health challenges and debates facing the United States. But these reforms are underway now, with relatively broad political support and proven experiences at the Federal and state level. They can reinforce limited public health resources with trusted health care providers and aligned reforms in social service programs. They can provide clear and present opportunities to reverse losses and make progress in advancing major public health goals.

These steps would also enable further requests for public health funding and authorities to be focused on areas where clear and measurable gaps still exist and progress is both possible and easier to sustain financially. The health care steps toward accountable population health that we have described should be accompanied with more focused proposals for public health functions that clearly increase population health performance in a community - for example, in helping health care and community organizations improve key health outcomes for underserved populations, or increasing the ability of a critical access health care providers to increase use of preventive services in a rural community.

This partnership strategy can also provide added motivation for needed health care coverage reforms. Accountable health care to address key population health challenges in North Carolina, for example, was a bipartisan motivator for the state’s broadly supported approach to Medicaid expansion. The reforms include requirements for health plans and providers to be accountable for increasing access to effective care and prevent avoidable costs for high-burden chronic and infectious diseases, while also being accountable for total costs of care.

Accountable health care reforms cannot easily address many public health challenges, including climate change and many environmental exposures. But they can help. Team-based approaches to person-centered health care can provide a strong ongoing foundation for trusted dialogues about such issues. Continued improvements in health care screening and diagnosis can provide more timely and actionable information and response capacity for individual and community exposures. Moreover, these steps could also help relieve the pressures on public health systems to deliver key health care services to high-risk populations that are marginalized in FFS health care systems and that could benefit from better coordinated, whole-person care – enabling public health resources to concentrate on these additional needs. Recent reforms in Medicaid and health care safety net providers to advance accountable care suggest that these accountable care reforms may be particularly important for such populations, who are likely to benefit from coordinated, longitudinal care.

The health challenges facing the United States in the 21st century require a reinvigorated, feasible approach to public health. Improving biomedical and digital technology capabilities are creating more opportunities and pressure to bring together the capabilities of health care organizations, traditional public health agencies, and social services. Our proposed Accountable Population Health approach will leverage digital data systems, biomedical innovations, and trends in health policy reforms to enhance community capabilities through engagement with these private sector and social service organizations. If applied, this approach can help to better understand and address public health challenges, build public trust and confidence, and build better, more resilient, and more sustainable health care and public health capabilities.
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