Milestones in Precision Medicine

FEB 1990 U.S. government launches the **Human Genome Project**, a $3 billion international effort to map out the roughly 3 billion DNA bases present in every human cell.

SEP 2003 **Epilepsy Phenome/Genome Project (EPGP)** pools data from 4,000 patients from three continents to identify the genetics behind and new treatments for epilepsy.

OCT 2009 NIH selects UCSF and Kaiser Permanente to create a **research databank** with 100,000 volunteers.

NOV 2011 Landmark National Academy of Sciences report first **defines "precision medicine."**

MAY 2013 **UCSF hosts OME,** the first national summit on precision medicine, convening 170 leaders in health, science, tech and government.

JAN 2015 President Obama proposes the **Precision Medicine Initiative,** including plans for a study on the health data of 1 million volunteers. UCSF is a key site.

APR 2015 The State of California launches the **California Initiative to Advance Precision Medicine,** with the University of California and UCSF leading the effort.

JUNE 2016 UCSF hosts the first **Precision Public Health Summit.**

OCT 2017 **Accelerating Therapeutics for Opportunities in Medicine (ATOM)** is established with founding members GSK, Lawrence Livermore National Laboratory, Frederick National Laboratory for Cancer Research, and UCSF.

JULY 2018 **UC Data Warehouse** is formally established to foster computational data analysis throughout the UC Health system. **Bakar Computational Health Sciences Institute** is endowed.

JAN 2019 For the fourth year in a row, UCSF co-hosts the **Precision Medicine World Conference.**

Highlights of Precision Medicine at UCSF

- **Bakar ImmunoX Initiative:** By organizing researchers from various disease areas around a set of "CoProjects," this program aims to catalyze discoveries about the central role of the immune system in human health.
- **Precision Diagnosis of Acute Infectious Diseases:** UCSF researchers pioneered the demonstration of precision medicine in infectious diseases with metagenomic next-generation sequencing (NGS) to diagnose brain and blood infections at three UC medical centers.
- **SF CAN:** The San Francisco Cancer Initiative is a collaborative effort to reduce cancer in San Francisco by using data to identify highest burden across the city and by engaging health care systems, government, community groups, and residents.
- **SmarterHealth:** This initiative at the Center for Digital Health Innovation has co-developed AI algorithms to improve the timely detection of life-threatening conditions. These will be integrated into GE Healthcare's next-generation X-ray scanners and available for clinical use as early as 2019.
- **UCSF Center for Maternal-Fetal Precision Medicine:** This transdisciplinary program is designed to improve understanding and treatment of patients with congenital anomalies and pregnancy complications.
- **UCSF MS Bioscreen:** Clinical, imaging, and biomarker data is framed within the context of a large cohort of multiple sclerosis patients to lead to more precise clinical decisions and patient empowerment.
- **Information Commons:** The UCSF Information Commons provides a shared repository of data, tools, and models for today's demands of integrative research and precision medicine.
- **SPOKE:** A knowledge network that captures the essential structure of biomedicine and human health, visualized in node-arc graphs to identify patterns and connections between genetics, epigenomics, proteins, tissues, organs, clinical phenotypes, environment and lifestyle.

precisionmedicine.ucsf.edu

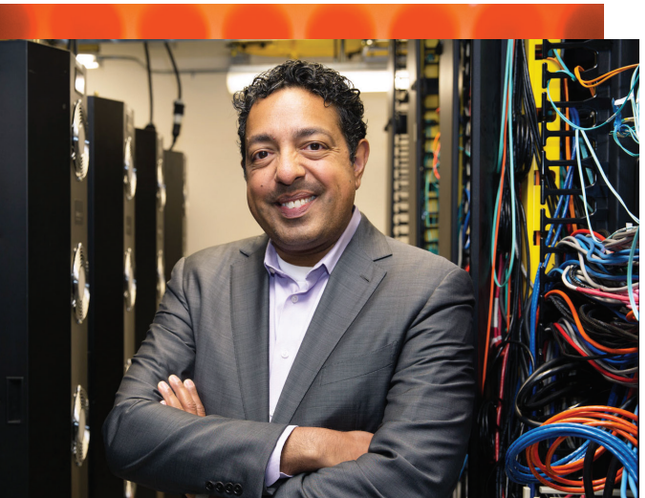
Precision Medicine

From Promise to Practice at UCSF

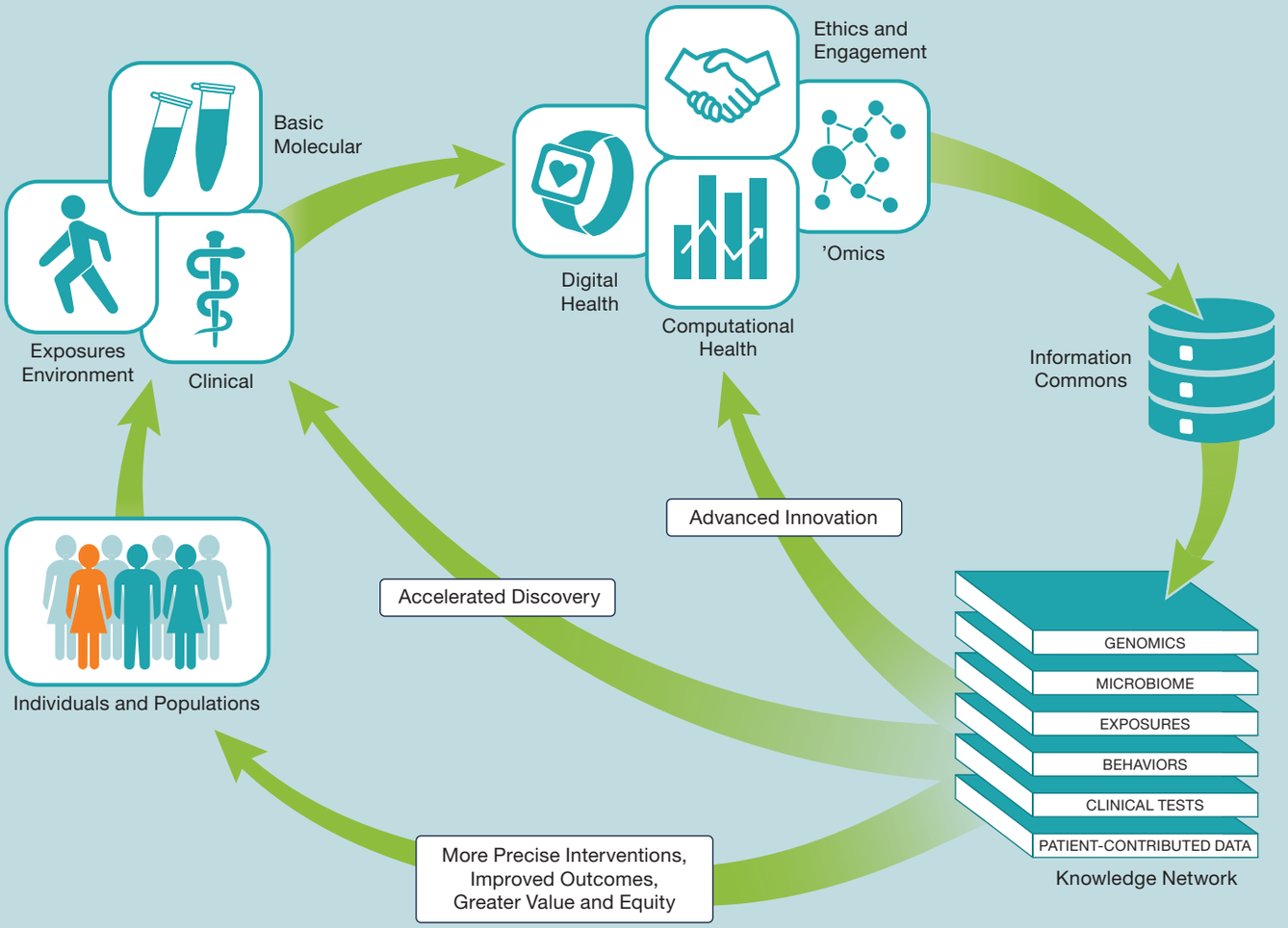
UCSF
University of California San Francisco

"Our vision is to fulfill the promise of precision medicine by pioneering a knowledge network that yields the seeds for new discoveries, better outcomes, and greater value and equity to improve health for all."

– Keith Yamamoto, PhD, Vice Chancellor for Science Policy and Strategy



The Precision Medicine Platform



Precision medicine aggregates, integrates, and analyzes data from basic science, clinical, personal, environmental and population health settings, to better understand biological processes and define disease mechanisms, and to develop and deliver more precise diagnostics, therapeutics, and preventive measures. Everyone, including patients, can contribute their own data to this dynamic process.

Learn more at
precisionmedicine.ucsf.edu