

# $\beta$ -amyloid PET imaging:

improving understanding, diagnosis and management of Alzheimer's disease

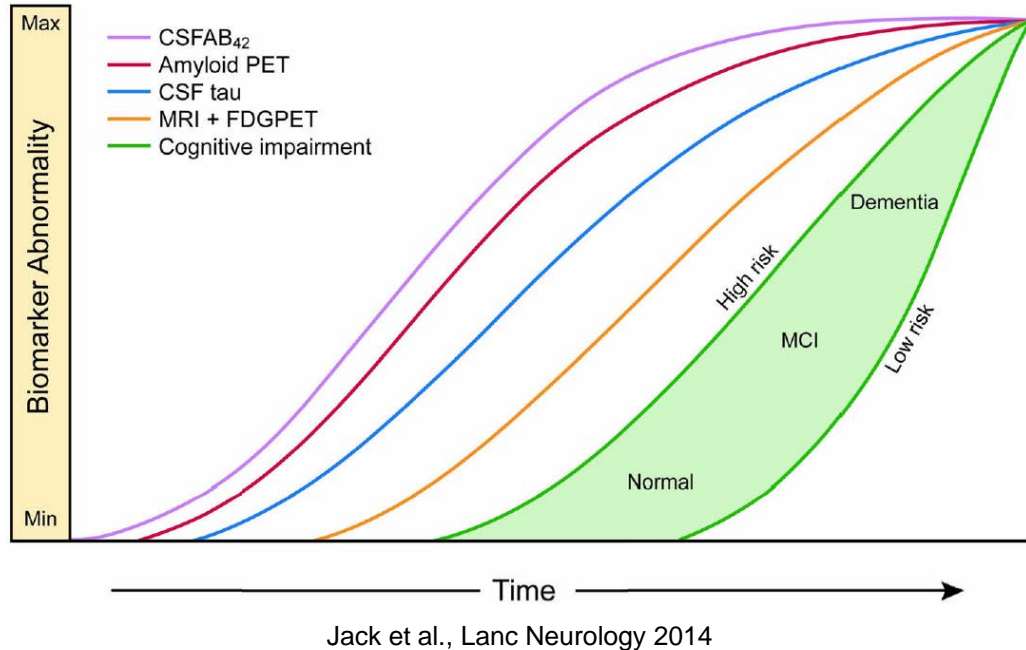
the AMYPAD Consortium

I. Lopes Alves

Alzheimer Europe 2018, Barcelona



# $\beta$ -amyloid imaging – the added value

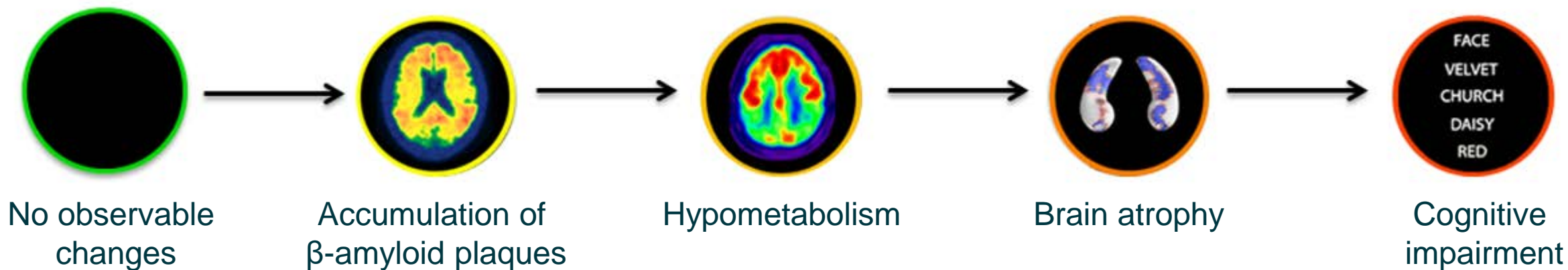


- Clinical practice -> supporting physicians in diagnostic confidence / exclusion of AD
- Clinical trials -> slowing or modifying the course of the disease

*Amyloid is an **early and necessary** step in the development of AD dementia*

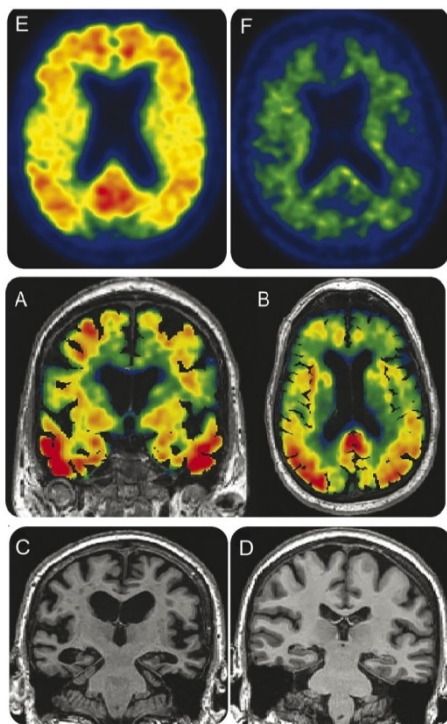
**What about prevention?**

# Why AMYPAD?

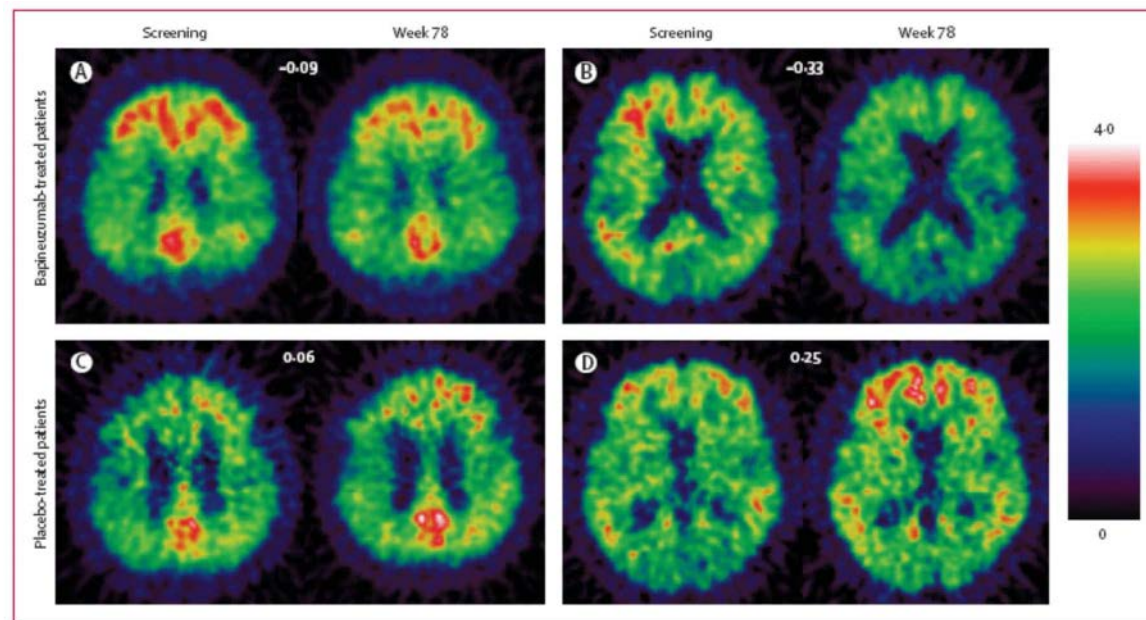


← Earlier detection [Diagnostic and Prognostic value]

Clinical routine  
diagnosing AD disease  
to prevent AD dementia



Clinical trials  
of biomarker-modifying  
therapies



**Figure 4:** <sup>11</sup>C-PIB PET images from patients treated with bapineuzumab and those given placebo. Changes from screening to week 78 in patients treated with bapineuzumab (A, B) and in patients treated with placebo (C, D). Mean <sup>11</sup>C-PIB PET changes are shown at the top centre of each panel for each patient. The scale bar shows the PIB uptake ratios relative to cerebellum by colour. The scans before and after treatment are from MRI co-registered images in the same plane. PIB=Pittsburgh compound B.

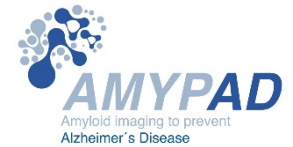
## Study 1: Diagnostic and Patient Management Study

- ❖ Usefulness of amyloid PET imaging in the clinic
- ❖ Impact of this technique in patient management
- ❖ Crucial information to payers

## Study 2: Prognostic and Natural History Study

- ❖ Natural history Alzheimer's disease
- ❖ Enrich and empower secondary prevention trials
- ❖ Complement characterization of EPAD LCS

	Cohort	Baseline PET	Repeat PET (2 yr)	Total scans
<b>Study 1: Diagnostic and Patient Management Study</b>	Memory clinics	<b>900</b>	<b>300</b>	<b>1200</b>
<b>Study 2: Longitudinal Cohort Study (EPAD) Supports PoC studies</b>	Natural history cohorts	<b>2000</b>	<b>1000</b>	<b>3000</b>
	Total subjects	<b>2900</b>	<b>1300</b>	<b>4200</b>



# **Diagnostic and Patient Management Study (DPMS)**







- **Medical Management Changes post-PET:**
  - 67.8% of MCI patients (47.8% change in AD drugs, 36.0% change in other drugs, 23.9% changes in counseling)
  - 65.9% of dementia patients (47.7% change in AD drugs, 32.2% change in other drugs, 15.3% change in counseling);
- **Need for additional testing post-PET:**
  - Reduced need when amyloid PET scans were made from 26.3% to 11.0% in neuropsychological testing and from 10.5% to 1.0% in spinal fluid testing



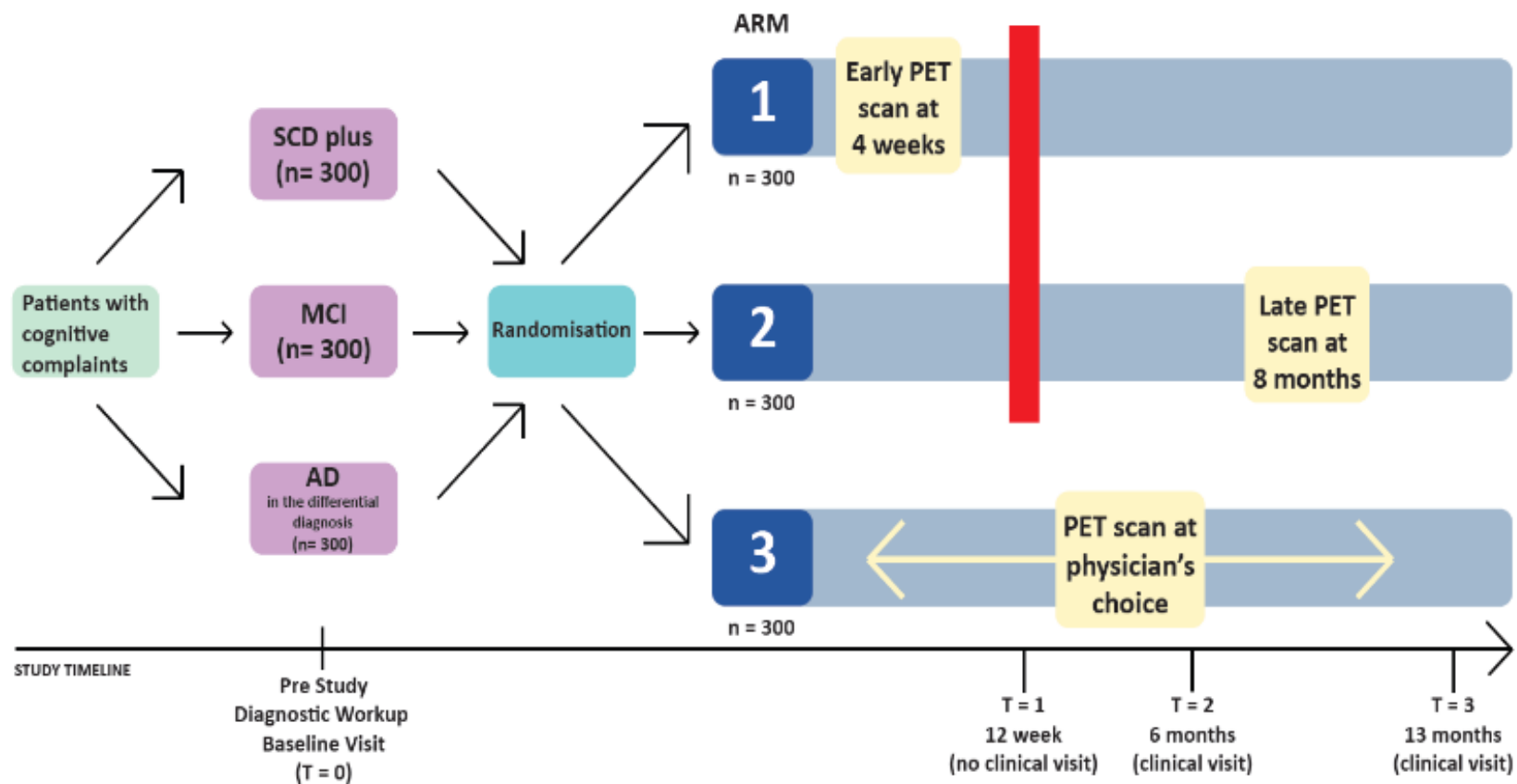
	Dementia		MCI		SCD	
	AD	non-AD	AD	non-AD	AD	non-AD
<i>n</i>	164	70	72	42	16	143
Amyloid PET, positive (%)	128 (78%)	23 (33%)	45 (63%)	10 (24%)	6 (38%)	30 (21%)
Change in syndrome	4 (2%)	0 (0%)	2 (3%)	6 (14%)	1 (6%)	4 (3%)
Change in etiology	36 (22%)	14 (20%)	27 (38%)	11 (26%)	10 (63%)	27 (19%)

Overall, 25% change in diagnosis. Due to negative amyloid PET in 66% Demented: 21% change. Non-demented: 27% change.

# Study design and objectives

What is the effect of using amyloid PET imaging in the clinic for:

- ❖ Physicians confidence in etiological diagnosis
- ❖ Patient management
- ❖ Health-care resource utilization
- ❖ Patient-related outcomes

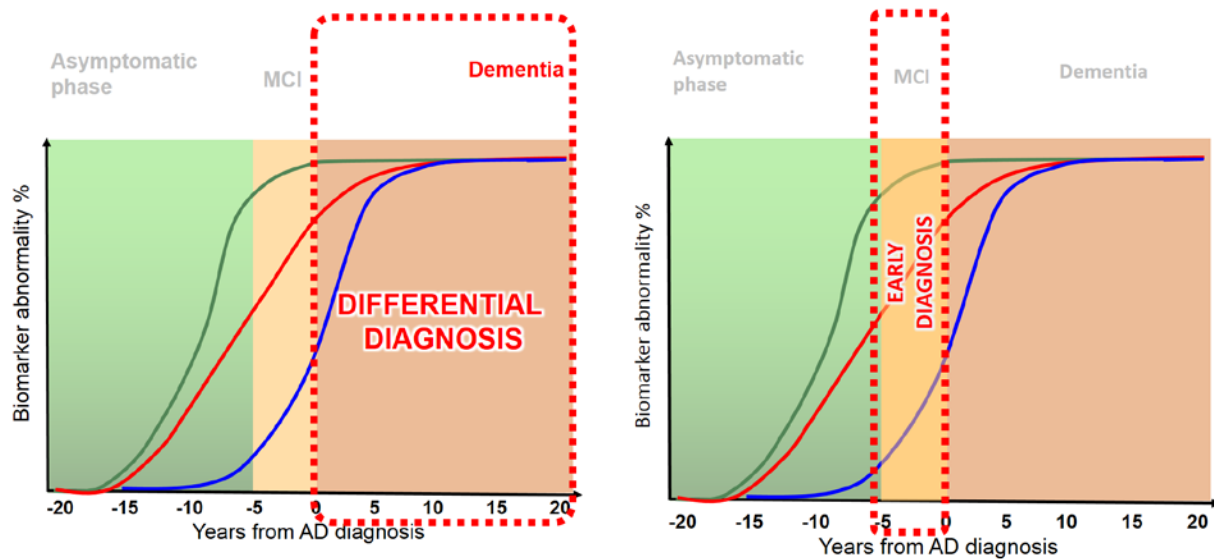




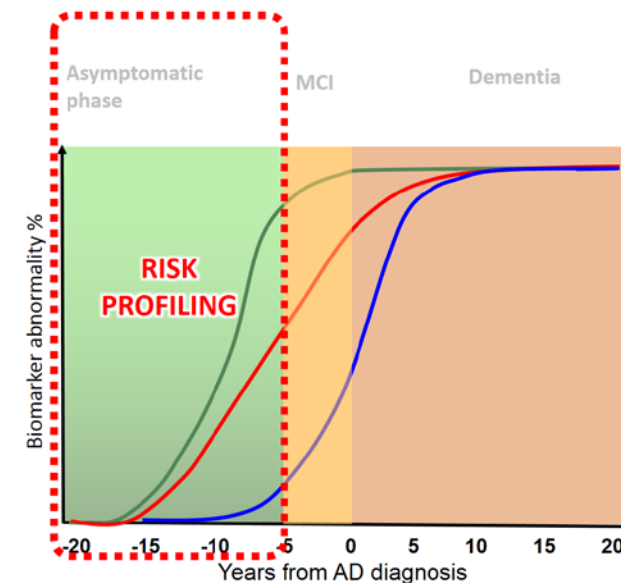
# **Prognostic and Natural History Study (PNHS)**



## AMYPAD Diagnostic Study



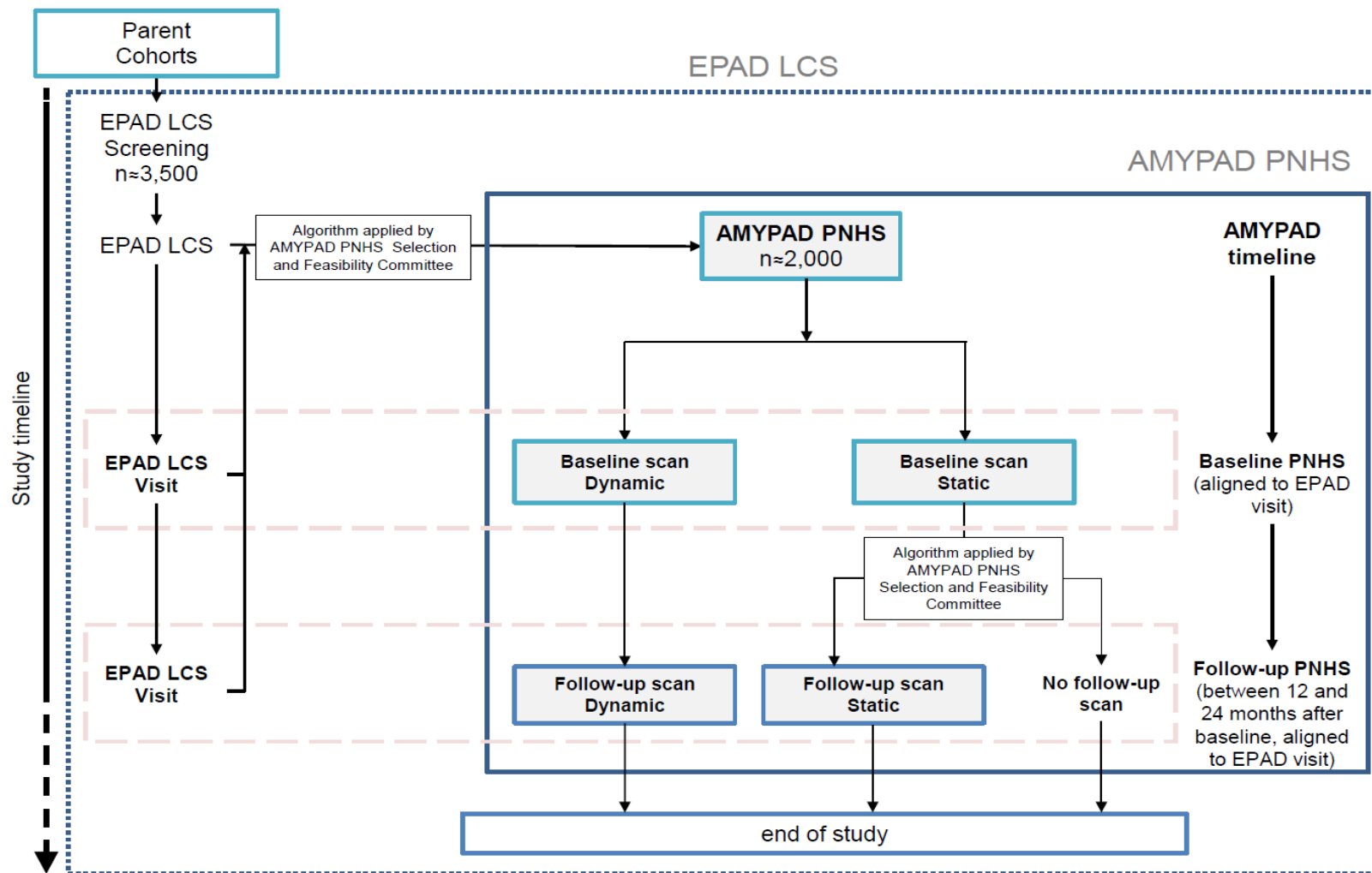
## AMYPAD Prognostic Study



# Study design and objectives

What is the value of amyloid PET imaging to:

- ❖ Determine a risk of progression to AD dementia
- ❖ Individualize that risk
- ❖ Understand the natural history of the disease
- ❖ Support preventive trials in accurate participant selection and measurement of treatment effects

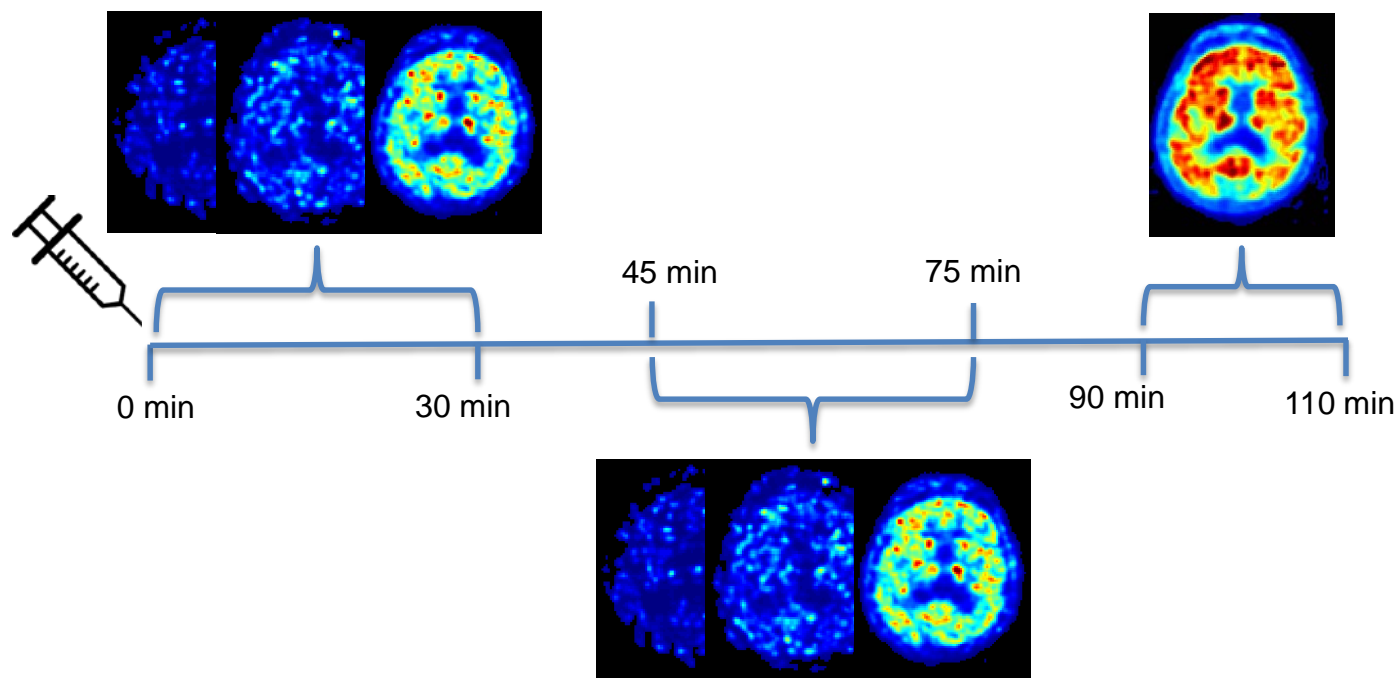


# AMYPAD today

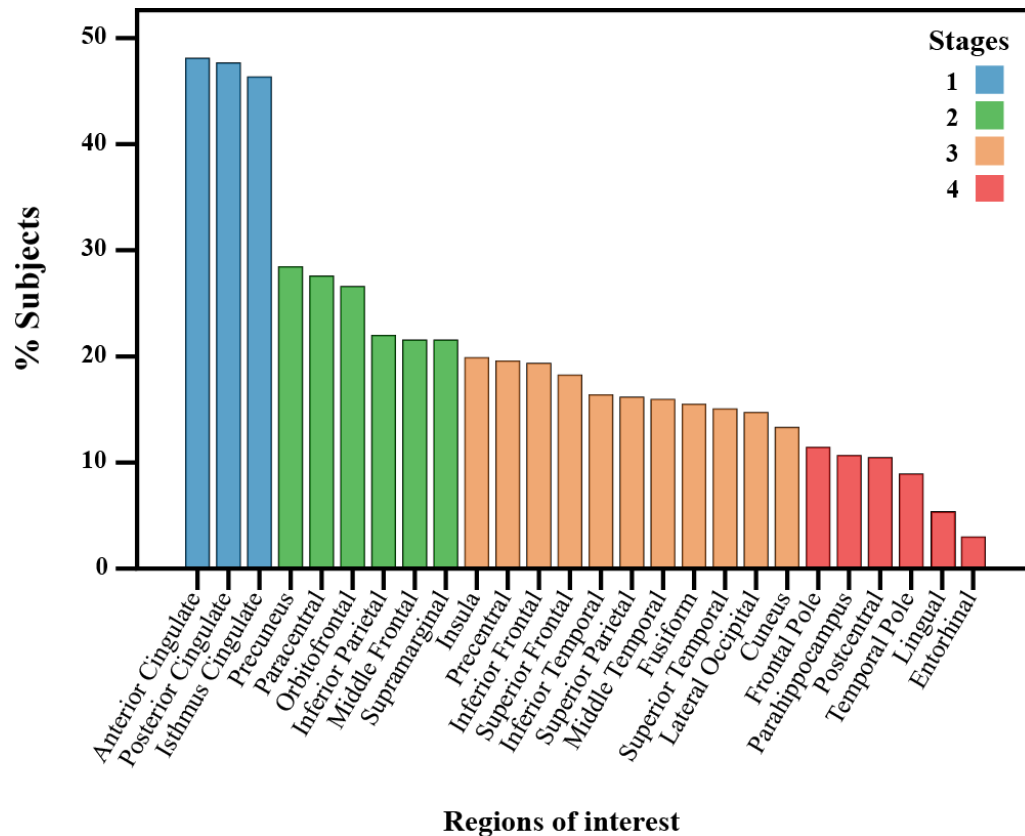


# Delivering from the get-go!

An imaging protocol to deliver **high-quality** efficiently and with comfort to the patient/participant



## Collection of external data sets (RE-USE) to understand earliest stages of AD





# Delivering from the get-go!

Collection of external data sets (RE-USE) to understand earliest stages of AD



# Delivering from the get-go!

...both studies ongoing to deliver much more

**Diagnostic and  
Patient Management Study  
(DPMS)**



**Prognostic and  
Natural History Study  
(PNHS)**

**58 patients randomized, 19 scanned**

**6 participants included, 1 scanned**

**3 sites recruiting, 5 more on board before spring**

**1 site recruiting, 4 more on board before spring  
and 6 more on board by summer**

**The addition of TWO sub-studies to understand the biomarker  
disclosure process and its impact on patients**



Radboudumc



GE Healthcare



SYNAPSE



Karolinska Institutet



Thank you!

