

**Written Testimony of
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**House Committee on Energy and Commerce
Subcommittee on Health
Empowered by Data: Legislation to Advance Equity and Public Health
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Chairwoman Eshoo, Ranking Member Guthrie, and distinguished members of the Committee: thank you for the opportunity to appear today. My name is Dr. Karen DeSalvo, and I am a physician and former local and national public health official who has spent my career working at the intersection of clinical care, public health, and digital innovation to improve the conditions in America's most vulnerable communities. Currently, I serve as the Chief Health Officer at Google and remain engaged in efforts to address the public's health collaboratively, such as through my role as co-convener of the National Alliance to Impact the Social Determinants of Health with former HHS Secretary Michael O. Leavitt and as a member of the Robert Wood Johnson Foundation National Commission to Transform Public Health Data Systems.

It is an honor to testify today and share my experiences and perspectives on how the nation can better leverage data to advance equity and public health. While COVID-19 may be caused by a novel pathogen, the inequities exposed by the pandemic have long been endemic to our society. The elevated risk of exposure, severe illness, and mortality in marginalized populations reflects both generational resource gaps and the effects of social and structural determinants of health, including racism.^{1,2} I applaud the Subcommittee for their leadership during COVID-19, including the passage of transformative pandemic relief legislation to

¹ Romano, Sebastian D. "Trends in Racial and Ethnic Disparities in COVID-19 Hospitalizations, by Region—United States, March–December 2020." *MMWR*. 70 (2021).

² Asch, David A., et al. "Patient and Hospital Factors Associated With Differences in Mortality Rates Among Black and White US Medicare Beneficiaries Hospitalized With COVID-19 Infection." *JAMA Network Open* 4.6 (2021): e2112842–e2112842.

reinforce the nation's public health infrastructure, expand access to testing and vaccines, and pave the road to recovery from this public health emergency.

These barriers to equity are not new to those of us working in medicine and public health.³ I learned about them from my patients at Charity Hospital, a safety net system in New Orleans, that was closed in wake of the devastation of Hurricane Katrina. Katrina, like COVID-19, opened policymakers' eyes to pre-existing inequities.⁴ In response, we rallied to create a system with the community: one capable of both addressing ongoing health challenges and moving upstream to address the social and structural determinants of health responsible for a life expectancy gap of 25 years for people living just a few miles apart. Addressing these inequities required shifting our focus from individual patients to population-level data, which revealed disparities beyond medical care (e.g., access to healthy food, quality education, housing, and transportation).⁵

This experience opened my eyes to how inequities are driven by context and must be mitigated by investments in infrastructure, in addition to individuals. It also spurred my understanding of how critical it is to have timely, granular, actionable data that can not only describe the problems, but also guide effective interventions. In 2005, such data was rarely available because our health care system, like most in the US, relied on paper-based records, which were consequently lost amidst the flooding and resulted in discontinuity of care.⁶ These experiences motivated Louisiana to be a national leader in the adoption of electronic health records to improve the care of individuals, drive an opportunity for equity, and steer public

³ Marmot, Michael, and Jessica J. Allen. "Social Determinants of Health Equity." (2014): S517-S519.

⁴ Van Spall, Harriette GC, Clyde W. Yancy, and Keith C. Ferdinand. "COVID-19 and Katrina: Recalcitrant Racial Disparities." (2020): 3390-3393.

⁵ The New Orleans Health Disparities Initiative. "Rebuilding a Healthy New Orleans". 2007. Accessed June 21, 2021. Available at: https://www.prrac.org/pdf/rebuild_healthy_nola.pdf.

⁶ Dimick, Chris. "Long Recovery: HIM Departments Three Years after Katrina". *Journal of AHIMA* 79.9 (September 2008): 42-46.

health action.⁷

The need to leverage more than the health care system to address systemic health inequities in New Orleans motivated me to serve as the Health Commissioner in New Orleans. Like all local health officers, it is a role in which the community becomes your patient with a charge to serve everyone who lives, learns, works and plays in the jurisdiction. I saw my mission as working across sectors, with housing, education, business, the faith-based community and more, to build a more equitable and resilient community that would drive health for all.

Yet I also quickly learned an important lesson. Building public health programs purely on the available population-level data would be insufficient. First, the data available to me was stale—often at least two years old—and provided at best a look in the rearview mirror rather than a pulse of current community challenges or forecasts into the future. Second, relying on quantitative data alone could only tell me what diseases existed in the medical system, and not what was driving health challenges for my community. I sought to supplement quantitative data with qualitative data gathered from conversations in church halls, community centers, and playgrounds; all of which encouraged me to look beyond the headlines of cardiovascular disease and cancer and elevate our focus on addressing violence, mental health, and the lack of economic opportunity. In order to meet the community where they were, we needed to create a public health system capable of blending timely quantitative data with the public voice to generate actionable insights for health.

I carried these lessons with me to my subsequent service in the federal government, where, for nearly two years, I held the dual roles of National Coordinator for Health Information

⁷ Taylor, Shayne Sebold, and Jesse M. Ehrenfeld. "Electronic Health Records and Preparedness: Lessons from Hurricanes Katrina and Harvey." *Journal of Medical Systems* 41.11 (2017): 1-1.

Technology and Assistant Secretary for Health (Acting). This unique experience allowed me to see the power and potential of technology and public health to address major health challenges at scale. As electronic health records became more pervasive, we saw examples of how this “novel” data could identify public health crises and support everyday public health surveillance needs. For example, it was data from hospital records—which are normally inaccessible to public health—that enabled health officials to sound the alarm about the Flint water crisis in Michigan.⁸ Another example is Project MacroScope, which enables New York City’s health department to leverage primary care clinic electronic health record data for chronic disease surveillance on par with community surveys.⁹

Many of these new insights came from the medical system, which has been successfully digitized thanks to the investments and incentives of the HITECH Act. However, public health was excluded from accessing those resources for IT modernization resourcing, meaning America’s health departments never developed a 21st century data infrastructure.¹⁰ As we saw acutely during the pandemic, the public health system continues to rely on paper, fax machines, and spreadsheets.¹¹ Yet the challenge for the public health system is broader than simply an outmoded data and IT infrastructure. For a variety of reasons including chronic under-resourcing, the increasing complexity of caring for marginalized populations, and broadening scope of practice, public health has struggled to keep up with programmatic expectations, leaving little opportunity for visioning and modernization. This was certainly what I experienced as a local health officer in New Orleans. We had a dedicated and talented staff,

⁸ Hanna-Attisha, Mona, et al. “Elevated Blood Lead Levels in Children Associated with the Flint Drinking Water Crisis: A Spatial Analysis of Risk and Public Health Response.” *American Journal of Public Health* 106.2 (2016): 283-290.

⁹ Perlman, Sharon E., et al. “Innovations in Population Health Surveillance: Using Electronic Health Records for Chronic Disease Surveillance.” *American Journal of Public Health* 107.6 (2017): 853-857.

¹⁰ Lenert, Leslie, and David N. Sundwall. “Public Health Surveillance and Meaningful Use Regulations: A Crisis of Opportunity.” *American Journal of Public Health* 102.3 (2012): e1-e7.

¹¹ Kliff, Sarah, and Margot Sanger-Katz. “Bottleneck for U.S. Coronavirus Response: The Fax Machine”. *The New York Times*. July 13, 2020. Accessed June 21, 2021. Available at: <https://www.nytimes.com/2020/07/13/upshot/coronavirus-response-fax-machines.html>.

struggling mightily with structural challenges that made it difficult to address expected public health issues, much less manage major crises such as a pandemic. I learned from my colleagues that this same narrative was playing out in the thousands of state and local health departments across America.

At HHS, we sought to synthesize the innovative work on the frontlines into a comprehensive vision for transforming America's public health infrastructure. The resulting framework, known as Public Health 3.0, is grounded in a commitment to equity, informed by prior reports by the National Academy of Medicine, and composed of five critical elements based on community listening sessions hosted across the U.S: strong leadership & workforce; strategic partnerships; flexible & sustainable funding; timely & locally relevant data, metrics & analytics; and foundational infrastructure.^{12,13,14}

The tenets of the Public Health 3.0 vision continue to be applicable today and, in fact, have become a guiding vision for transforming public health in America. Local health departments in places like Lawrence-Douglas County in Kansas and state health agencies such as Washington, Kentucky, and Pennsylvania have all incorporated the elements of 3.0 into their strategic visions.^{15,16,17} And the US public health enterprise has embraced the framework and call to action, building training programs, working to advance data systems, and rallying around a rational model for sustainable funding for a defined set of foundational capabilities that can be assessed in a structured accreditation program.¹⁸

¹² Institute of Medicine. 1988. *The Future of Public Health*. Washington, DC: The National Academies Press.

¹³ Institute of Medicine. 2003. *The Future of the Public's Health in the 21st Century*. Washington, DC: The National Academies Press.

¹⁴ Institute of Medicine. 2012. *For the Public's Health: Investing in a Healthier Future*. Washington, DC: The National Academies Press.

¹⁵ KU Lifespan Institute. Health for the 21st Century Summit. February 1, 2018. Accessed June 21, 2021. Available at: <https://www.lsi.ku.edu/news/health-for-the-21st-century-summit>.

¹⁶ Kentucky Public Health. "Kentucky Public Health Transformation Plan". September 9, 2019. Accessed June 21, 2021. Available at: <https://apps.legislature.ky.gov/CommitteeDocuments/7/11984/Sept%209%202019%20Public%20Health%20Transformation%20Handout.pdf>.

¹⁷ Live Healthy PA. "Public Health 3.0". Accessed June 21, 2021. <https://www.livehealthypa.com/community/public-health-3-0>.

¹⁸ DeSalvo, Karen, et al. "Developing a Financing System to Support Public Health Infrastructure." *American Journal of Public Health* 109.10 (2019): 1358-1361.

During COVID-19, we saw numerous examples of Public Health 3.0 in action.¹⁹ In particular, public health relied heavily on strategic partnerships, whether it was between health systems and health departments like Parkland and Dallas County in Texas or with insurers and health agencies to improve needs assessments like Blue Shield California's vulnerability index.^{20,21} Likewise, COVID-19 affirmed the importance of timely and locally relevant data, analytics, and metrics, especially in the context of equity. At Google, our partnership with Morehouse on health equity could be broadened to address disparities beyond COVID-19, while Google's support for tracking viral variants through [Global.health](#) could help map mutations and drug-resistance for other infectious diseases.^{22,23}

As the pandemic begins to wane, leaders have turned to Public Health 3.0 as a north star for guiding post-emergency reforms. For instance, recommendations from a recent expert review organized by the National Academy of Medicine and proposed legislation, including H.R. 379 which is in consideration before the Subcommittee today, have all been grounded in the Public Health 3.0 framework.^{15,20,24}

Achieving a shared vision of leveraging data to address equity through a modern public health system will take intentional, strategic, and organized efforts across multiple sectors and require collaboration between the public and private sector to identify needs, fill gaps, and take action. As this work unfolds, it seems clear that lessons from the past, and from this

¹⁹ DeSalvo, K., B. Hughes, M. Bassett, G. Benjamin, M. Fraser, S. Galea, N. Garcia, and J. Howard. 2021. Public Health COVID-19 Impact Assessment: Lessons Learned and Compelling Needs. *NAM Perspectives*. Discussion Paper, National Academy of Medicine, Washington, DC. <https://doi.org/10.31478/202104c>

²⁰ Cerise, Frederick P., et al. "The Imperative for Integrating Public Health and Health Care Delivery Systems." *NEJM Catalyst Innovations in Care Delivery* 2.4 (2021).

²¹ McClellan, M., R. Rajkumar, M. Couch, D. Holder, P. Long, R. Medows, A. Navathe, M. Pham, L. Sandy, W. Shrank, and M. Smith. 2021. Health Care Payers COVID-19 Impact Assessment: Lessons Learned and Compelling Needs. *NAM Perspectives*. Discussion Paper, National Academy of Medicine, Washington, DC. <https://doi.org/10.31478/202105a>

²² Seabron, Chelsea. "Tracking Data to Advance Health Equity". May 26, 2021. Accessed June 21, 2021. <https://blog.google/outreach-initiatives/google-org/health-equity-tracker/>.

²³ Ratcliffe, Stephen. "How Anonymized Data Helps Fight Against Disease". February 24, 2021. Accessed June 21, 2021. <https://blog.google/outreach-initiatives/google-org/how-anonymized-data-helps-fight-against-disease/>.

²⁴ United States House of Representatives. Improving Social Determinants of Health Act of 2021. <https://www.congress.gov/bill/117th-congress/house-bill/379?s=1&r=4>. 117th Congress, House Bill 379, introduced January 21, 2021.

pandemic, should inform our work. It also seems clear that we should develop a comprehensive system that will not only resource the federal public health entities but also support localities who know the community best. That system should be durable in design, sustainable in operations, and governed with appropriate accountability to the public. I offer a few actions that we should build into the strategic and tactical efforts at this profound moment in our nation's history.

First, while data analytics and IT infrastructure are important, it is imperative that legislation and policymaking focus on the *systems* that collect, exchange, and act on data rather than on the data itself. This will require a combination of infrastructure upgrades, workforce investments, and operational redesign. For example, we cannot expect health departments to forecast future pandemics if local health officials are still relying on fax machines to exchange data. Likewise, we cannot expect new data modernization initiatives to succeed if only 1% of health department roles are for informatics specialists.²⁵ For public health to reach new heights, health departments need a stable foundation of resources to stand upon. Recently proposed legislation for the Public Health Infrastructure Fund, which was developed as part of a larger body of work to operationalize the recommendations of Public Health 3.0, provides a roadmap for guiding generational investments in governmental public health.^{26,27}

Second, the expanding scope of practice for public health requires support from every sector of society. COVID-19 has highlighted the value of public-private partnerships, and we must build on these new ways of working to rethink the operating model for governmental

²⁵ Sellers, Katie, et al. "The Public Health Workforce Interests and Needs Survey: The First National Survey of State Health Agency Employees." *Journal of Public Health Management and Practice* 21.Suppl 6 (2015): S13.

²⁶ United States Senate. Public Health Infrastructure Saves Lives Act. <https://www.congress.gov/bill/117th-congress/senate-bill/674>. 117th Congress, Senate Bill 674, introduced March 10, 2021.

²⁷ Levi, Jeffrey, and DeSalvo, Karen. Funding For Local Public Health: A Renewed Path For Critical Infrastructure. *Health Affairs Blog* (2017).

public health. For example, at Google we have partnered with Ariadne Labs at Harvard to develop a new Vaccine Equity Planner dashboard that helps integrate data from Google Maps API with data from the CDC and other public health organizations to identify and close disparities in COVID-19 vaccination rates.²⁸ If we are to achieve health for all, then we must encourage all parties to contribute to advancing equity in the public's health. H.R. 666, which is in consideration before the Subcommittee today, is an example of how we can develop infrastructure within public health to further leverage data to address the racial disparities in health exacerbated by COVID-19.²⁹ To facilitate the translation of public health research into public health practice, Congress could consider implementing recommendations from the National Academy of Medicine to establish backbone entities for coordinating activities to address the upstream drivers of health at the regional and state level.²⁰

Third, achieving equity via data requires thinking more creatively about what data we leverage and the goals of the data systems themselves. The definition of public health data needs to be as broad as the purview of public health. Projects like our Google COVID-19 Search Symptom Trends illustrate how public health can leverage novel data signals in a privacy-preserving manner to address the upstream drivers of health and improve emergency preparedness.³⁰ Given that the gateway to health information for many people today is the internet—with 1-in-15 Google Searches even before the pandemic related to health—public-private partnerships for public health can help ensure users are able to access the right information at the point of need. Google's open data repository for COVID-19, for

²⁸ Ariadne Labs. "Vaccine Equity Planner Launched by Ariadne Labs and Boston Children's Hospital". June 9, 2021. Accessed June 21, 2021.

<https://www.prnewswire.com/news-releases/vaccine-equity-planner-launched-by-ariadne-labs-and-boston-childrens-hospital-301308562.html>.

²⁹ United States House of Representatives. Anti-Racism in Public Health Act of 2021.

<https://www.congress.gov/bills/117/congress/house-bill/666?s=1&r=8>. 117th Congress, House Bill 666, introduced February 1, 2021.

³⁰ Gabrilovich, Evgeniy. "Using Symptoms Search Trends to Inform COVID-19 Research". September 2, 2020. Accessed June 21, 2021. <https://blog.google/technology/health/using-symptoms-search-trends-inform-covid-19-research/>.

instance, incorporates epidemiological and public population data from over 50 countries to facilitate collaboration across the research and public health community. In addition, data systems need to support the social and human services sectors and their critical work. These sectors have even weaker data and information technology capabilities than public health, yet are essential in providing a comprehensive approach to addressing inequities. A recent National Academy of Medicine Report, “Integrating Social Needs Care into the Delivery of Health Care to Improve the Nation’s Health,” provides key recommendations.³¹

Fourth, data systems need to be built to describe and address inequities, not only at the individual level, but also to address structural and systemic policies and systems that perpetuate inequities and poor health outcomes. Tobacco programs are a prime example. Yes, individual efforts to ensure access to smoking cessation programs are important. However, coupled with efforts like smoke-free campuses, they can not only help people stop smoking, but also prevent youth from beginning in the first place. A data system capable of tracking system policies could guide and inform interventions and progress.

Fifth and finally, the CDC’s ongoing Data Modernization Initiative would benefit from incorporating the lessons of HITECH. The nation should not settle for rewiring current public health data systems but, rather, should rethink the ecosystem and create an opportunity for alignment on open data standards and support of digital innovation. For one, we should commit to creating an interoperable public health data system, including the use of open and non-proprietary standards and FHIR-based application programming interfaces like those expected for healthcare in 21st Century Cures. We should also ensure that states and localities are not rushed in spending the funds, but can do so with clarity on an inclusive, open data

³¹ National Academies of Sciences, Engineering, and Medicine. 2019. *Integrating Social Care into the Delivery of Health Care: Moving Upstream to Improve the Nation's Health*. Washington, DC: The National Academies Press. <https://doi.org/10.17226/25467>.

architecture and have a workforce in place with the capabilities and capacity to maximize impact.

In closing, I am reminded of the guiding ethos of Public Health 3.0: that “public health is what we do together as a society to ensure the conditions in which everyone can be healthy.” The work of the Subcommittee and this hearing today are things we all need to do together to act on the lessons of COVID-19 and build a more equitable and resilient public health system and, in turn, a more resilient population.

Thank you again for inviting me to participate in this discussion. We look forward to continued engagement with this Subcommittee on these important issues.