



# Precision Medicine and Public Health

Precision Medicine is an approach that integrates genetic, environmental, and lifestyle factors and leverages advances in research, technology, and policy to identify the best prevention and treatment for an individual.<sup>1</sup>

Several areas of alignment exist to converge the goals of precision medicine and public health, creating an opportunity to implement “precision public health.” Compared to precision medicine—which is often described as finding the best treatment for each individual—precision public health may be viewed as implementing the right prevention strategy or intervention for the right populations.<sup>2,3</sup>

Examples of how a precision medicine approach may be applied to public health include:

- **Using precision medicine to identify high-risk populations and tailor recommendations more appropriately.** Screening recommendations often stratify populations into groups based on risk level. Applying a precision medicine approach could increase the accuracy of this stratification and ensure that screening recommendations better reflect individual risk.<sup>4</sup>
- **Improving outbreak surveillance by identifying genetic similarities in outbreaks.** For example, investigators have used whole genome sequencing to identify whether resistance in tuberculosis was transmitted or acquired. These strains were then mapped and connected through social network analysis to identify the epidemiologic links and target prevention efforts.<sup>5</sup>

## Local Health Departments and *All of Us*

NACCHO is dedicated to improving the health of communities by advocating for and strengthening the capacity of local health departments. As interest and investment in precision medicine grows, it is vital that local health departments be recognized as valuable partners in this research, as well as stakeholders and beneficiaries of the knowledge and insights produced by this research.

*In 2018, NACCHO convened local health department staff, clinical providers, researchers, and national stakeholders to explore the implications of precision medicine for public health. Participants identified that:*

- *Research on precision medicine could lead to data collection on a large population and provide data about our nation’s most vulnerable communities. With this data, public health could design interventions that reduce health disparities.*
- *Precision medicine goes beyond the biology to include environmental, lifestyle, and social factors that may help public health make data-informed conclusions about the roots of health inequity.*

Recognizing the links between precision medicine and public health, local health departments may consider supporting these efforts. Local health departments have critical relationships across diverse populations in their communities and, as such, may serve as key gatekeepers to ensure participation among populations that have been historically underrepresented in research.

To further explore this potential, NACCHO worked with Harris County Public Health (TX) to generate awareness about the program and inform the community about available local options for enrollment. By engaging Harris County Public Health, NACCHO was able to attend two community events and provide information about precision medicine and the *All of Us* Research Program, reaching more than 200 people across diverse populations.

## Get Involved

As a community engagement partner of this groundbreaking research program, NACCHO has developed several informational resources to help local health departments learn more.

In January 2019, NACCHO's Podcast from Washington featured Dr. Kelly Gebo, Chief Medical and Scientific Office of the *All of Us* Research Program. Podcast host Ian Goldstein and Dr. Gebo discussed the goal of enrolling one million participants in the research program and how local health departments can use the depth, data, and research potential of *All of Us*. [Listen to the episode](#) to learn more.

You can also view archived webinars hosted by NACCHO to learn more about precision medicine, the *All of Us* research program's protocol, and ways public health officials can be engaged in this national effort across communities in the United States:

- [The Public Health Implications of the All of Us Research Program](#) (January 23, 2019)
- [NIH All of Us Research Program Overview](#) (September 5, 2018)

Finally, help NIH and NACCHO promote *All of Us* in your local health department's offices by displaying the resources below or posting them to your health department's digital channels:

- Program Brochure ([English](#) and [Spanish](#))
- Program FAQs ([English](#) and [Spanish](#))
- Infographic: What is *All of Us*? ([English](#) and [Spanish](#))

*To learn more about this groundbreaking program, visit the National Institutes of Health (NIH) [All of Us Research Program website](#).*

## References

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# NACCHO

National Association of County & City Health Officials

The National Connection for Local Public Health



The mission of the National Association of County and City Health Officials (NACCHO) is to improve the health of communities by strengthening and advocating for local health departments.

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