Highlights from NACC

ADC Directors Meeting

San Diego, CA

14 October 2017

The NACC database: total subjects

Clinical data available	NP data records avail.	Total subjects
Subjects in MDS* only	11,071	66,032
Subjects in UDS**	4,819	36,327
Total	**15,890**	**102,359**

Numbers as of the September 1, 2017 data freeze

***MDS reflects ADC enrollment 1984 – 2005**
****UDS reflects ADC enrollment September 2005 – present**

Note: Subjects in the MDS were brought into the UDS if they were active and met the ADC's inclusion criteria. As a result, some subjects are in both the MDS and the UDS.

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Recent Accomplishments

- LDB Module Implemented
  - Thanks to Dr. Galvin et al
- Spanish UDS 3 now rolling out
  - Thanks to Dr Raskovsky et al (Details were presented at ORE Core meeting)
- NACC Collaborations: UDS 3 in China
- See presentation of papers and projects at NACC meeting 1:30 today; it will be amazing

Funding Opportunity

- *Please look for the NACC project funding announcement in your meeting packet*
- *Collaborative projects and Jr Investigator awards*

Special initiatives – MRI

	Number	Centers Participating
Unique Subjects with a scan session	4,139	19
Number of MRI scan sessions	5,923	
MRI scan types		
T1	5,215	
T2	1,925	
Flair	3,989	
DTI	2,301	
Other scan types (DWI, other)	2,747	
Longitudinal MRIs (unique subjects)	1,159	
Scan sessions with calculated volume data	1,971	

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Numbers as of October 6, 2017

MRI Selection Preview System

With NACC's MRI selection preview system, you can download a sample of up to 10 image files from UDS participants that meet the criteria you define — criteria based on MRI image type, or UDS clinical characteristics of the participants, or both. Along with the sample images, you will also be given a rough estimate of the number of MRIs that meet your criteria.

Please note that the sample images and estimated totals supplied by the MRI selection preview system are **not suitable for data analysis or publication.** When you are ready to download images for analysis and publication purposes — or if your inquiry requires more detailed information — please submit a custom data request.

PLEASE MAKE YOUR SELECTIONS from the table below. You may specify any of the eight criteria. If no selection is made for a given criterion, the system defaults to include ANY of the options listed for it.

SCAN TYPE	◉ Any ○ T1 ○ T2 ○ DTI ○ Flair ○ DWI
MAGNETIC FIELD STRENGTH	◉ Any ○ 1.5 ○ 3
SEX	◉ Any ○ Male ○ Female
AGE AT MRI SCAN	◉ Any ○ <65 ○ 65 – 89 ○ ≥90
RACE	◉ Any ○ White ○ Black or African American ○ American Indian or Alaska Native ○ Native Hawaiian or Pacific Islander ○ Asian ○ Multiracial
NUMBER OF APOE ε4 ALLELES	◉ Any ○ 0 ○ 1 ○ 2
COGNITIVE STATUS*	◉ Any ○ Normal ○ Impaired, not MCI ○ MCI ○ Dementia

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Structural MRIs for UDS subjects

NACC MRI selection preview results

YOUR CRITERIA

In your query of 10/6/2017, you requested sample image files for:

Scan type	Any
Magnetic field strength	Any
Sex	Any
Age at MRI scan	Any
Race	Any
Number of APOE e4 alleles	Any
Cognitive status*	Dementia
Primary etiologic diagnosis*	Alzheimer's disease

* As reported at closest UDS visit within ±2 years of MRI scan date.

YOUR TOTALS

NOTE: Estimated totals provided by the MRI selection preview system are not suitable for data analysis or publication. To determine whether NACC is likely to have subjects you're looking for in numbers sufficient to address your research question, please visit NACC web-based query system or submit a custom data request.

* Limited to MRI files within ±2 years of a UDS visit.

Total MRI files at NACC*	5504
Total MRI files meeting your query criteria	1056
Total NIfTI files at NACC	5428
Total NIfTI files meeting your query criteria	1038
Unique UDS subject IDs with MRI files meeting criteria	875

YOUR DOWNLOAD

Following is a sample of MRI files meeting your criteria:

Obs	NACC Subject ID	MRI Date	Download MRI (.zip files)
1	NACC002279	02/12/2016	Click Here to Download MRI
2	NACC002865	11/10/2005	Click Here to Download MRI
3	NACC004324	05/26/2009	Click Here to Download MRI
4	NACC005230	02/08/2011	Click Here to Download MRI
5	NACC007417	05/20/2015	Click Here to Download MRI
6	NACC008395	04/07/2005	Click Here to Download MRI
7	NACC009574	10/04/2006	Click Here to Download MRI
8	NACC010645	05/17/2007	Click Here to Download MRI
9	NACC010929	07/31/2012	Click Here to Download MRI
10	NACC011853	06/09/2010	Click Here to Download MRI

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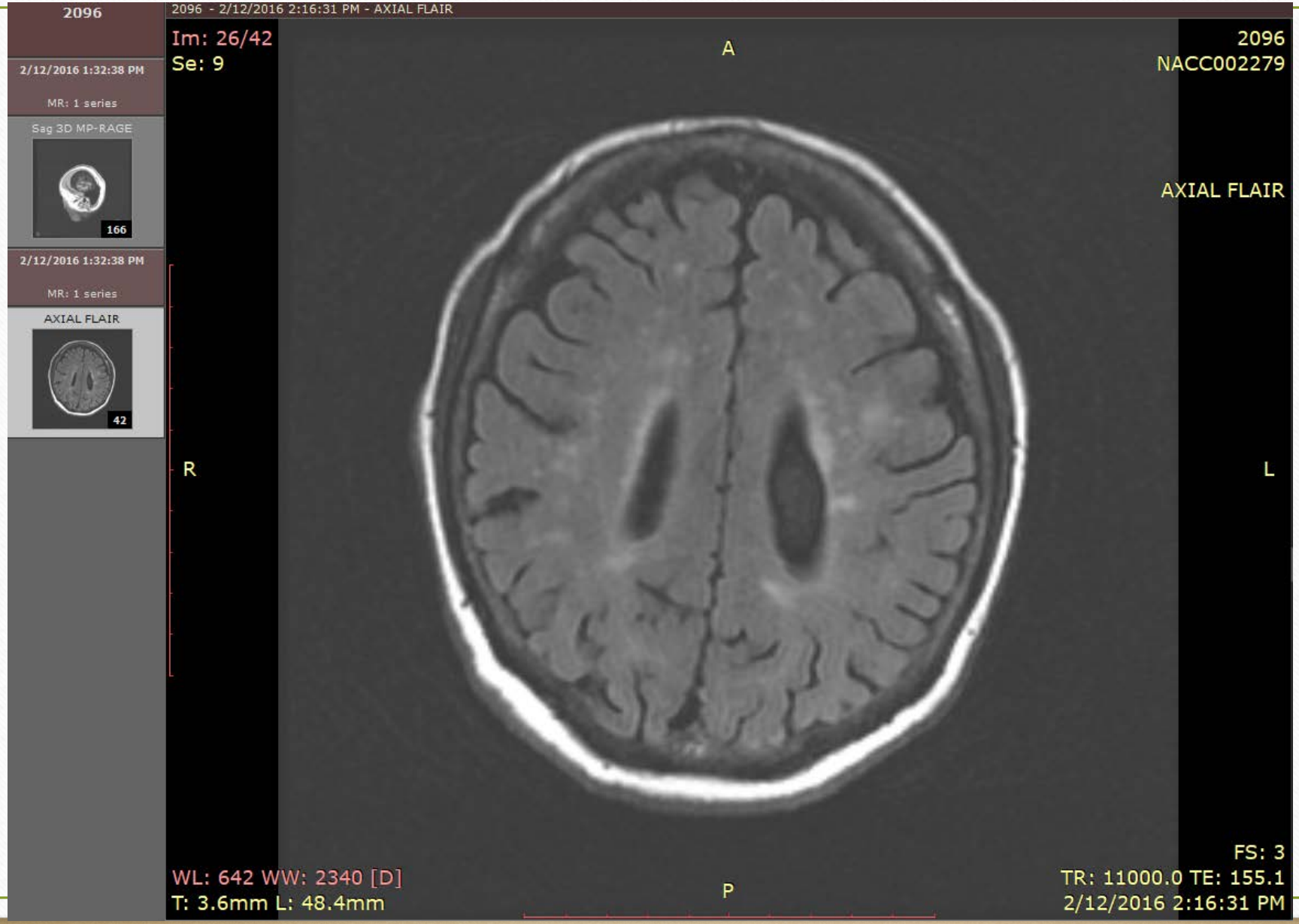

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Special initiatives – PET scans

	Number	Centers participating
Amyloid PET		
Unique Subjects with a scan	268	2
Total number of scans	268	
Longitudinal scans (unique subjects)	--	

Numbers as of October 6, 2017

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Special initiative – CSF biomarker data

	ELISA	Luminex	Total	Centers participating
CSF data values				
CSF Aβ	282	1,033	1,315	5
CSF P-tau	267	1,032	1,299	
CSF T-tau	279	1,030	1,309	

Numbers as of September 1, 2017

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A few very recent NACC publications

- Weintraub S, et al: **"Version 3 of the Alzheimer's Disease Centers' Neuropsychological Test Battery in the Uniform Data Set (UDS**)"; (in press) Alzheimer's Disease and Associated Disorders.
- Brenowitz WD, Fang Han; Kukull WA, Nelson PT; **Treated hypothyroidism is associated with cerebrovascular disease but not Alzheimer's disease pathology in older adults.** (in press)Neurobiology of Aging
- Besser LM, Crary JF, Mock C, Kukull WA. **Comparison of symptomatic and asymptomatic persons with primary age-related tauopathy.** Neurology 2017 Sep 15 (ePub ahead of print)

Polygenic Risk Score Analysis of Pathologically Confirmed Alzheimer Disease

Valentina, Escott-Price, PhD,[1]
Amanda J., Myers, PhD,[2]
Matt, Huentelman, PhD,[3] and
John, Hardy, PhD[4]

Previous estimates of the utility of polygenic risk score analysis for the prediction of Alzheimer disease have given area under the curve (AUC) estimates of <80%. However, these have been based on the genetic analysis of clinical case–control series. Here, we apply the same analytic approaches to a pathological case–control series and show a predictive AUC of 84%. We suggest that this analysis has clinical utility and th
ited room for further improvement using

Factors Influencing Successful Lumbar Puncture in Alzheimer Research.

Moulder, Krista L. PhD; Besser, Lilah M. PhD; Beekly, Duane BS; Blennow, Kaj MD, PhD; Kukull, Walter PhD; Morris, John C. MD; Alzheimer Disease & Associated Disorders:

Longitudinal Cognitive Profiles in Diabetes: Results From the National Alzheimer's Coordinating Center's Uniform Data

Mary Sano, PhD,[*†] *Carolyn W. Zhu, PhD,*[*††] *Hillel Grossman, MD,*[*†] *and Corbett Schimming*[*†]

JAGS 2017

APOE-related risk of mild cognitive impairment and dementia for prevention trials: An analysis of four cohorts

Jing Qian1, Frank J. Wolters2, Alexa Beiser3,4, Mary Haan5, M. Arfan Ikram2, Jason Karlawish6, Jessica B. Langbaum7, John M. Neuhaus5, Eric M. Reiman7,8,9,10, J. Scott Roberts11, Sudha Seshadri3, Pierre N. Tariot7,8, Beth McCarty Woods6, Rebecca A. Betensky12, Deborah Blacker13,14*

PLOS Medicine | DOI:10.1371/journal.pmed.1002254 March 21, 2017

RESEARCH ARTICLE

Genetic assessment of age-associated Alzheimer disease risk: Development and validation of a polygenic hazard score

Rahul S. Desikan[1☯]*, Chun Chieh Fan[2☯], Yunpeng Wang[3,4,5], Andrew J. Schork[2], Howard J. Cabral[6], L. Adrienne Cupples[6], Wesley K. Thompson[7], Lilah Besser[8], Walter A. Kukull[8], Dominic Holland[3], Chi-Hua Chen[9], James B. Brewer[3,9,10], David S. Karow[9], Karolina Kauppi[9], Aree Witoelar[4,5], Celeste M. Karch[11], Luke W. Bonham[12], Jennifer S. Yokoyama[12], Howard J. Rosen[12], Bruce L. Miller[12], William P. Dillon[1], David M. Wilson[1], Christopher P. Hess[1], Margaret Pericak-Vance[13], Jonathan L. Haines[14,15], Lindsay A. Farrer[16,17,18,19,20], Richard Mayeux[21,22,23], John Hardy[24], Alison M. Goate[25,26], Bradley T. Hyman[27], Gerard D. Schellenberg[28], Linda K. McEvoy[9], Ole A. Andreassen[4,5]*, Anders M. Dale[2,3,9]–

PLOS Medicine | DOI:10.1371/journal.pmed.1002258 March 21, 2017

MRI assessment of whole-brain structural changes in aging

Hui Guo,[1,2] William Siu,[1,3] Ryan CN D'Arcy,[1,4] Sandra E Black,[5,6] Lukas A Grajauskas,[1,4] Sonia Singh,[7,8] Yunting Zhang,[2] Kenneth Rockwood,[9,10] Xiaowei Song[1,4,9]

On behalf of The Alzheimer's Disease Neuroimaging Initiative and the National Alzheimer's Coordinating Center

This article was published in the following Dove Press journal:
Clinical Interventions in Aging
9 August 2017

Featured Article

Milder Alzheimer's disease pathology in heart failure and atrial fibrillation

Luciano A. Sposato[a,b,*], Estefanía Ruíz Vargas[a], Patricia M. Riccio[a], Jon B. Toledo[c,d], John Q. Trojanowski[c], Walter A. Kukull[e], Lauren E. Cipriano[f], Antonia Nuccra[a], Shawn N. Whitehead[a,g], Vladimir Hachinski[a]

Alzheimer's & Dementia 13 (2017) 770-777

Neuropathological and genetic correlates of survival and dementia onset in synucleinopathies: a retrospective analysis

David J Irwin, Murray Grossman, Daniel Weintraub, Howard I Hurtig, John E Duda, Sharon X Xie, Edward B Lee, Vivianna M Van Deerlin, Oscar L Lopez, Julia K Kofler, Peter T Nelson, Gregory A Jicha, Randy Woltjer, Joseph F Quinn, Jeffery Kaye, James B Leverenz, Debby Tsuang, Katelan Longfellow, Dora Yearout, Walter Kukull, C Dirk Keene, Thomas J Montine, Cyrus P Zabetian, John Q Trojanowski

Lancet Neurol 2017; 16: 55–65

Featured Article

Mixed neuropathologies and estimated rates of clinical progression in a large autopsy sample

Willa D. Brenowitz[a,*], Rebecca A. Hubbard[b], C. Dirk Keene[c], Stephen E. Hawes[-], W. T. Longstreth, Jr.,[a,e], Randy L. Woltjer[f], Walter A. Kukull[a]

Alzheimer's & Dementia 13 (2017) 654-662

Modeling the Relationships Among Late-Life Body Mass Index, Cerebrovascular Disease, and Alzheimer's Disease Neuropathology in an Autopsy Sample of 1,421 Subjects from the National Alzheimer's Coordinating Center Data Set

Michael L. Alosco[a,b,l], Jonathan Duskin[a,l], Lilah M. Besser[c], Brett Martin[a,d], Christine E. Chaisson[a,d], John Gunstad[e], Neil W. Kowall[a,b,f,g], Ann C. McKee[a,b,f,h,i], Robert A. Stern[a,b,j] and Yorghos Tripodis[a,k,*]

Journal of Alzheimer's Disease 57 (2017) 953–968
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