Wake Forest Alzheimer’s Disease Core Center: Opportunities and Resources for the Wake Forest Community

Suzanne Craft, PhD
Alzheimer’s Disease: Scope of the Problem

- 5.4M people in the US with AD, projected to increase to 13.8M by 2050
- Affects 1 in 9 adults over 65
- 6th leading cause of death; 1 in 3 senior die with AD or dementia
- Most expensive disease
  - 2016 health care cost: $236 billion dollars
  - $160 billion paid by Medicare or Medicaid
  - By 2050, cost > $1 trillion, 1 in 3 Medicare dollars
- Vast burden to families: In 2015, 15M caregivers provided 18.1 billion hours of unpaid care
What is Alzheimer’s Disease?

• Most common form of dementia, AD pathology present in 80% of all dementias

• Clinical symptoms
  • Deficits in memory and/or other areas of cognition
  • Impaired functional abilities
  • Progressive and fatal

• Prodromal stage: Mild Cognitive Impairment (MCI)
  • Objective cognitive deficits, but largely intact function
  • 80% will progress to AD within 5 years

• Pre-symptomatic stage:
  • 30% of adults over 70 have AD brain pathology and normal cognition
  • Greater risk for AD, but degree and timeframe unclear
Trajectory of AD Symptoms and Pathology

Clinical trajectory of AD

Trajectory of AD pathology/bio markers
Research Challenges

• No effective therapies or proven prevention

• Complex, multi-factorial disease: polygenic, environmental/comorbidity interactions

• Disease pathology begins decades before symptoms occur
  • Extensive pathology present at initial diagnosis, complicates treatment
  • Prolonged window of opportunity for intervention with biomarkers/early dx
NIH Mandate: Alzheimer’s Disease Center Network

• National Institute on Aging program of 30 ADCs

• Brings together investigators at leading academic medical centers
  • “to enhance the performance of innovative research on AD and related disorders, especially research that may lead to potential disease-modifying therapy or prevention”

• Create an interactive national network and data/tissue/genetic repositories
AD Center Network

• Boston University
• Columbia University
• Emory University
• Harvard Medical School
• Indiana University
• Johns Hopkins University
• Mayo Clinic
• Mount Sinai School of Medicine
• New York University
• Northwestern University
• Oregon Health and Science University
• Rush University
• Stanford University
• University of Arizona
• University of California, Davis
• University of California, Irvine
• University of California, San Diego
• University of California, San Francisco
• University of Florida
• University of Kansas
• University of Kentucky
• University of Michigan
• University of Pennsylvania
• University of Pittsburgh
• University of Southern California
• University of Texas, Southwestern
• University of Washington
• University of Wisconsin
• **Wake Forest University**
• Washington University at St. Louis
• Yale University
General Advantages of ADC to Institutions and Community

- Provides access to leading edge clinical trials
- Provides education regarding AD
- Provides comprehensive resources to conduct AD-related research
  - Facilitates collaborative, innovative research
  - Enhances success of grant applications- current NIA funding lines for AD

<table>
<thead>
<tr>
<th>Allocation, Costs:</th>
<th>&lt;$500k, General</th>
<th>&lt;$500k, Alzheimer's</th>
<th>&gt;=$500k, General</th>
<th>&gt;=$500k, Alzheimer's</th>
</tr>
</thead>
<tbody>
<tr>
<td>All applications except N.I. or E.S.I. R01s</td>
<td>10%</td>
<td>22%</td>
<td>7%</td>
<td>19%</td>
</tr>
<tr>
<td>N.I. R01s</td>
<td>18%</td>
<td>25%</td>
<td>15%</td>
<td>22%</td>
</tr>
<tr>
<td>E.S.I. R01s</td>
<td>20%</td>
<td>27%</td>
<td>17%</td>
<td>24%</td>
</tr>
</tbody>
</table>

- Alzheimer’s related research determined by algorithm, validity reconfirmed in review
Wake Forest ADC Specific Aims

- **Aim 1**: Provide a comprehensive integrated research infrastructure focused on identifying the causes of AD and on developing novel strategies for prevention and treatment, with specialized resources to accelerate investigations of metabolic and vascular contributions to early phase transitions from normal aging to MCI, AD, and other dementias.

- **Aim 2**: Optimize participation of underserved groups, with a special focus on African-Americans, in ADCC programs to better understand and reduce disparities regarding their risk of AD and other dementias.

- **Aim 3**: Expand interactive relationships with the national ADCC network and key affiliates such as National AD Coordinating Center, National Cell Repository for AD, ADNI, and AD clinical trial networks; and with institutional partners such as the Pepper Center, the Maya Angelou Center for Health Equity, and CTSI.

- **Aim 4**: Provide training in translational research to new AD investigators, and comprehensive education regarding AD and related dementias to health professionals, patients and families, and the general public.
Administration Core

• Provide leadership and strategic vision for ADCC
• Coordinate questions and communication about ADCC
• Oversee distribution of ADCC resources
• Oversee ADCC pilot grant program
• Direct questions to ADCC Administrator Nora Shively, MS

nshively@wakehealth.edu
ADC Resources: Repositories

- Clinical, cognitive, neuroimaging data, blood, cerebrospinal fluid from ~1,000 characterized participants currently available
- Many pre- and post well-controlled pharma, diet, exercise interventions
- Clinical and MESA Core will add ~1,000 participants over 2-3 years
- NHP repository in development, parallels human, human-based neuropathology
- Human brain bank at U Washington prioritized for Wake investigators
  - ~600 well-characterized cases from population studies and UW AD Center
- Human brain bank in development at Wake Forest
- National Alzheimer’s Coordinating Center (NACC), National Cell Repository for AD (NCRAD), AD Genetics Consortium (ADGC) all have repositories/data available to Wake Forest investigators
- WF ADC website will list resources in detail, application form
  - www.WakeHealth.edu/Alzheimers
ADC Resources: Pilot Grants

- Annual pilot grants, aligned with CTSI dates
- ~40K available annually for 2-4 projects
- Co-funding with other Centers encouraged
- 2016 ADCC pilot requires use of existing data or specimens from one of the following:
  - Wake Forest ADCC or affiliated UW brain bank [www.WakeHealth.edu/Alzheimers](http://www.WakeHealth.edu/Alzheimers)
  - National Alzheimer Coordinating Center [https://www.alz.washington.edu/](https://www.alz.washington.edu/)
Clinical Core
Leader: Kaycee Sink, MD, MAS, FACP
Co-Leader: Suzanne Craft, PhD
Overarching Aim of the Clinical Core

• Increase knowledge about the role of metabolic and vascular risk factors in promoting the transition from normal aging to MCI, and then to AD or other forms of pathological brain aging such as vascular cognitive impairment (VCI).

• Our Charge:
  • Establish a well characterized cohort of participants
  • Be a resource to you!
    • We want to share our data
    • Participants are able to be in other studies
Clinical Core Specific Aims

1: To enroll and intensively characterize a cohort of participants with and without prediabetes who are cognitively normal, have MCI, or have Alzheimer’s or mixed dementia.

2: To provide resources to address the question of whether participants with prediabetes show greater change over time on measures of cognition and AD pathology, and to explore relationships among novel AD and metabolic biomarkers and symptoms of AD, VCI, and other disorders.

3: To maximize the participation of African American adults and others from diverse racial and ethnic backgrounds, who have higher rates of metabolic and vascular disease, and dementia.

4: To coordinate systematic collection and archiving of brain, biospecimen, genetic, cognitive, metabolic, and imaging data to share with national and local investigators.

5: To develop and collect innovative indices of metabolic and vascular risk.
Clinical Core Composition
500 participants, ≥55 years old

- **Normal**
  - Normoglycemic
    - N=75; low risk
  - Pre-Diabetic
    - N=125; high risk

- **MCI**
  - Normoglycemic
    - N= ~125
  - Pre-Diabetic
    - N= ~125

- **AD/ mixed VCI**
  - N= 50
  - Diabetes excluded
Assessments

- Uniform Data Set-3
  - Interview and Physical exam
  - Cognitive assessments: 1.5 hour battery of tests
  - Medications and comorbid conditions
  - Family history
  - Informant reported measures of function, behaviors

- Labs (CMP, CBC, TSH, B12, HA1c, insulin, lipids; Apo-E genotype; CSF α-β, t-tau, p-tau)

- OGGT, DXA, Arterial stiffness

- Neuroimaging
  - MRI on all
  - Amyloid PET & dual AcAc/FDG PET in subset; possibly Tau PET

- Blood, DNA, and CSF stored
# Assessment Schedule

<table>
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<tr>
<th>Key assessments</th>
<th>Y1</th>
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<th>Y3</th>
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<td>NL</td>
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<td>Blood</td>
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**Bio-intensive Group**

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<td>PiB PET</td>
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<tr>
<td>Dual tracer PET</td>
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| Phone assessment² | X  | X  | X  |

NL=cognitively normal (metabolically normal and pre-diabetic); X= collected at the visit;  S= Bio-intensive group (BIG) substudy participants only; Goal enrollment is 50% CSF, 20% PiB; 15% dual tracer; 1. Dual tracer PET= FDG + Acetoacetate PET; 2. Telephone Assessment: screen positive participants will be brought in for a complete UDS clinical and cognitive assessment and if determined to have clinically significant decline will follow annual assessments on same schedule as MCI participants.
We hope you’ll find ways to use the resources we are building
MESA Core

Core Leader: Steve Rapp, PhD
Core Leader: Kate Hayden, PhD
VASC-AD PI & Core Manager: Tim Hughes, PhD
What is MESA?

The **Multi-Ethnic Study of Atherosclerosis (MESA)** is a large, diverse, multi-site study of subclinical and incident vascular and metabolic disease.

**Objectives:** Study early CVD, characterize subclinical CVD and progression to clinical CVD

**Goal:** Find treatments to disrupt natural history of CVD and improve health

In 2000, 1,077 adults (aged 58 to 97 years, 46% African-American, 54% non-Hispanic Caucasian), were enrolled into the Wake Forest MESA cohort.
Why Partner with MESA?

- Hypertension and Diabetes are proposed to be modifiable risk factors for AD
- We don’t know how subclinical CVD affects AD risk, especially in African Americans
- MESA has tracked clinical and subclinical CVD in the cohort for over 15 years
- Few existing AD studies have access to such detailed cardiovascular phenotyping:
  - Metabolic
  - Vascular
  - Genetic
  - Cognitive
- Our Center’s theme is focused on metabolic and vascular contributions to AD and related disorders
MESA Core Aims

1) Characterize MCI, AD, VCI, and other related disorders, and facilitate research focused on relationships between cognition and metabolic and vascular risk factors;

2) To conduct longitudinal follow-up of MESA participants

3) To provide resources to foster systems and pathway analyses of genetic, epigenetic, and phenotypic data to identify the metabolic and vascular pathways that predict dementia risk

4) Facilitate investigations examining the impact of race on relationships between metabolic and vascular pathways, cognitive function, and AD biomarkers.
MESA AD Studies Underway

*MESA VASC-AD (R01 AN3889446; PI: Hughes)*

**MESA Study**
- Antecedent Vascular Disease
  - Macrovascular Disease
  - Microvascular Disease

**Neuroimaging Abnormalities**
- Cerebrovascular Insult
- Amyloid Pathology
- Hippocampal Volume

**Age-Related Dementia**
- Vascular Cognitive Impairment
- Alzheimer’s Disease

*MESA VASCAD Study*
MESA AD Studies Underway

Cell-Specific Genomic Features of AD Progression
(R01 AG054474; PI: Ding)

Aging

Gene Networks
(e.g., Mitochondria)

Alzheimer’s Disease

Memory/AD

Aim 3

Methylation
Transcription

Cognition

Aim 1

Exam 5
2010

Exam 6
2016

2020

Methylation
Transcription

Cognition

Aim 2
MESA Core Resources

*n=540 (45%AA:55%EA)*

- Detailed cognitive assessments, closely aligned with the clinical core
- Neuroimaging (MRI, amyloid PET)
- Collection of CSF (40%) and brain tissue
- Repeated MRI, cognitive testing and clinical assessments 3 years later
Please contact us for more information, we are eager to collaborate with you!

Kate Hayden: khayden@wakehealth.edu
336-716-2918

Steve Rapp: srapp@wakehealth.edu
336-716-6995

Tim Hughes: tmhughes@wakehealth.edu
336-713-3851
Neuropathology Core

Core Leader: Tom Montine, MD, PhD
Co-Leaders: Dirk Keene, MD, PhD and Ryan Mott, MD
Biospecimen Service: Tom Register, PhD
WF ADCC Neuropathology Core

**Leader:** T. Montine, MD, PhD  
**Co-Leaders:** C.D. Keene, MD, PhD, R. Mott, MD

**Neuropathology Service**
- C.D. Keene, MD, PhD  
- R. Mott, MD, PhD  
- T. Montine, MD, PhD

  **Autopsy:**  
  - P. Lantz, MD  
  - K. Stogner-Underwood, MD

  **Virtual Microscopy:**  
  - S. Qasem, MD

**Biospecimen Service**
- T. Register, PhD  
- A. Molina, PhD  
- D. Diz, PhD  
- J. Parks, PhD  
- C. Furdui, PhD  
- C. Milligan, PhD

**Pre-Clinical Service**

  **NHP:**
  - C. Shively, PhD  
  - T. Register, PhD  
  - M. Jorgensen, PhD  
  - M. Cline, DMV, PhD  
  - J. Kaplan, PhD  
  - K. Kavanagh, VMS, MS, MPH  
  - R. Hampson, PhD

  **Rodent:**  
  - T. Ma, MD, PhD  
  - D. McClain, MD, PhD

  **Imaging:**  
  - A. Mintz, MD, PhD  
  - C. Whitlow, MD, PhD  
  - J. Maldjian, MD  
  - Y. Jung, PhD

**Genotyping & Molecular Genetics Service**
- D. Bowden, PhD  
- G. Hawkins, PhD
• **Aim 1**: Develop and manage a repository of brain tissue, CSF, DNA, and blood from Clinical and MESA Core participants of the Wake Forest ADC using state-of-the-art methods;

~84 brains will be collected from the MESA and Clinical Cores in our first 5 year cycle

~1000 ante-mortem collections of plasma, DNA, and CSF over next 2 years will add to the existing repository from over 1100 well characterized participants
Neuropathology Core

• **Aim 2**: Distribute data and/or tissue to Wake ADCC and ADC network investigators, NCRAD, and AD researchers world-wide

**Resources Available:**
Wake Forest ADCC (under development)
http://www.wakehealth.edu/Alzheimers/

University of Washington ADRC (under development)
http://depts.washington.edu/adrcweb/

National Alzheimer’s Disease Coordinating Center
https://www.alz.washington.edu/

**Other National Resources:**
NCRAD: National Cell Repository for Alzheimer's Disease
https://ncrad.iu.edu/accessing_data.html

ADGC: Alzheimer's Disease Genetics Consortium
http://alois.med.upenn.edu/adgc/index.html
Neuropathology Core

**Aim 3:** Conduct rigorous neuropathological diagnostic evaluations and clinical-pathological investigations of decedent Clinical and MESA Core participants

- Neuropathologic evaluations performed according to NIA-AA guidelines, on 20+ regions using histochemical and/or immunohistochemical stains
- Diagnostic evaluations following consensus guidelines for AD, microvascular brain injury, Lewy body disease, frontotemporal lobar degeneration, hippocampal sclerosis.
**Neuropathology Core**

**Aim 4:** Facilitate measurement of key biomarkers of AD pathology & innovative markers of metabolic/vascular function

- **All participants:** Plasma glucose, insulin, hemoglobin A1C
- **MESA participants:** Epigenetic/transcriptomic measures of oxidative phosphorylation and metabolic pathways available for all MESA participants.
- **Clinical Core participants:** Monocytes & PBMCs
- **Clinical and Mesa Core Subsets:** panels of specialized assays: mitochondrial function, CSF inflammatory/vascular markers, targeted epigenetic & transcriptomic panels
- All available to WF investigators
- **Molecular Genetics/Genomics** support provided by the WF Genomics Core

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**Table 2. Example Assays Available to ADCC**

<table>
<thead>
<tr>
<th>AD / Synaptic Biomarkers</th>
<th>AD / Synaptic Biomarkers</th>
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<tbody>
<tr>
<td>α40, α42, APP, sAPP, Tau, P-Tau, Neurogranin</td>
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<table>
<thead>
<tr>
<th>Metabolic</th>
<th>Metabolic</th>
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<tbody>
<tr>
<td>Glucose, HbA1c, Insulin, C-peptide, GLP-1, Leptin, Resistin, Cortisol, Adiponectin, Apelin, GH, Thyroid Hormone, Neprilysin</td>
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<thead>
<tr>
<th>Vascular</th>
<th>Vascular</th>
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<tbody>
<tr>
<td>ICAM-1, VCAM-1, ET-1, E-selectin, P-selectin, L-selectin, E-cadherin, ICAM-3, MCP-1, MMP-9, Angiotensinogen, Angiotensin II, Angiotensin (1-7), Aldosterone, Plasma Renin Activity, Total Renin, ACE 1 &amp; 2</td>
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<table>
<thead>
<tr>
<th>Inflammatory / Immune / Oxidative Stress</th>
<th>Inflammatory / Immune / Oxidative Stress</th>
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</thead>
<tbody>
<tr>
<td>CRP, IL-1β, IL-6, IL-1RA, IL-1R, TGF-β1, TNF-α, Heat Shock Proteins (Hsp70), F2-Isoprostanes (8-Isoprostane)</td>
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<table>
<thead>
<tr>
<th>Lipid/Lipoprotein</th>
<th>Lipid/Lipoprotein</th>
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<tbody>
<tr>
<td>LDL, HDL, TG, Total Chol, VLDL, Apo-AI - AI, -B, -E, Lp(a), fatty acid and cholesterol quantification, ABCA1</td>
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<thead>
<tr>
<th>Mitochondrial</th>
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<tbody>
<tr>
<td>Mitochondrial mass quantification, ETC Complex Activity (ATP Synthase, NADH Dehydrogenase), Citrate Synthase Activity, PGC-1α expression</td>
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<thead>
<tr>
<th>Omics</th>
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<tbody>
<tr>
<td>Proteomics, Lipidomics, Metabolomics (discovery/targeted)</td>
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<tr>
<th>Other Measures</th>
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<tbody>
<tr>
<td>Estradiol, Estrone, SHBG, Testosterone, Progesterone</td>
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</table>
Aim 5: To establish preclinical models of AD and pathological brain aging in NHPs using procedures analogous to human protocols thus:

- creating a repository of brain tissue, CSF, DNA, biospecimens, and neuroimaging data; and
- providing NHP cohorts and rodent models that can be used for pivotal mechanistic and therapeutic studies.

NHP Neuropathology

A: Aβ in older NHP brain
B: Aβ in vascular wall
C: Neurofibrillary tangles
D: Dystrophic neurites
F: Hyperphosphorylated tau
Neuropathology Core

- Please consider contributing NHP brain, CSF, blood, images to repository
- Core will help collect and store tissue for the parent project
- Expert characterization of AD pathology will be available to donor PI
- Future collaborative projects honor intellectual property of donor PI
- Many studies with archived data and tissue available (selection below)

<table>
<thead>
<tr>
<th>Data and Tissues</th>
<th>PI/Contact</th>
<th>N, Years Follow-up</th>
<th>Manipulation &amp; Species</th>
<th>MRI</th>
<th>Blood</th>
<th>CSF</th>
<th>Brain</th>
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<tr>
<td>Vervet Research Colony Biomedical Resource</td>
<td>Jorgensen</td>
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<td>Age Female/Male Vervet</td>
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<td>Depression &amp; Coronary Artery Atherosclerosis in Cynomolgus Monkeys</td>
<td>Shively</td>
<td>44, 5</td>
<td>Depression, tx Female Cynomolgus</td>
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<tr>
<td>Atherosclerosis, Estrogen Receptors, and Vascular Responses to Estrogens</td>
<td>Register</td>
<td>24, 5</td>
<td>Hormone tx Female Cynomolgus</td>
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<tr>
<td>Age, Body Composition, Functional Status, &amp; Immune Function</td>
<td>Shively &amp; Register Jorgensen</td>
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<td>RADCCORE- Prospective Studies Core D (NIAID)</td>
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<td>20/year</td>
<td>Radiation, mitigators Rhesus</td>
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<td>Modulation of Radiation-induced Brain Injury in the Nonhuman Primate (NCI)</td>
<td>Deadwyler &amp; Cline</td>
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Neuropathology Core Contacts

Main ADCC Contact: Nora Shively
nshively@wakehealth.edu
336-713-4037

NHP Service Leader: Carol Shively
cshively@wakehealth.edu

Biomarker Service Leader: Tom Register
register@wakehealth.edu

Neuroimaging Service Leader: Akiva Mintz
amintz@wakehealth.edu
Data Management and Data Analytics Core: DMDA

Core Leader: Mark Espeland, PhD
DMDA Leader, Mark Espeland, PhD
DMDA Charter: Specific Aims

• Provide and maintain state-of-the-art resources for data management, study management, and reporting to ensure the highest data quality and study integrity and to increase the efficiency and impact of ADCC research.
DMDA Charter: Specific Aims

• Provide *methodological and analytical expertise* in study design, biostatistics, other analytical sciences (including measurement, image analysis, modelling, computational biology, statistical genetics, precision medicine, and biomathematics) to ADCC projects.
DMDA Charter: Specific Aims

• Develop and maintain efficient and secure platforms for data exchange within the Wake ADCC and with NACC, NCRAD, other ADCs, and AD researchers.
DMDA Charter: Specific Aims

• Collaborate on the dissemination of Wake ADCC study findings and the engagement of targeted cohorts, including African-Americans.
DMDA Charter: Specific Aims

• Use state-of-the-art and novel analytical methods to mine our data resources from major studies of cognition and AD, to facilitate efficient study design, provide a platform for pooled analyses, and provide resources to foster the development of AD researchers.
# Cognitive Data Holdings (N=64,108)

<table>
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<th>Study</th>
<th>Description</th>
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<td>ACCORD-MIND (N=2997)</td>
<td>Action to Control Cardiovascular Risk in Diabetes Memory in Diabetes Clinical Trial</td>
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<td>ADAPT (N=2528)</td>
<td>Alzheimer’s Disease Anti-inflammatory Prevention Trial</td>
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<td>ARIC (N=14,020)</td>
<td>Atherosclerosis Risk in Communities Study Cohort Neurocognitive Study</td>
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<tr>
<td>CHS (N=5,150)</td>
<td>Cardiovascular Health Study</td>
</tr>
<tr>
<td>COSMOS-Mind (M=2,000)</td>
<td>Cocoa Supplement and Multivitamin Outcomes Study of Memory</td>
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<tr>
<td>CoSTAR (N=1,498)</td>
<td>Cognition in the Study of Tamoxifen andRaloxifene</td>
</tr>
<tr>
<td>DHS MIND (N=516)</td>
<td>Diabetes Heart Study MIND</td>
</tr>
<tr>
<td>GEM (N=3,069)</td>
<td>Ginkgo Evaluation of Memory Study</td>
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<tr>
<td>Health ABC (N=2,509)</td>
<td>Health, Aging, and Body Composition Study</td>
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<tr>
<td>LIFE (N=1,635)</td>
<td>Lifestyle Interventions and Independence for Seniors</td>
</tr>
<tr>
<td>LIFE-P (N=102)</td>
<td>Lifestyle Interventions and Independence for Seniors Pilot</td>
</tr>
<tr>
<td>Look AHEAD (N=3,914)</td>
<td>Action for Health in Diabetes Trial</td>
</tr>
<tr>
<td>MESA (N=800)</td>
<td>Multi-Ethnic Study of Atherosclerosis MIND</td>
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<tr>
<td>PEARL (N=178)</td>
<td>Pesticide Exposure and Age-ReLated Changes in Cognitive Function</td>
</tr>
<tr>
<td>PACE4 (N=447)</td>
<td>CBPR on Pesticide Exposure &amp; Neurological Outcomes for Latinos</td>
</tr>
<tr>
<td>SHARP-P (N=73)</td>
<td>Seniors Health and Activity Research Program Pilot Trial</td>
</tr>
<tr>
<td>SPRINT-MIND (N=9,361)</td>
<td>Systolic Blood Pressure Intervention Trial</td>
</tr>
<tr>
<td>TESTOSTERONE (N=800)</td>
<td>NIA multicenter trial</td>
</tr>
<tr>
<td>WHIMS (N=7479)</td>
<td>Women’s Health Initiative Memory Study</td>
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<tr>
<td>WHIMS-MRI (N=1403)</td>
<td>Women’s Health Initiative Memory Study Magnetic Resonance Imaging Study 1 &amp; 2</td>
</tr>
<tr>
<td>WHIMSY (N=1326)</td>
<td>Women’s Health Initiative Memory Study of Younger Women</td>
</tr>
<tr>
<td>WHISCA (N=2303)</td>
<td>Women’s Health Initiative Study of Cognitive Aging</td>
</tr>
</tbody>
</table>
DMDA Leadership Team

- Mark Espeland, Core Director
- Greg Evans, Core Co-Director
- Delilah Cook, Project Manager
- John Hepler, Data Management Director
- Patty Davis, Data Management Co-Director
- Sarah Gaussoin, Data Analytics Director
DMDA Funded Investigators

• Xiaobo Zhou
  -- Systems biology; Bioinformatics; Big data

• Ramon Casanova
  -- Biomathematics; Data mining
DMDA Funded Investigators

• Xiaobo Zhou
  -- Systems biology; Bioinformatics; Big data

• Ramon Casanova
  -- Biomathematics; Data mining

Duties of Funded Investigators

• Conduct analytical and methodological research related to the Core’s aims
• Collaborate on the development of research proposals within the themes of the ADCC
• Collaborate with researchers throughout the institution to further the ADCC goals
DMDA Affiliate Investigators

• Dale Dagenbach: Psychology and Cognitive Neuropsychology
• Paul Laurienti: Image Acquisition and Analysis
• Xingnan Li: Genetic Analysis
• Joseph Maldjian: Imaging and Machine Learning
• Deborah Meyers: Statistical Genetics
• Nick Pajewski: Data and Genetics Analysis
• Scott Rushing: Information Technology
• Sean Simpson: Image and High Dimensional Analysis
• Beverly Snively: Statistical Design and Statistical Genetics
DMDA Collaboration

• Database programming
• Study design
• Analyses to support grants
DMDA Collaboration

• Collaboration is currently developed through Ms. Delilah Cook
• Website portal is under development to field and track requests for collaboration
• Priority will be given to most grant proposals that are most tightly aligned with ADCC objectives and have sufficient lead time for the collaboration to be productive
• Grant submissions will include support for post-award collaboration
Wake Forest Alzheimer’s Disease Core Centers

Research Education Component (REC) Core

Core Leader: Laura Baker, PhD
REC Core Mission

Effectively Engage the Community to Support the Aims of the ADCC
REC Core Mission

• Provide mentoring, training & new research opportunities for early-stage investigators

• **Focus**: bridging gap between preclinical & clinical development of therapeutic interventions to prevent, slow, & treat AD
REC Core Plan

- Implement an individualized & targeted mentoring program for junior investigators to provide training & new research experiences promoting competence in basic science **AND** clinical research - *with a focus on translational neuroscience*

- Provide access to a diverse curriculum of multi-disciplinary didactic training to encourage & support AD research for investigators at all levels who are new to the field (at WF & other nearby institutions).
Outreach & Recruitment (OR) Core
Core Leader: Laura Baker, PhD
Wake Forest ADCC

Outreach & Recruitment (OR) Core
Effectively Engage the Community to Support the Aims of the ADCC
OR Core Plan

- Recruit a diverse group of research participants for ADCC supported studies
- Work with community leaders and organizations to encourage participation of underserved communities in ADCC research and educational activities
- Provide education and training for community healthcare professionals and the public about early detection, prevention, and treatment of AD.
OR Core

What’s Already in Motion?

• Working with community groups to promote AD research & to increase visibility & impact of the ADCC

• Working with local churches with primarily AA membership to develop relationships, education and support resources focused on AD and prevention
OR Core

What’s Coming?

- Increase reach within NC, & to SC and VA (we are the only Alzheimer Center in the region)

- Partner with other Wake Forest groups to provide community education, support, & resources to encourage participation in research & practices to improve health and healthcare delivery
REC and OR Core Contacts

Nora Shively, nshively@wakehealth.edu
Deb Burcombe, dbmcclai@wakehealth.edu
Thanks
Special Thanks to the People Who Made It Happen!

Center for Healthy Aging & AD Prevention Team

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CRU Staff

Support provided by the Hartman Family Foundation

Walk to End Alzheimer’s!
10/29/16