Table 1. Participant demographic, clinical and imaging characteristics (n=206)

	MZ, n=124 (mean (SD) OR n (%))	DZ, n=82 (mean (SD) OR n (%))	Missing (n)	Statistical comparison
Age	72.20 (6.58)	70.80 (4.72)	0	-1.77; 0.08
Sex (Male)	56 (45)	26 (32)	0	3.18; 0.038
Years education	12.45 (3.40)	12.63 (3.74)	0	0.35;0.749
APOE e4 carrier	16 (25)	14 (36)	102	1.01; 0.229
MMSE score	28.90 (1.24)	29.10 (1.19)	1	1.20; 0.227
History of				
Stroke	3	0	6	
AMI	8	0	96	
Hypertension	67 (56)	47 (59)	7	0.04; 0.688
BMI	27.92 (4.9)	28.08 (5.8)	10	0.20; 0.828
BP (mmHg)				
Systolic BP	139.89 (18.07)	134.72 (17.26)	0	0.20;0.851
Diastolic BP	83.99 (10.97)	83.64 (10.12)	0	-0.23; 0.83
Fasting pathology (mmol/L)				
Glucose	5.84 (2.21)	5.38 (0.88)	46	-1.84; 0.062
Total cholesterol	5.00 (1.25)	5.17 (0.98)	46	0.91; 0.37
LDL	2.81 (1.16)	2.90 (0.83)	46	0.53; 0.587
TG	1.33 (0.74)	1.25 (0.45)	46	-0.89; 0.371
HDL	1.58 (0.37)	1.69 (0.50)	46	1.47; 0.143
Imaging				
Global SUVR	1.34 (0.29)	1.38 (0.35)	0	0.9;0.373
Total WMHV	5074. 65 (5563.157)	6474.986 (7661.522)	0	1.31; 0.194
PSMD	0.0002759370 (6.59E-05)	0.00027922229 (5.3E-05)	0	0.37;0.7

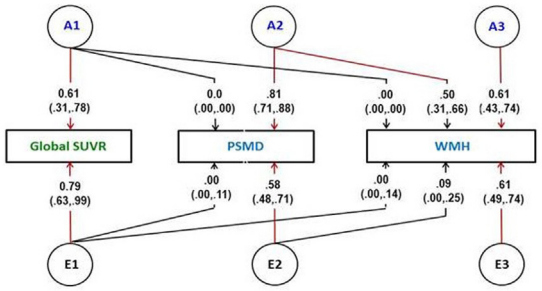
For comparisons between MZ and DZ twins, t-tests were used for continuous measures and chi-square tests for categorical variables. All p-values were obtained using 10,000 permutations. AMI, acute myocardial infarction; APOE, Apolipoprotein E; MMSE, Mini Mental State Examination; BMI, body mass index; BP, blood pressure; HDL, high density lipoprotein; LDL low density lipoprotein; TG, triglycerides; SUVR, Standardized Uptake Value Ratio; PSMD, peak width of skeletonized mean diffusivity, WMHV, white matter hyperintensity volume.

Table 2. The heritability of amyloid burden in the brains of older individuals, n=206

The effects of age, sex and scanner are included in the AE model. MZ, monozygotic twins; DZ, dizygotic twins; ICC, intra-class correlation coefficients; h^2 heritability; E, environmental influence; SUVR, Standardized Uptake Value Ratio.

SUVR	h^2	Pval h^2	E	MZICC	DZICC
Global	0.43	0.001426	0.57	0.43	0.21
Ventrolateral prefrontal	0.51	5.30E-05	0.49	0.51	0.25
Orbitofrontal	0.52	3.80E-05	0.48	0.52	0.26
Anterior cingulate	0.18	0.121232	0.82	0.18	0.09
Posterior cingulate	0.35	0.005326	0.65	0.35	0.17
Superior parietal	0.54	1.81E-06	0.46	0.54	0.27
Lateral occipital	0.43	0.000345	0.57	0.43	0.21
Lateral temporal	0.26	0.045872	0.74	0.26	0.13
Mesial temporal	0.38	0.001847	0.62	0.38	0.19
Striatum	0.48	2.01E-05	0.52	0.48	0.24
Caudate	0.24	0.065921	0.76	0.24	0.12
Putamen	0.28	0.025771	0.72	0.28	0.14

Figure. A Cholesky AE model was used to examine the shared genetic association between global SUVR, PSMD and WMHV for complete twin pairs (n=162; 98 MZ and 64 DZ), controlling for age, sex and scanner. Significant paths are in red. *(SUVR, Standardized Uptake Value Ratio; PSMD, peak width of skeletonized mean diffusivity; WMH, white matter hyperintensity).*



from 0.18 to 0.54, after correcting for age, sex and scanner (Table 2). The mean global SUVR was significantly higher in APOE ε4 carriers (1.61) when compared to non-carriers (1.30) ($p<.001$). There were no significant genetic (A) or environmental (E) correlations between global SUVR and markers of SVD (Figure). The genetic correlation between WMHV and PSMD was significant (0.64; 95% CI 0.41, 0.82). **Conclusions:** Amyloid load in the brains of cognitively normal older people has moderate heritability with suggestion of strong environmental influences. Whilst amyloid and SVD pathology commonly co-occur, the role of shared genetic factors appears to be minimal. References: 1. Sachdev, P. S. et al. (2009). *Twin Research and Human Genetics,* 12(6): 573-582.

ORAL SESSIONS
O5-08
HEALTH ECONOMICS AND POLICY: HEALTH ECONOMICS

O5-08-01 TRENDS IN RACIAL AND ETHNIC DIFFERENCES IN DEMENTIA PREVALENCE RATES AND DISEASE AWARENESS

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Background: US Medicare claims data suggest that prevalence rates of Alzheimer's disease and related dementias are 30% higher among non-Hispanic Blacks and 14% higher among Hispanics than among non-Hispanic Whites. However, claims-based estimates may understate racial and ethnic differences in dementia prevalence due to diagnosis disparities. This study used a modeling approach with survey data to estimate dementia prevalence rates by race/ethnicity and changes over time. **Methods:** Using survey responses to the Health and Retirement Study, we identified individuals age ≥70 with dementia based on a prediction model developed by Hurd and colleagues. The ordered probit model predicts cognitive status separately for self- and proxy-respondents as either 'dementia', 'cognitive impairment no dementia', or 'normal' based on age, gender, education, functional limitations, and imputed cognitive scores. We analyzed predicted dementia prevalence rates by race/ethnicity in years 2000-2014. Among individuals identified as having dementia, we examined trends in awareness of one's dementia status (i.e., whether they recalled receiving an AD/memory problem/dementia diagnosis from their doctor) by race/ethnicity. All analyses adjusted for sampling weights. **Results:** Predicted dementia prevalence was highest among non-Hispanic Blacks (Range 2000-2014: 18.7%-21.4%), followed by Hispanics (14.9%-19.7%) and non-Hispanic Whites (10.2%-11.7%). Dementia prevalence decreased steadily between 2000-2014, especially among non-Hispanic Blacks (from 21.4% to 18.7%). Among those predicted as having dementia, 39%-47% reported they were informed of the dementia status by their doctor. Knowledge about one's dementia status was poorer among Hispanics (30.5%-45.5%) and non-Hispanic Blacks (35.4%-47.7%) than among non-Hispanic Whites

(39.4%-48.1%). Among subjects identified as having dementia, self-respondents were less aware of their disease status than proxy-respondents. **Conclusions:** Model prediction results suggest that non-Hispanic Blacks are about 1.8 times and Hispanics are 1.6 times as likely to have dementia as non-Hispanic Whites. Model-predicted differences in dementia prevalence by race/ethnicity are greater compared to claims-based differences, suggesting a higher frequency of undiagnosed dementia among non-Hispanic Blacks and Hispanics. Less than half of model-identified dementia subjects know they have the condition, though this proportion varies by respondent type. Despite non-Hispanic Blacks and Hispanics having higher prevalence, our findings show that these groups may be less aware of their dementia status compared with non-Hispanic Whites.

Figure 1: Trends in predicted prevalence rates of dementia, by race/ethnicity, 2000-2014 HRS

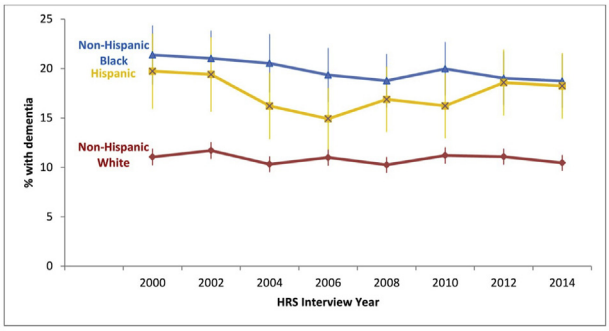


Figure 2: Trends in knowledge about dementia status by race and ethnicity, 2000-2014 HRS

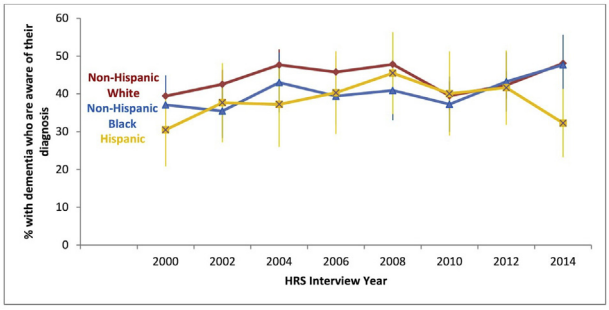
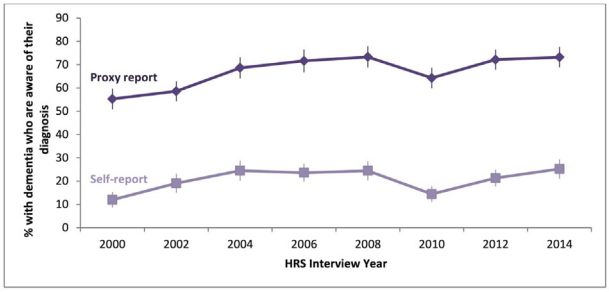


Figure 3: Trends in knowledge about dementia status by respondent type (proxy versus self-report), 2000-2014 HRS



O5-08-02

COSTS OF ALZHEIMER'S DISEASE AND DEMENTIA IN 188 COUNTRIES

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Background: There were approximately forty five million people living with Alzheimer's disease and other dementias around the world in 2017. Treatment for patients with dementia is costly and it is often not covered by insurance or formal healthcare systems. The cost of dementia already poses a major economic burden on the care systems in developed countries and it is increasing in developing countries. Comparable estimates of spending on Alzheimer's and other dementias are necessary to help allocate scarce healthcare resources and efficiently treat this vulnerable population. **Methods:** We conducted a systematic review on the treatment cost of Alzheimer's disease and other dementias. We searched PubMed and Google Scholar for disease expenditure and cost of illness studies published between 2000 and 2016. 275 studies were identified for extraction after appraisal for methodological quality. Total and per-capita direct and indirect cost were extracted as well as data on informal care. Cost data from the World Mental Health Surveys was also included in our model. Country level prevalence, GDP, and wage data were obtained from the Global Burden of Disease, Injuries, and Risk Factors Study (GBD). Spatiotemporal Gaaussian process regression was used to generate complete and comparable estimates for Alzheimer's and other dementias spending in 188 countries. All estimates are adjusted for the effects of inflation and are reported in the 2018 purchasing power parity-adjusted dollars. **Results:** The global cost of Alzheimer's disease and other dementias will exceed one trillion PPP dollars in 2018. Close to eighty per cent of the costs occurred in high-income countries, with less than 50% of the prevalence. The majority of the costs are informal, reflecting the heavy economic burden of indirect and social care. **Conclusions:** Care for Alzheimer's disease and other dementias pose an enormous economic burden for healthcare systems around the world. Cost will continue to increase due to aging populations and emerging treatments. Comprehensive, comparable cost estimates are an excellent tool for policy makers worldwide. They are helpful to learn from the spending practices of other countries as well as to better allocate the resources of in their own health systems.

O5-08-03

TRAJECTORIES OF HEALTH SYSTEM USE AND SURVIVAL FOR COMMUNITY-DWELLING PERSONS WITH DEMENTIA: AN INCEPTION COHORT STUDY

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Background: Internationally, health systems strive to enable persons with Alzheimer's and related dementias (hereafter, dementia) to remain at home to maximize their quality of life and, where appropriate, to reduce the use of costly inpatient health services. There is limited evidence describing long-term trajectories of health system use by persons with dementia as they remain in the