Davos Alzheimer’s Collaborative: Global Vision for Global Cohorts

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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
- Aβ40
- Aβ42
- 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: [XPRIZE](https://xprize.org) [Penn State Health Challenge](https://www.pennstatemedicine.org/)

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Challenge Partner: SageBionetworks
Thank you!
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