using face-to-face outreach activities and partnering with family
connectors. Among the 22 families, we ascertained 94 participants
(10% unaffected males, 34% unaffected females, 19% affected
males and 37% affected females). We traveled to 15 different states
and over 24,400 miles. Only one participant dropped out of the
study, due to conflicting family dynamics. This represents a 99%
retention rate. In our largest family we ascertained a total of 14
affected and unaffected individuals, from two generations, and trav-
eled to six different states to ascertain them in their homes. We used
culturally relevant approaches to build trust with each family
connector. Conclusions: We have used a culturally relevant, family
engagement approach to enroll intergenerational AA families in
an AD genomic research study. Implementing strategies to address
trust, family location as well as family dynamics may be significant
in mitigating barriers that often impede family enrollment success
in this population.

**P1-559 DRUG PRESCRIPTIONS AND DEMENTIA INCIDENCE: A MEDICATION-WIDE
ASSOCIATION STUDY**

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**Background:** There is increasing evidence that some prescription
medications may be associated with dementia. We conducted a
medication-wide association study to explore the relationship be-
tween all prescribed medications and dementia incidence. **Methods:**
The Secure Anonymised Information Linkage dementia e-cohort
(SAIL-DeC) contains anonymised, individual-level hospital admis-
sions, mortality and primary care data for the population of Wales,
UK. We included all participants aged ≤60 when first registered
with a SAIL-DeC general practitioner (GP). We excluded partici-
pants born <1910 or with a dementia code in any dataset prior to
their 60th birthday. We followed all participants from age 60 until
the earliest of: a dementia diagnosis, GP de-registration, death or
December 2016. We counted participants as exposed to a medica-
tion from the first date of prescription of that medication, or from
their 60th birthday if the prescription first occurred before this.
The outcome was an all-cause dementia code in any dataset. We
randomly divided the study population based on household area
into derivation and validation cohorts (1:1). We used a Bonferroni-corrected Cox proportional hazards model, adjusting for sex,
socioeconomic status, birth decade and smoking status. We also
conducted sensitivity analyses, excluding drugs that were pre-
scribed <10 years before dementia diagnosis. **Results:** 574,237 par-
ticipants met the inclusion criteria, amongst whom 13,786 (2.4%)
developed dementia during follow-up (Table 1). 177/733 (24.1%) drugs were significantly associated with dementia in both the deri-
vation and validation datasets (Figure 1). Only four medications (all
vaccines) were associated with a lower hazard of developing de-
mentia. Some drugs associated with an increased hazard of

|               | Non-cases | Dementia cases |
|---------------|-----------|---------------|
| Total participants | 560,451    | 13,786        |
| Female (%)     | 281,106 (50.2) | 7269 (52.7)  |
| Total follow up time (person-years) | 5,134,996 | 186,522       |
| Median follow up time (days)        | 3,049      | 5,086         |
| Median year at start of follow-up*  | 2007       | 1997          |
| Deprivation quintile (%)             |            |               |
| 1 – Most deprived | 101,052 (18.0) | 3,155 (22.9) |
| 2                            | 102,275 (18.2) | 2,563 (18.6) |
| 3                            | 120,664 (21.5) | 2,792 (20.3) |
| 4                            | 108,130 (19.3) | 2,368 (17.2) |
| 5 – Least deprived            | 128,330 (22.9) | 2,908 (21.1) |
| Ever-smokers (%)              | 359,389 (64.1) | 9,621 (69.8) |

*Median year at age 60 years. *Did not develop dementia by end of follow-up

**Figure 1. Volcano plot demonstrating the hazard ratio and p-values for the associations between medications and dementia. Each point represents a different drug, with coloured points being drugs that passed the significance threshold in the derivation and validation cohorts. Drugs are coloured based on British National Formulary chapter. All drugs above the dotted line have an undetectably low p-value of p<10⁻¹⁷.**
dementia clustered around several unexpected indications, including: gastro-oesophageal reflux disease, altered bowel habit, lower urinary tract symptoms and infections, anxiety, sleep disturbance, pain and nausea/vertigo. Many of these associations were still present or increased at ≥10 years before a diagnosis of dementia. Conclusions: In this population-based, hypothesis-generating study, we have identified many medications that are associated with an increased dementia hazard. The clustering of medications around certain indications suggests there may be a non-cognitive syndrome in dementia, occurring ≥10 years before diagnosis. Some vaccines are associated with a lower dementia hazard, but reasons for this are uncertain.

### Table 1: Subject recruitment of rrAD Study

| Source             | Phone Screened Subjects | % of Total Phone Screened Subjects | Randomized Subjects | % of Total Randomized Subjects |
|--------------------|-------------------------|-----------------------------------|---------------------|-------------------------------|
| Referral           | 297                     | 11.27%                            | 50                  | 15.58%                        |
| Database           | 621                     | 23.56%                            | 100                 | 31.15%                        |
| Traditional Media  | 781                     | 29.63%                            | 86                  | 26.79%                        |
| Digital Media      | 160                     | 6.07%                             | 31                  | 9.66%                         |
| Community Outreach | 128                     | 4.86%                             | 8                   | 2.48%                         |
| Study Materials    | 50                      | 1.90%                             | 6                   | 1.87%                         |
| Multiple           | 85                      | 3.22%                             | 23                  | 7.17%                         |
| Unknown            | 514                     | 19.50%                            | 17                  | 5.30%                         |
| Grand Total        | 2636                    |                                   | 321                 |                               |

### P1-560 RECRUITMENT STRATEGIES IN A MULTICENTER RCT FOR DEMENTIA PREVENTION - RRAD STUDY

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**Background:** Exercise and Intensive Vascular Risk Reduction in Preventing Dementia (rrAD Study) is a NIH-funded multicenter randomized controlled trial (RCT) targeting older adults who are at high risk for developing Alzheimer’s disease (AD). The original goal of rrAD is to enroll 640 participants in 24 months from January 2017 to January 2019. Development of effective recruitment strategies to meet the enrollment goal in the proposed timeline is essential for the trial success. We reported herein our recruitment experience of the rrAD Study.

**Methods:** The major inclusion criteria are older adults, age 60-85, who have family history (FH) of dementia or subjective memory complaints, hypertension, and a sedentary lifestyle. Individuals with dementia and other neurodegenerative diseases, stroke, or unstable medical conditions are excluded (NCT02913664). Recruitment strategies which provided the highest participants in the rrAD study were blood pressure (BP) and lack of FH of dementia or subjective memory complaints. Media, database, and referral together also yielded the highest randomized subjects (83%) (Table 1). The major reasons for clinical screening failure were BP, clinical conditions, and willingness for randomization. Conclusions: Professional and non-professional referrals, the existing database at the clinical sites, and traditional media are the most effective recruitment strategies which provided the highest participants in the rrAD study.

### P1-561 HOSPITALISATION RATES AND PREDICTORS IN PEOPLE WITH DEMENTIA: A SYSTEMATIC REVIEW AND META-ANALYSIS

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**Background:** Hospitalization can be harmful for people with dementia so avoidance of unnecessary admission is a major health priority, but no intervention has yet reduced admissions of community-dwelling people with dementia. We therefore examined rates of general hospital admissions of community-dwelling people with dementia, whether these differ from people without dementia, and identified socio-demographic and clinical predictors of admission aiming to elucidate modifiable risk factors. **Methods:** We undertook a systematic review and meta-analysis. We searched MEDLINE, Embase and PsycINFO to October 22, 2018. Two authors screened abstracts for inclusion. We included observational using clinical, research, or register populations studies which (1) examined community-dwelling people with dementia of any age or dementia subtype, (2) diagnosed dementia using validated diagnostic criteria, and (3) examined all-cause general (i.e. non-psychiatric) hospital admissions. Two authors independently extracted outcome data, and assessed included studies for risk of bias, and three authors graded strength of evidence using Cochrane GRADE approach. We used random effects meta-analysis to pool estimates for risk of admission in people with and without dementia. We used narrative synthesis to report general hospital admission rate or percentage admitted from all studies, and the association between socio-demographic or clinical features and hospitalization. **Results:** We included 32 studies of 264,046 people with dementia; 16 from US, 14 from Europe and 2 from Asia. Pooled relative risk of hospitalization for people with dementia compared to those without in studies adjusted for age, sex and physical comorbidity was 1.42 (95% confidence interval 1.21, 1.66, p<0.001). Hospitalization rate in high-quality studies of people with dementia was between 0.37 and 1.17 per person year. There was strong evidence that higher risk of...