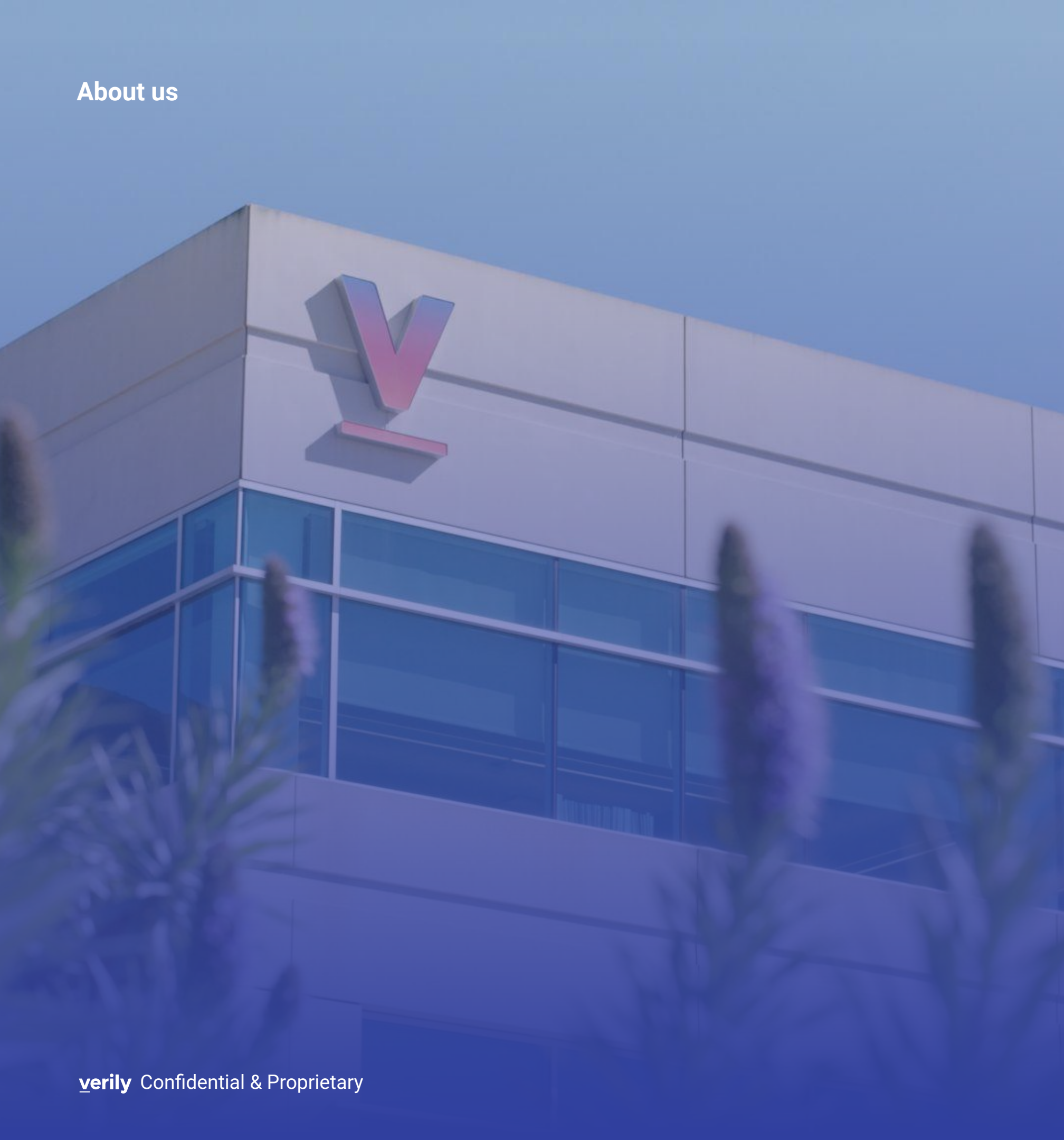




verily

Bringing the promise of precision
health to everyone, every day

Innoboot | 2022



2013

Founded As Google Life Sciences within Google [X] in 2013

~1,500

Employees

(Including joint venture company employees)

1,521

Patents & applications

46

Solutions under development

Majority Owned By Alphabet; minority investments over multiple funding rounds from Temasek, Silver Lake Partners and Ontario Teachers' Pension Plan

Experienced executive team and advisory board across healthcare and technology

More efficient deployment of today's healthcare spend is required to transform health



~\$1.1T
Annual direct cost of chronic conditions in U.S.²



~\$850B
Approximate costs of healthcare waste within the U.S.³



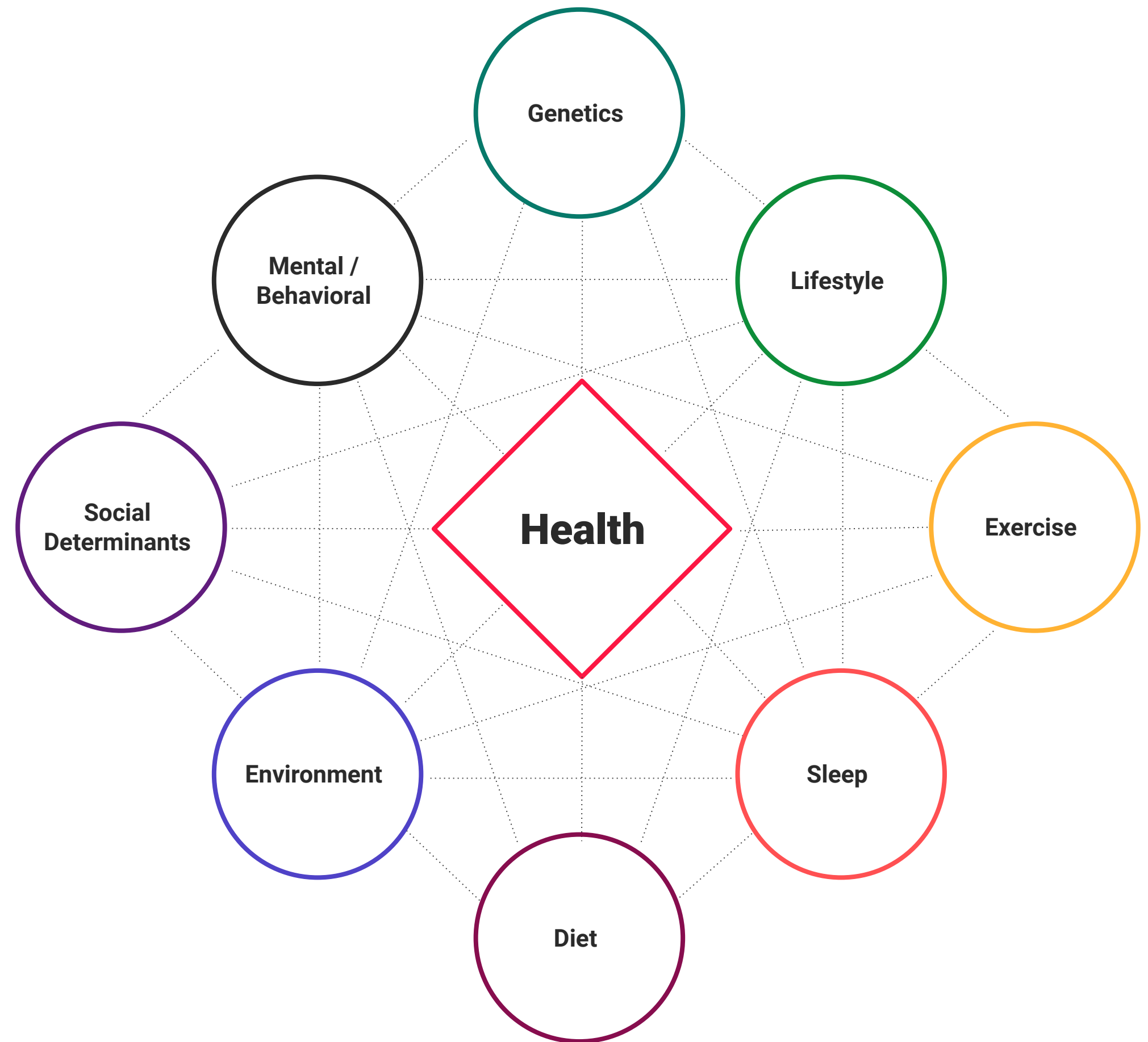
~\$9TB
Total global healthcare spend in 2019

We are living in a moment of transformational change in health

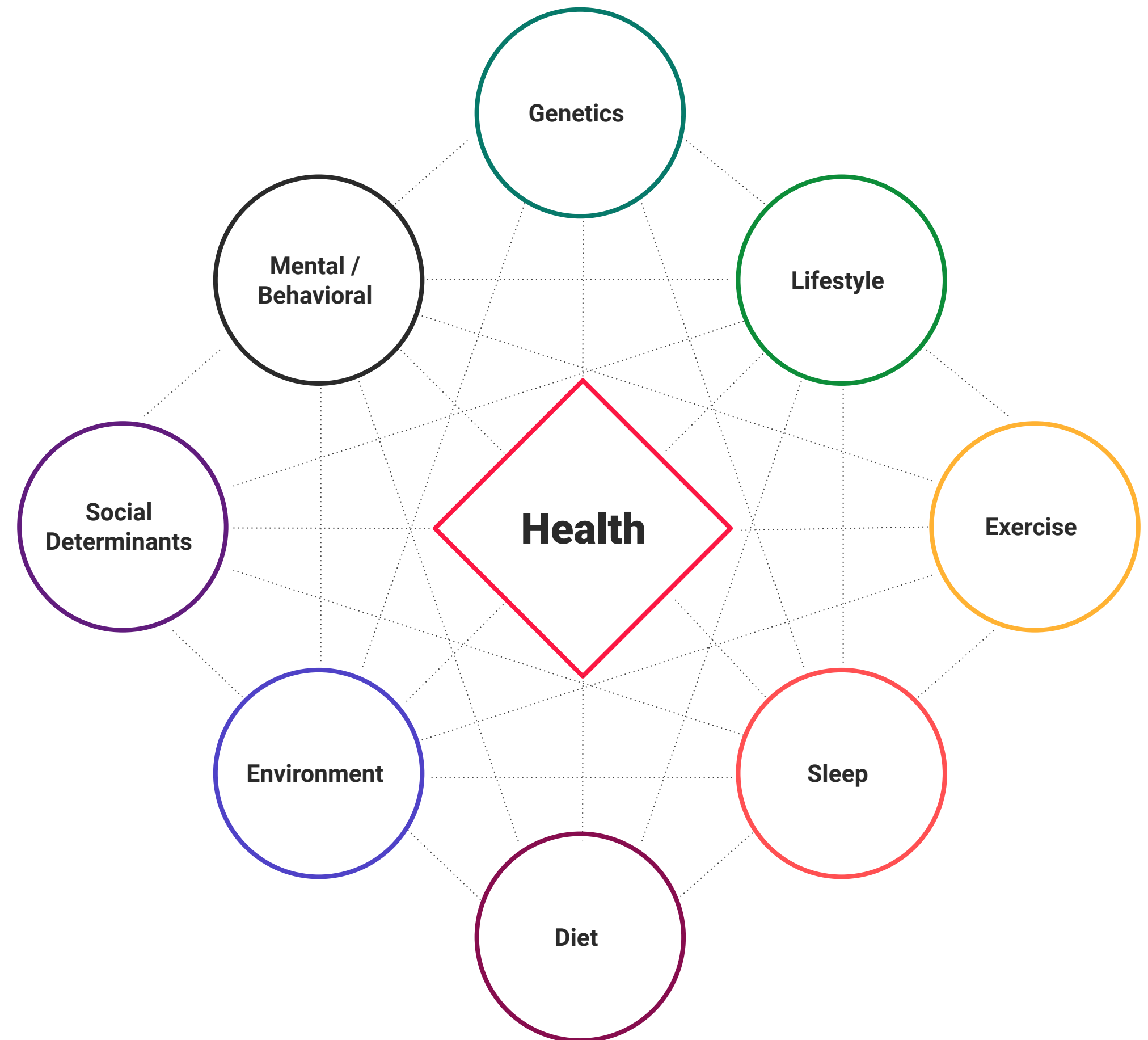


[Image: AI Health Lab, University of Texas at Austin](#)

**True health
is complex
and connected**

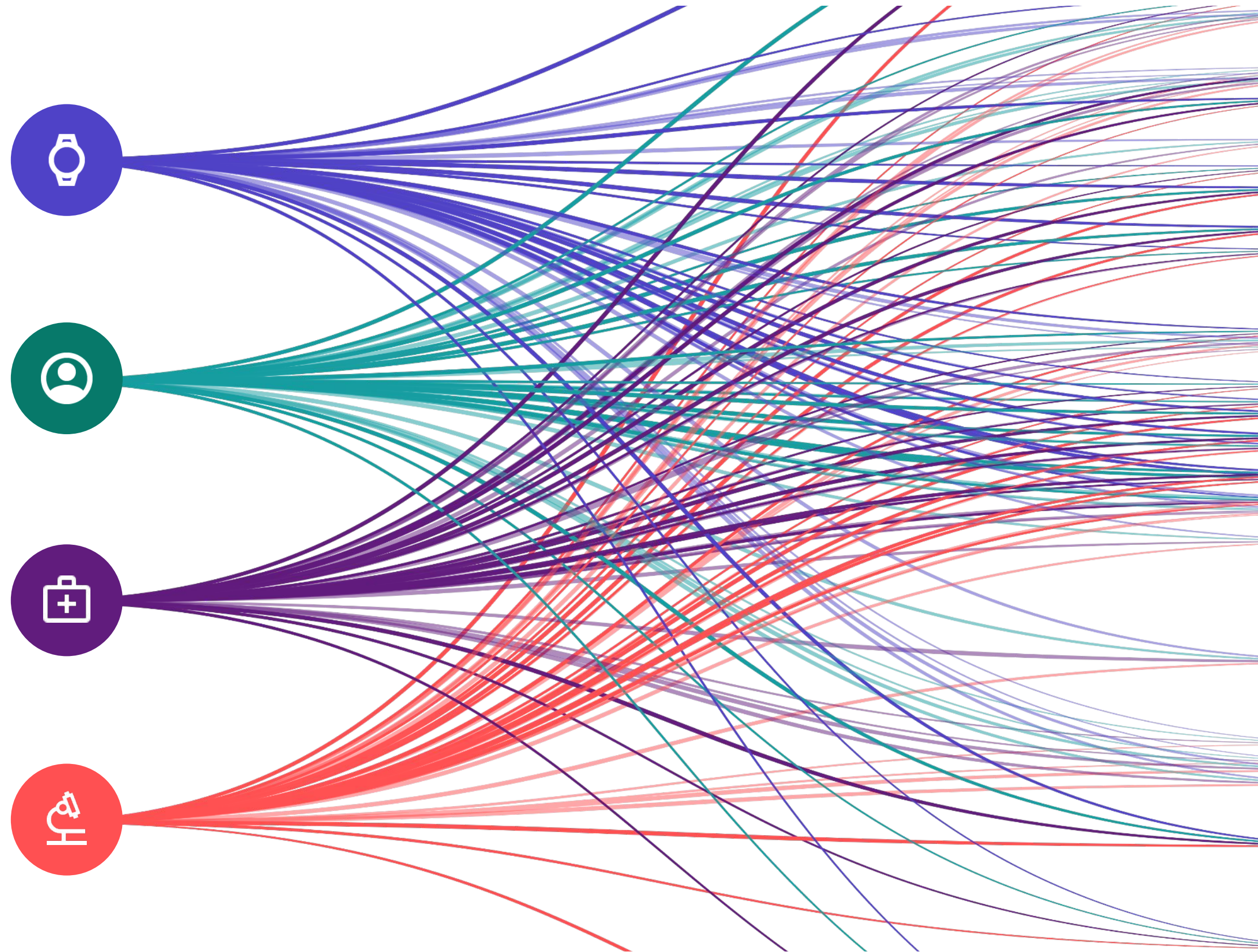


To understand
the health of
any population,
we need to
understand
each person's
truth



There is more data available than ever before to accelerate biomedical R&D

Data alone is not a panacea



The challenge we must address

Only organizations that best harness data will accelerate drug discovery and improve patient health



The future

A profound revolution in human health



Traditional healthcare

- Therapies validated at a population level
- “One size fits all” treatment, primarily when patient falls ill
- Providers, payors, and pharmacos are relatively siloed



Precision medicine

- Treatment is guided by genetic-focused biomarkers
- “One size fits a group” with treatments tailored to certain sub-populations
- Increased collaboration between stakeholders



Precision health

- Treatment decisions informed by full set of data: multi-omics, behavioral, social, etc – all longitudinal and linked
- “One to one” treatment delivers the optimal outcome for the individual, including prevention
- Multi-stakeholder ecosystem in which technology enables a seamless experience for the patient

Source: McKinsey

The future

Fundamental components of precision health



New business models

Disruption of traditional business models, accelerated by COVID-19



Actionable data

Explosion in collection and integration of longitudinal data (e.g., EHR, -omics, wearables) with linking and systems models



Individualized solutions

Personalized solutions that meet the patient where they are in the journey



Our purpose

**“
Bring the promise of
precision health to
everyone, every day.”**

Significantly improve health and quality of life, and reduce the cost of care

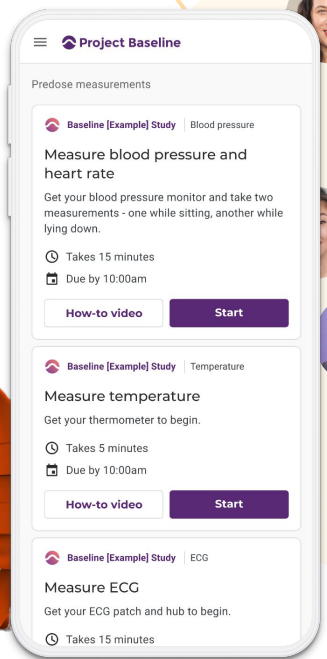
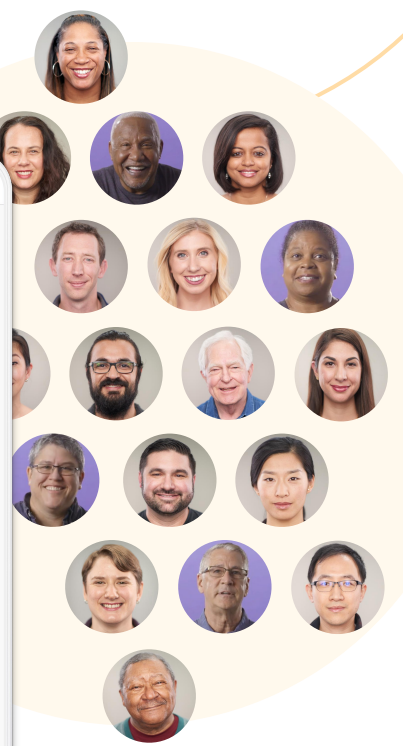
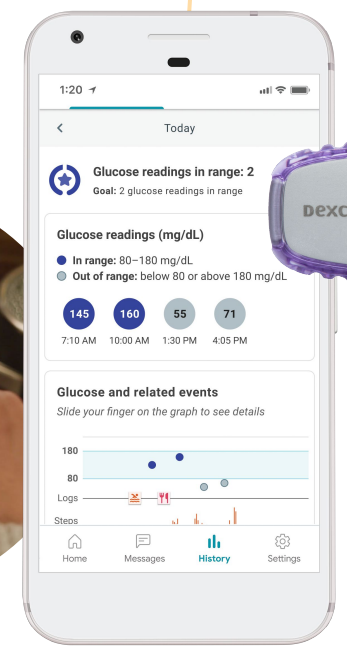
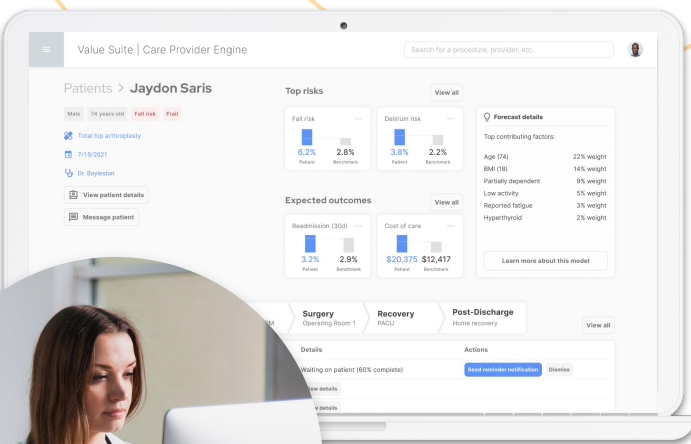
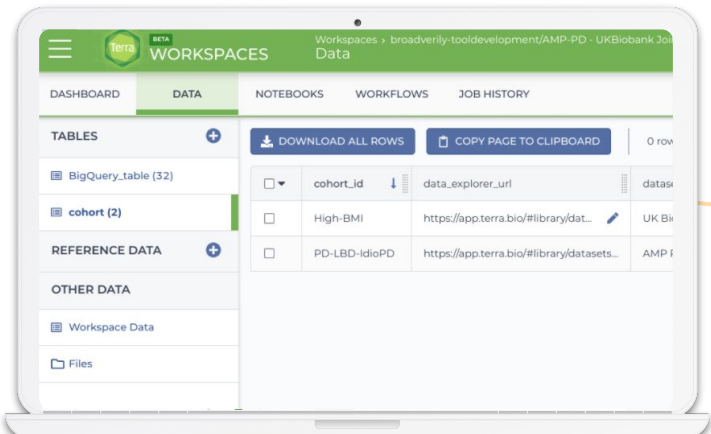
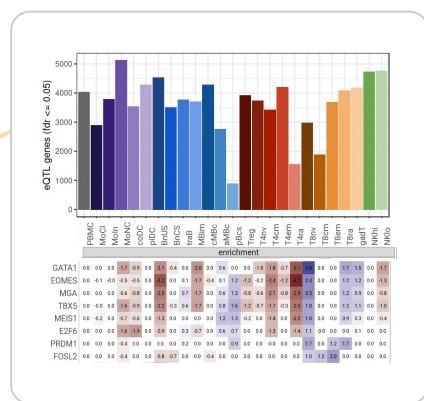
Integrating clinical and non-clinical data to develop personalized health solutions so that people live longer, healthier lives.

Bring the **promise** of **precision** health to **everyone**, **every** day

Broadening better health access to more populations

From reactive to proactive care; empowering an ongoing relationship with health

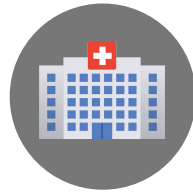
Precision Health connects Verily initiatives across research and care



Verily Radboud

Parkisons Personal Partnership

We believe in the promise of sensor-based remote monitoring for precision health



Today: Episodic in-clinic assessments

- In-clinic observational data for primary endpoints in clinical trials
- Episodic evaluations



Noisy ratings resulting in missed signals
Low participant recruitment and retention

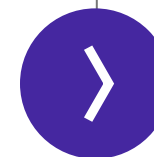


Future: Continuous remote monitoring

- **Increased frequency** of data collection
- **Improved inter-rater reliability** to reduce noise
- **Broad access** via remote collection of data in naturalistic setting



Enabling the vision of precision health for everyone



Digital measurements will inform the key tasks in a person's healthcare journey



Detect

Stratify

Match

Evaluate

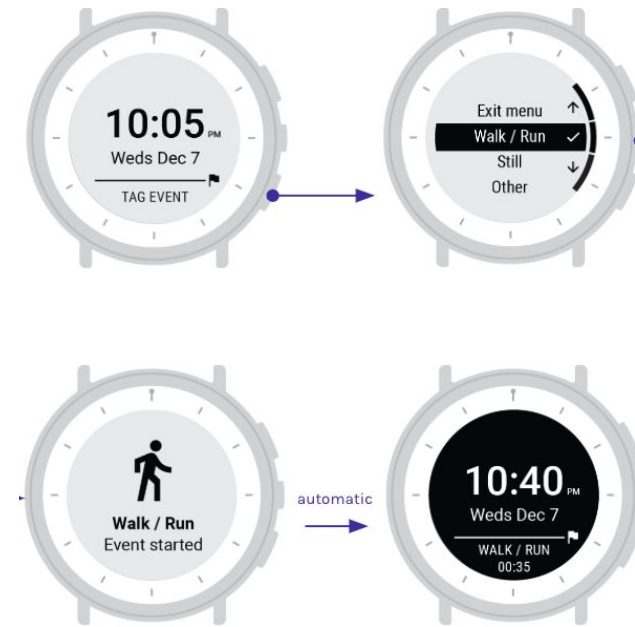
Who is at risk?

Who needs intervention?

*What is the appropriate
intervention?*

*Is the intervention
working?*

Custom built hardware platform with flexible firmware options



High-resolution raw sensor signals for algorithm development

- Optical: PPG
- Electrical: ECG, Skin Impedance
- Movement: IMU (Accelerometer & Gyroscope)

Customizable firmware

- Participant-initiated surveys
- Prompted real-time survey asking participant to record PROs at prescribed time/day
- Prompted real-time structured tasks

Encrypted data storage and transfer

- Application-layer encryption via Verily
- Uploads to Verily Cloud via transport-layer encryption, decrypted then stored in Google-internal storage

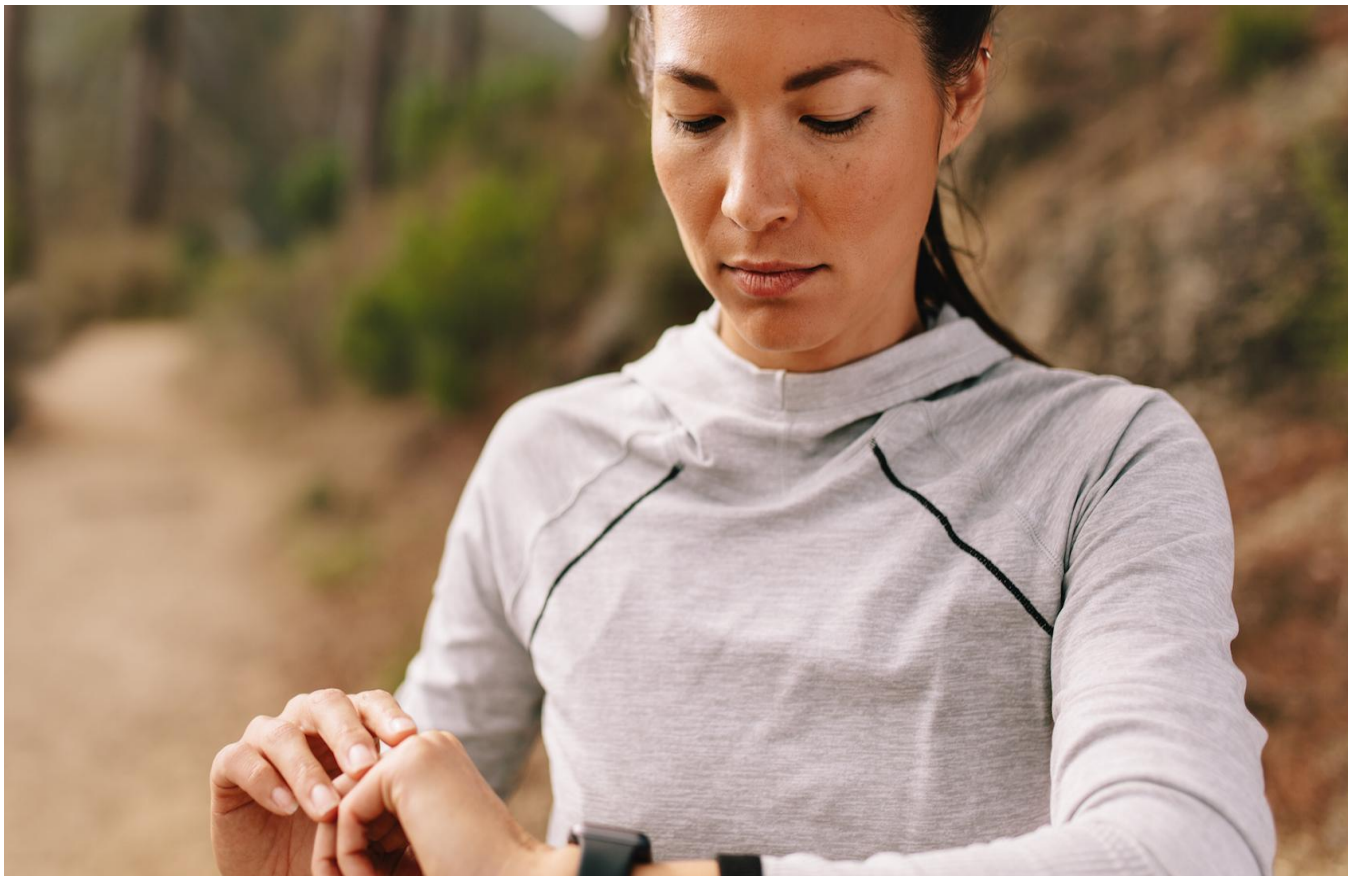
Classic design, user focused

- Classic, legible, versatile (low-burden)
- 3-5 days of battery life

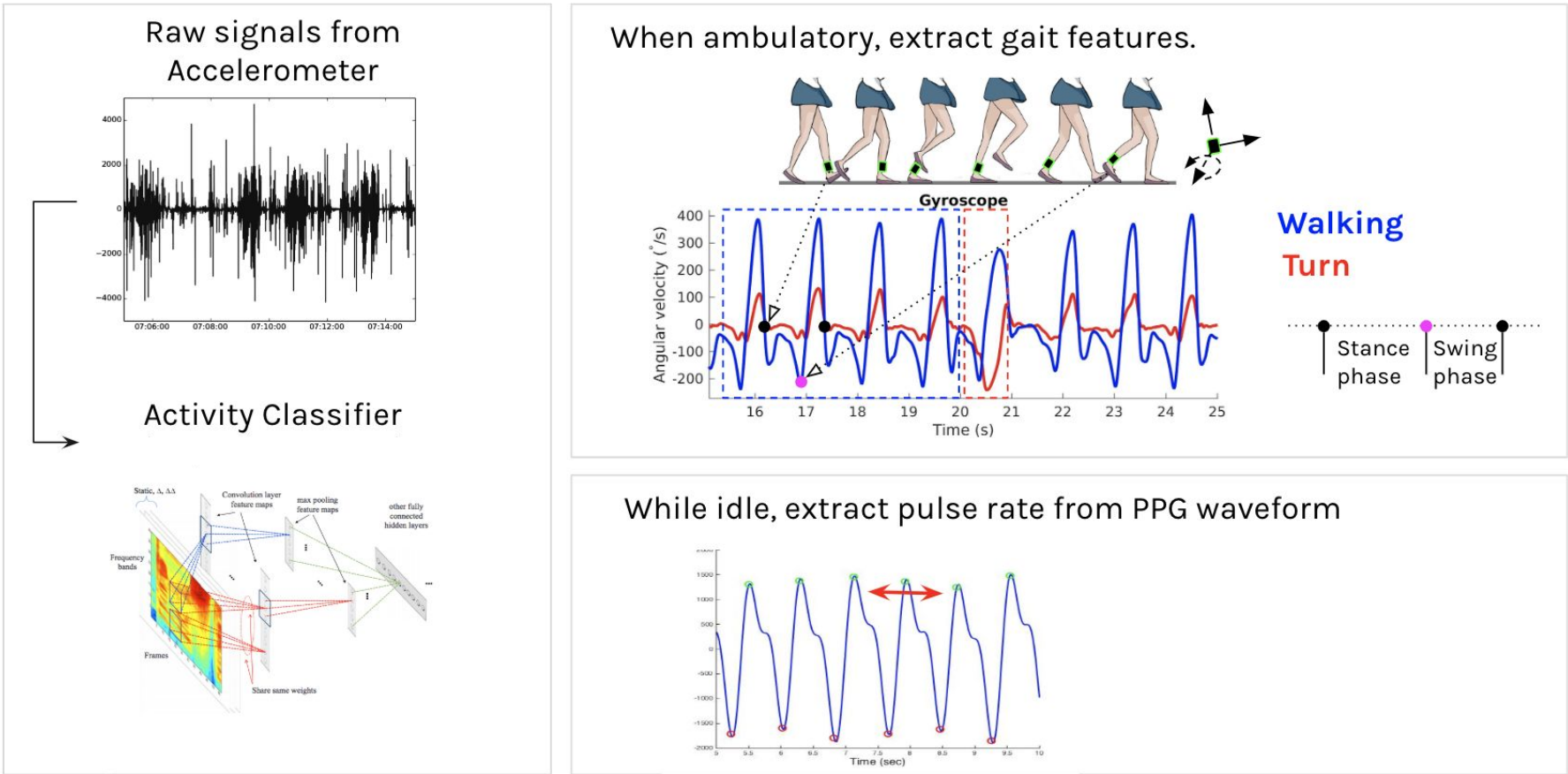
We validate performance in the real world

Case Study: The Activity Classifier

Activity is an important integrative measure of health status



Activity Classifiers decide which algorithms run on continuous data



The Verily advantage: Longitudinal real-world datasets

Case Study: The Activity Classifier



In addition to testing with corroborative devices, we built custom firmware for Study Watch and asked **Baseline Health Study** participants to tell us about their daily activities

Take Home Messages

- Digital Biomarkers Detect, Stratify, Match and Evaluate a person's healthcare journey, and they enable precision health
- Verily has built a solid foundation of Longitudinal real-world datasets with Healthy Persons
- Personal Parkinson's project collaboration demonstrate differences in levels of daily activity between people with and without Parkinson's and may allow to stratify the severity of Parkinson's motor symptoms
- This is a fundamental element to deliver the promise of precision health
- It will enable a profound revolution in human health

Thank you