Health Patterns and Precision Medicine

Many health treatments today are "one-size-fits-all."[2] For example, a doctor caring for a person with a long-term health condition, like diabetes, might tell the person to take a type of drug. The doctor may suggest similar drugs for other patients with this same condition. Drugs and medications are developed based on what works best for most people, with the fewest side effects, for people who have the same diagnosed illness.

While this "one-size-fits-all" approach is useful, does one size really fit all? Drugs that work very well for some patients may cause side effects in others or may not work at all.[2] For example, some drug treatments have been seen to have less of an effect for East Asian or Pacific Islander patients. If a drug works or does not work for you, your health care provider does not have a way to share that information with researchers or with other doctors, who might find this information useful.

People are all unique because of the different traits we have. Differences in a person's environment (e.g. living near a park to exercise, having lots of transportation options near where you live, living near people who share your culture); social lifestyle (e.g., having an active lifestyle, being a smoker or a non-smoker, being a part of a faith community); and genes all affect our health.[6] We are now able to collect information about people's unique traits from lots of sources like zip codes, health records, and even mobile devices.

Researchers hope to collect this data about different people and use it to predict who is likely to get a disease, prevent disease, and come up with drugs to treat them. The more data we can gather, the more ways we can find patterns that lead to individual illnesses and diseases. In this way, precision medicine helps doctors and researchers come up with more precise and safe ways to predict, prevent, and precisely treat specific diseases.[2] With more information, doctors and researchers can help patients become healthier. Doctors can use precision medicine to give better care to different people, making sure that each patient gets the best treatment to get the best health outcome.[8]

While precision medicine is sometimes called "personalized medicine" or "individualized medicine," it **does not** mean that medical plans are created for just one person.[7]

What is the Future of Precision Medicine?

In 2015, President Obama announced the Precision Medicine Initiative. The goal of this effort is to increase scientific research on precision medicine and to give doctors the tools to treat patients with more personalized and effective treatments.[8] Combining precision medicine and public health helps doctors better understand health and illness and develop better prevention and treatment plans to improve healthcare.[1]

Where Can I Learn More About Precision Medicine?

- National Institute of Health's *All of Us Research* Program
  https://allofus.nih.gov/

- FACT SHEET: President Obama's Precision Medicine Initiative
  https://obamawhitehouse.archives.gov/the-press-office/2015/01/30/fact-sheet-president-obama-s-precision-medicine-initiative

- NIH Genetics Home Reference
  What are some of the challenges facing precision medicine and the Precision Medicine Initiative?
  https://ghr.nlm.nih.gov/primer/precisionmedicine/challenges

- FACT SHEET: University of California San Francisco
  Precision Medicine Transforming the Future of Health
  http://precisionmedicine.ucsf.edu/sites/precisionmedicine.ucsf.edu/files/UCSF-Precision-Med-Factsheet031815.pdf

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