UNIVERSITY OF HAWAI'I
CANCER CENTER

Nutrition for Precision Health Fact Sheet

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Background:

The goal of the NIH Common Fund's *Nutrition for Precision Health, powered by the All of Us Research Program*, is to develop algorithms that predict individual responses to food and dietary patterns. Nutrition plays an integral role in human development and in the prevention and treatment of disease. However, there is no such thing as a perfect, one-size-fits-all diet. The NPH program will build on recent advances in biomedical science including Artificial Intelligence (AI), microbiome research, as well as the infrastructure and large, diverse participant cohort of the *All of Us* Research Program. These advances provide unprecedented opportunities to generate new data that provides insight into personalized nutrition, also referred to as precision nutrition.

Messages from the NIH

- The National Institutes of Health is awarding $170 million over the next five years, pending the availability of funds, to clinics and centers across the country that will recruit 10,000 participants for a dynamic new study aimed at developing algorithms to predict individual responses to food and dietary patterns. The funding will support the NIH Common Fund's *Nutrition for Precision Health* initiative (NPH) to improve the understanding of nutrition and inform more personalized nutrition recommendations.
- Personalized nutrition, also referred to as precision nutrition, seeks to move away from "one-size-fits-all" diet recommendations to create a customized, actionable diet plan for individuals based on individual differences, such as genetics and metabolism.
- A major challenge in nutrition is the inability to combine numerous factors that affect how individuals respond to their diet plans in a personalized nutrition regimen. These potential factors include dietary intake, microbiome—the community of bacteria that live in our gut, metabolism, nutritional status, genetics, and the environment.
- NIH will award 11 new awards and provide additional funds to three existing NIH *All of Us* Research Program awards. The 14 awards will establish the NPH consortium of clinics and centers that will conduct the study with the goals of creating AI-generated algorithms that can predict individual responses to food and help healthcare providers create customized, healthy, precise, and effective diet plans.
- NPH will be the first ancillary study to leverage the *All of Us* Research Program's large, diverse cohort, and existing data and infrastructure. The NPH study will add new data types to the *All of Us* Researcher Workbench.

- NPH will also complement ongoing research efforts across NIH and implement components of the 2020-2030 Strategic Plan for NIH Nutrition Research.

Dietary Assessment Center (DAC):

- UH Cancer Center Associate Researcher, **Carol Boushey, PhD, MPH, RD**, received $7 million, pending availability of funds, to lead the DAC as the Program Director and Principal Investigator
- DAC is a project that aims to identify errors in dietary assessment methods that serve as links between diet and chronic disease outcomes, such as obesity and cancer
- The DAC team consists of nutritionists, epidemiologists, Registered Dietitians, biostatisticians, and engineers specializing in image analysis from Alabama University, Boston University, and Purdue University

- The team will deploy ASA24, a web-based tool; the Mobile Food Record (mFR), an image-based app; and a passive method, the Automatic Ingestion Monitor v2 (AIM-2)

- These advanced technological tools will combine precision dietary assessment and research translation to better understand eating behaviors, diet-disease relationships, and help develop dietary intervention programs

The DAC is supported by the NIH Common Fund's *Nutrition for Precision Health, powered by the All of Us Research Program* grant U24 CA268228-01

Social Media Information

- NIH Common Fund Twitter handle - @NIH_CommonFund
- NIH Common Fund Facebook Page - @NIHCommonFund
- NIH *All of Us* Twitter - @AllofUsResearch
- NIH *All of Us* Facebook Page - @AllofUsResearch
- NIH *All of Us* Instagram - @allofusresearch
- Hashtag - #NIH_PrecisionNutrition; #JoinAllofUs

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