



May 25, 2021

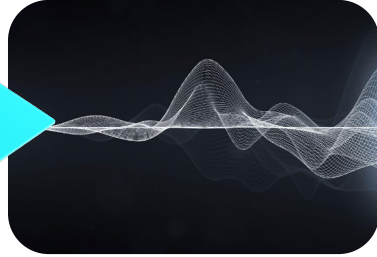
# Davos Alzheimer's Collaborative: Global Vision for Global Cohorts

Rhoda Au, Ph.D.



International 100K Cohort Consortium

# Achieving Global Parity



Build technology-enabled solutions that bypass existing infrastructure limitations

Empower low resourced cohorts to contribute equally to that of high resourced ones

# Foundational Data Collection Priorities



Blood Samples  
for GWAS



Digital  
Phenotyping



Metabolomics &  
Metagenomics

# The Value of Blood

## Genomics

- Generating polygenic risk scores (GWAS)
- Identifying therapeutic targets

## AD Blood Biomarker Data

- A $\beta$ 40
- A $\beta$ 42
- GFAP
- Neurofilament light
- pTau 181

## Exposome Data

- Education
- Metals
- Air pollution
- etc

## Core Clinical Data

- Glucose
- Cholesterol
- Lipids
- etc.

## Repository for Future Profiling

- Future profiling as science progresses

# The Value of Digital

## Low barriers to usage

- Can be self-administered or through minimally trained staff
- Smartphone apps make global reach possible
- Enable options for passive monitoring
- Non-invasive (compared with phlebotomy and CSF extraction)

## Low costs

- Low cost barriers to entry
- Easy upgrade methods
- High ROI because is a non-diluted resource

## Fast

- Some results can be obtained in real time
- New applications/upgrades can be immediately deployed virtually

## Adaptive

- Precision personalization provides value to user
- Feedback loops create continually improving customization

## Innovative

- Broad usage creates unique data resource
- Broad data access will drive new research and clinical directions
- Technology advancement pace will accelerate continuous improvement of digital assessment and monitoring tools as well as analytic methods

# The Value of At Home Sample Kits

## Low barriers to usage

- Can be collected in person's place of residence
- Kits have built in stabilization features at room temperature
- Leverage existing mail distribution channels

## Low costs

- Less expensive compared to clinic-based sample collection methods
- Easy upgrade methods

## Accurate

- Increased sampling capabilities
- Characterization of dynamic changes (metabolomics, proteomics)

## Adaptive

- Precision tracking provides value to user
- Lifestyle intervention feedback loops allow precision intervention plans for maximal impact

## Innovative

- More frequently collected data creates unique data resource
- Broad data access will accelerate pace of new drug targets
- Broad data access will also accelerate pace of non-pharmacologic interventions

# The Value of *Catalytic* Challenges Analytic Strategy



Accelerate new technological advances



Biomarker identification/validation



Drug target development

- Examples of Types of Challenges
  - "Hands-free" complex phenotype harmonization
  - Invention of fluidic digital biomarkers
  - Audio recording automation
    - High accuracy speech-to-text transcription and diarization
    - Processing lower quality recordings similar to high quality recordings
- Leverage Challenge experts to run DAC-branded challenges
- Examples:



Challenge Partner



SageBionetworks



**Thank you!**





# Contact Information

Name: Rhoda Au

Email Address: rhodaau@bu.edu

Company Website:

<https://www.davosalzheimerscollaborative.org/>

Additional Contact Information: Philip Joung; pjoung@bu.edu