UTILIZATION AND CHANGE OF ALZHEIMER'S DISEASE DIAGNOSTIC TOOLS OVER A 3-YEAR PERIOD IN THE US AND EUROPE

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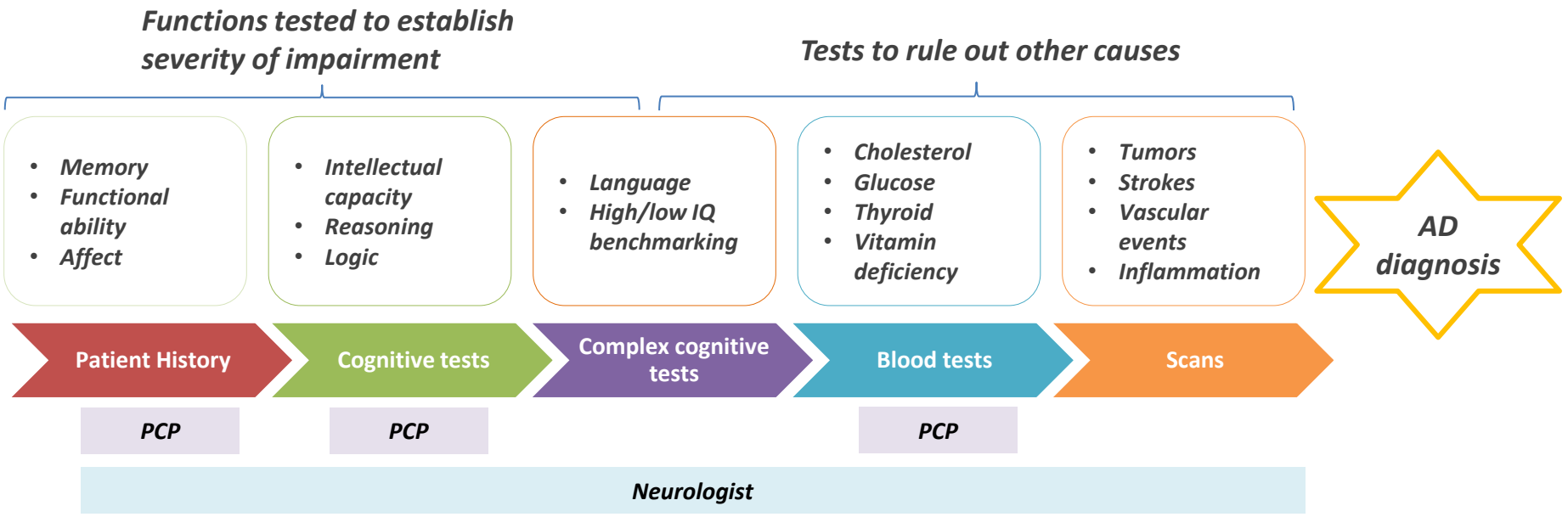
Background

- Current AD Diagnostic Scenario

- ***Early detection*** of Alzheimer's disease (AD) is critical for early treatment initiation, and better planning and managing the needs of the patient
- However, ***a definitive tool for diagnosing AD during life is lacking***
- This results in a complex work-up to ***identify the core clinical symptoms*** of the disease while ***excluding other possible causes of cognitive impairment (CI)***.



Background

- AD Diagnostic Tools

Cognitive tests

- **Full MMSE (***Mini Mental State Examination***)**
- **Clock Draw test**
- **ADAS-Cog (***Alzheimer's Disease Assessment Scale - Cognition***)**
- **Mini-Cog**
- **CIBIC (***Clinician's Interview-Based Impression of Change***)**
- **CAMDEX (***Cambridge Mental Disorders of the Elderly Examination***)**
- **GP COG (***General Practitioner Assessment of Cognition***)**
- **CDR (***Clinical Dementia Rating***)**
- **BIMC (***Blessed Information-Memory-Concentration***)**

Blood tests

- **ApoE (***Apolipoprotein E genotying***)**
- **B12 (***vitamin B12 level***)**
- **Thyroid**

Scans

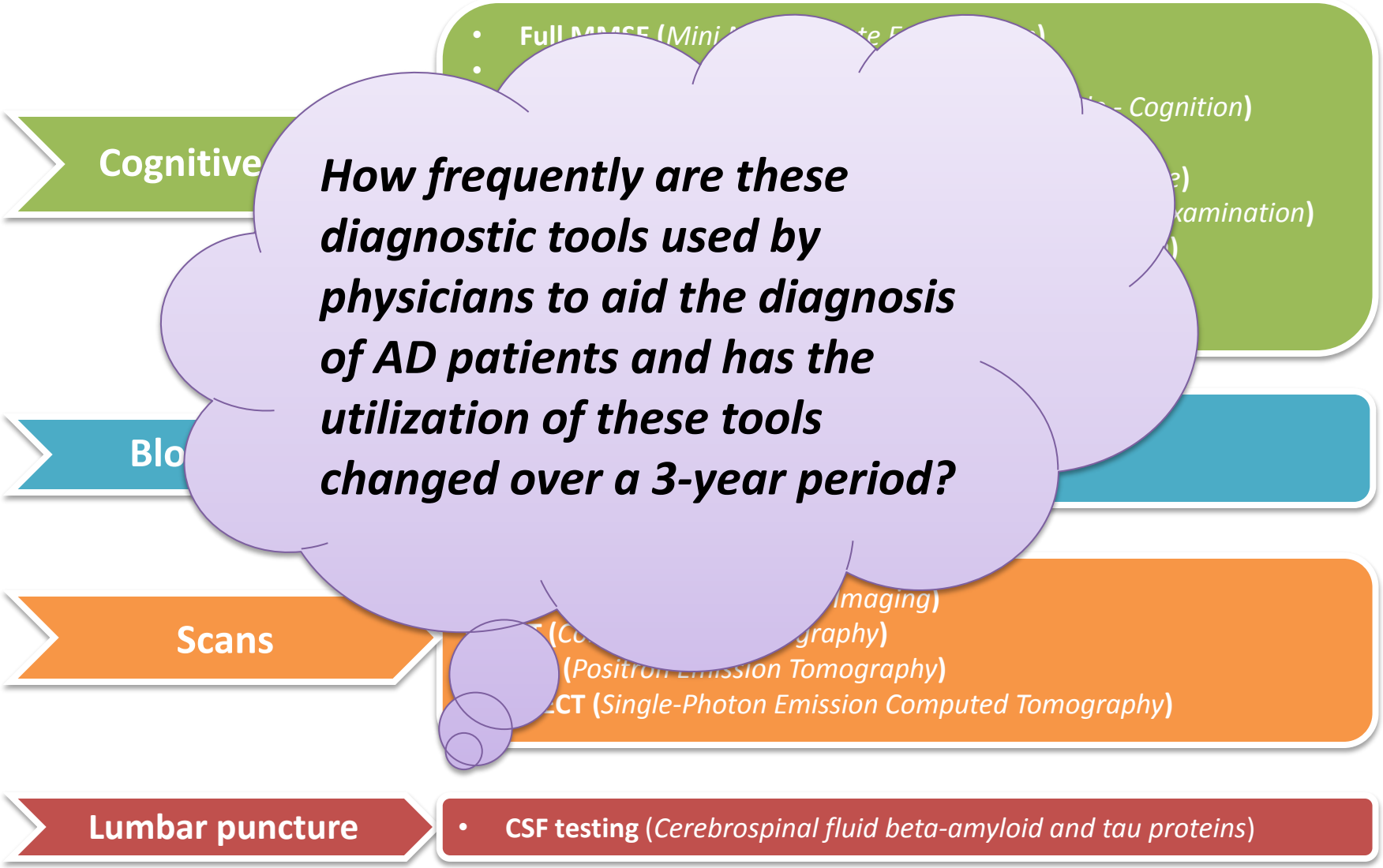
- **MRI (***Magnetic Resonance Imaging***)**
- **CT (***Computerised Tomography***)**
- **PET (***Positron Emission Tomography***)**
- **SPECT (***Single-Photon Emission Computed Tomography***)**

Lumbar puncture

- **CSF testing** (*Cerebrospinal fluid beta-amyloid and tau proteins*)

Background

- AD Diagnostic Tools



Methodology

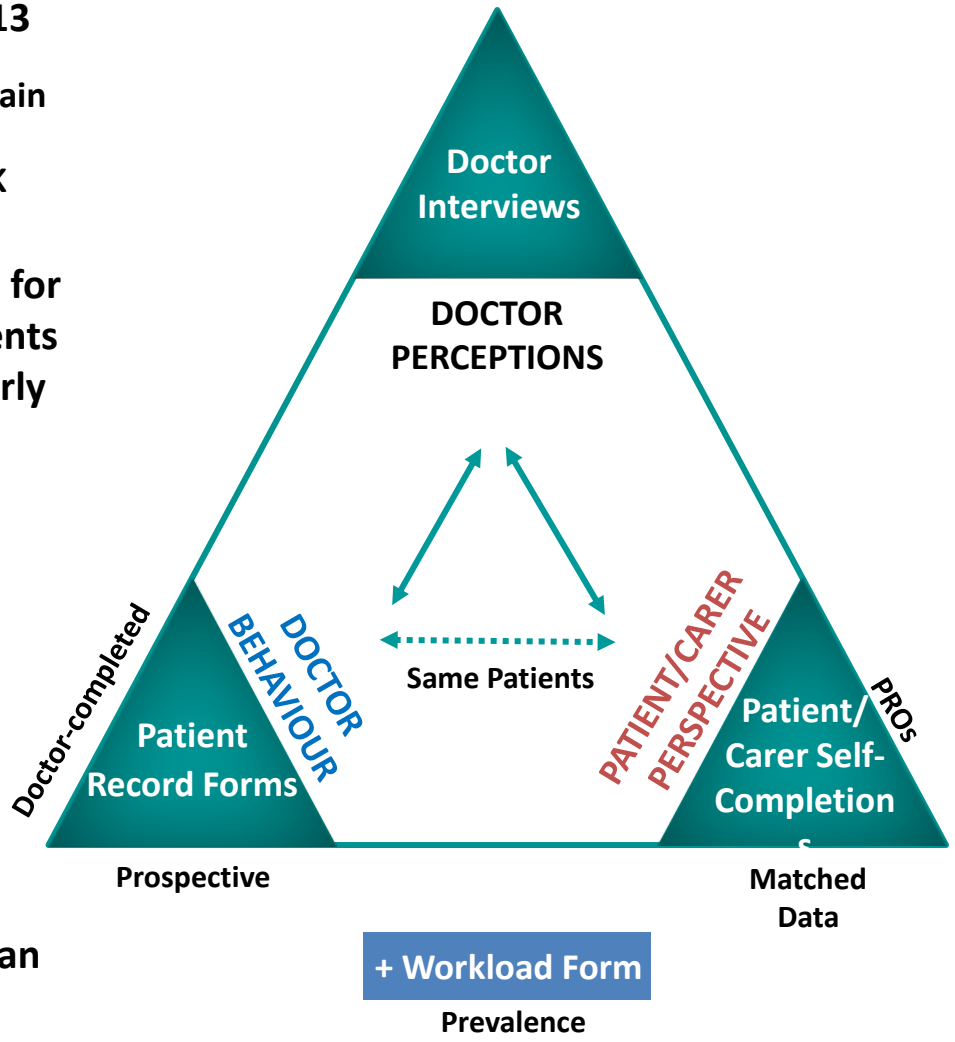
- Adelphi Real World Dementia Disease Specific Programme (DSP)

- Multinational and cross-sectional surveys of patients over 50 with CI and their physicians in 2010 and 2013

France USA Spain

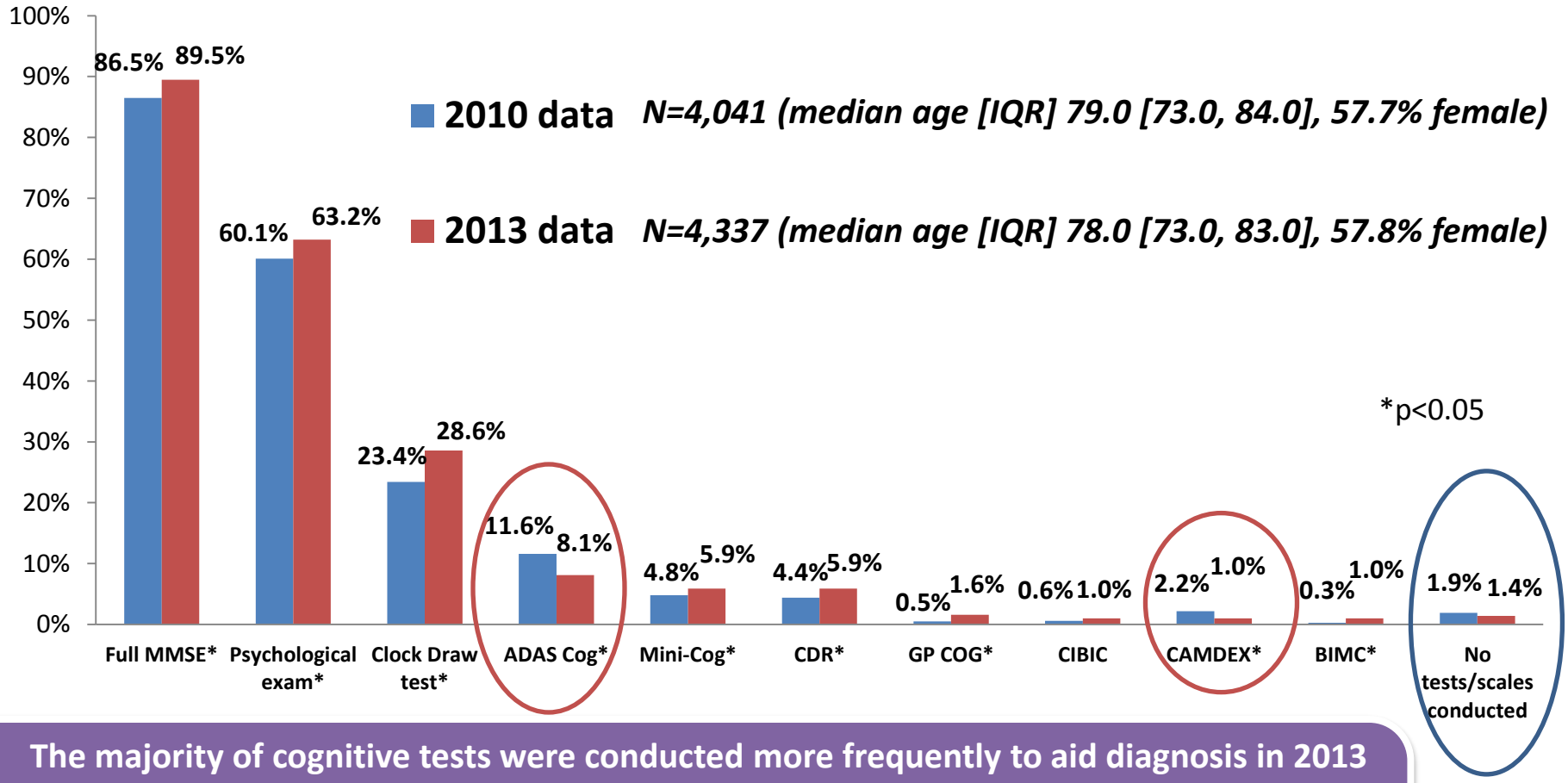
Germany Italy UK

- Physicians completed a patient record form for their next nine consecutive consulting patients with CI and one additional patient in the early stages of CI
- Diagnostic tools used to aid the diagnosis were recorded and compared between the 2010 and 2013 DSP data
- 2013 data were further stratified by
  - *MMSE at diagnosis*
  - *Age at diagnosis*
  - *Time since diagnosis*
- This analysis focused only on patients with an AD diagnosis.



What has changed in utilization of AD diagnostics?

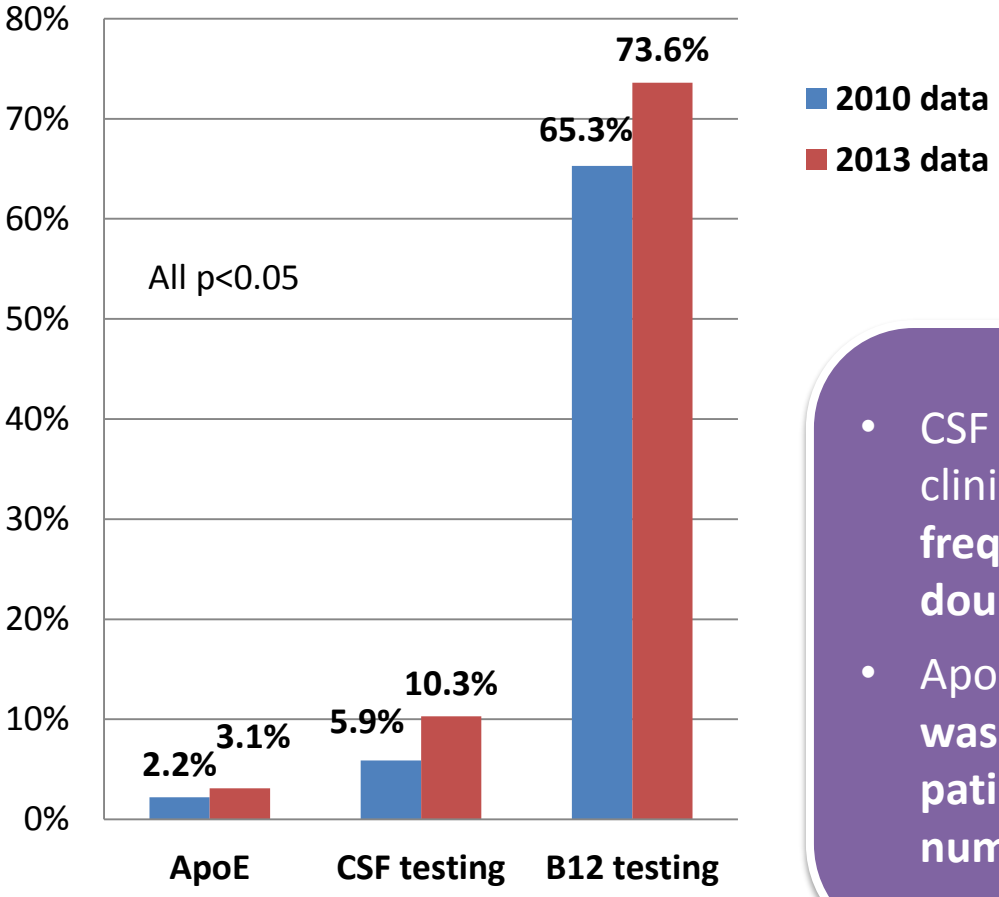
- 2010 and 2013 data comparison: ***Cognitive tests***



- **The majority of cognitive tests were conducted more frequently to aid diagnosis in 2013 compared to 2010, with the exception of the ADAS-Cog and CAMDEX** (*Cambridge Mental Disorders of the Elderly Examination*)
- **Over time, MMSE and psychological exams have remained as the two most frequently used cognitive tests**

What has changed in utilization of AD diagnostics?

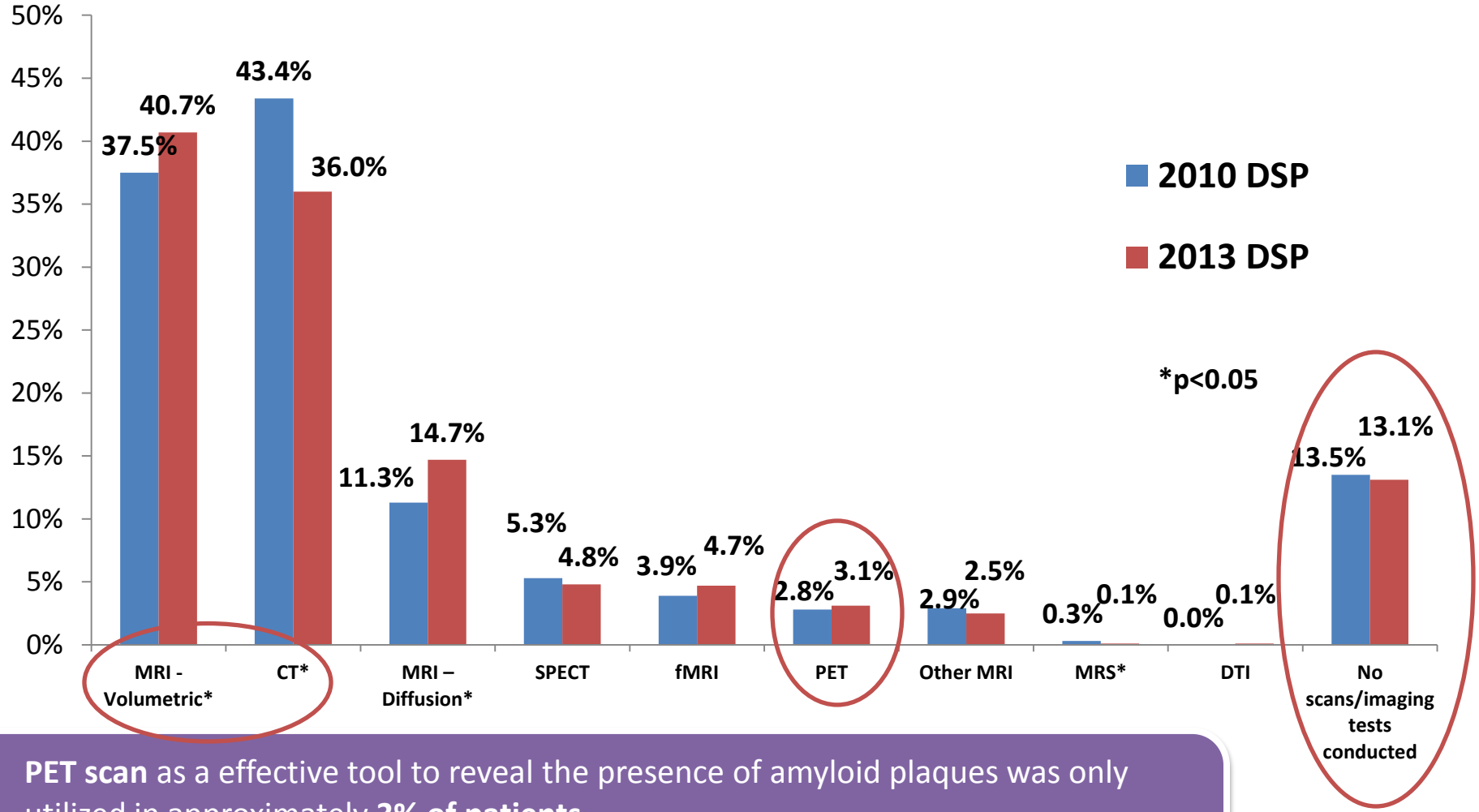
- 2010 and 2013 data comparison: ***ApoE , CSF and B12 testing***



- CSF testing as one of the state-of-art clinical diagnosis of AD **was used more frequently in patients in 2013, almost double the number of patients in 2010**
- ApoE ε4, a major genetic risk factor for AD, **was also more frequently tested in patients in 2013, but only in a small number of patients**

What has changed in utilization of AD diagnostics?

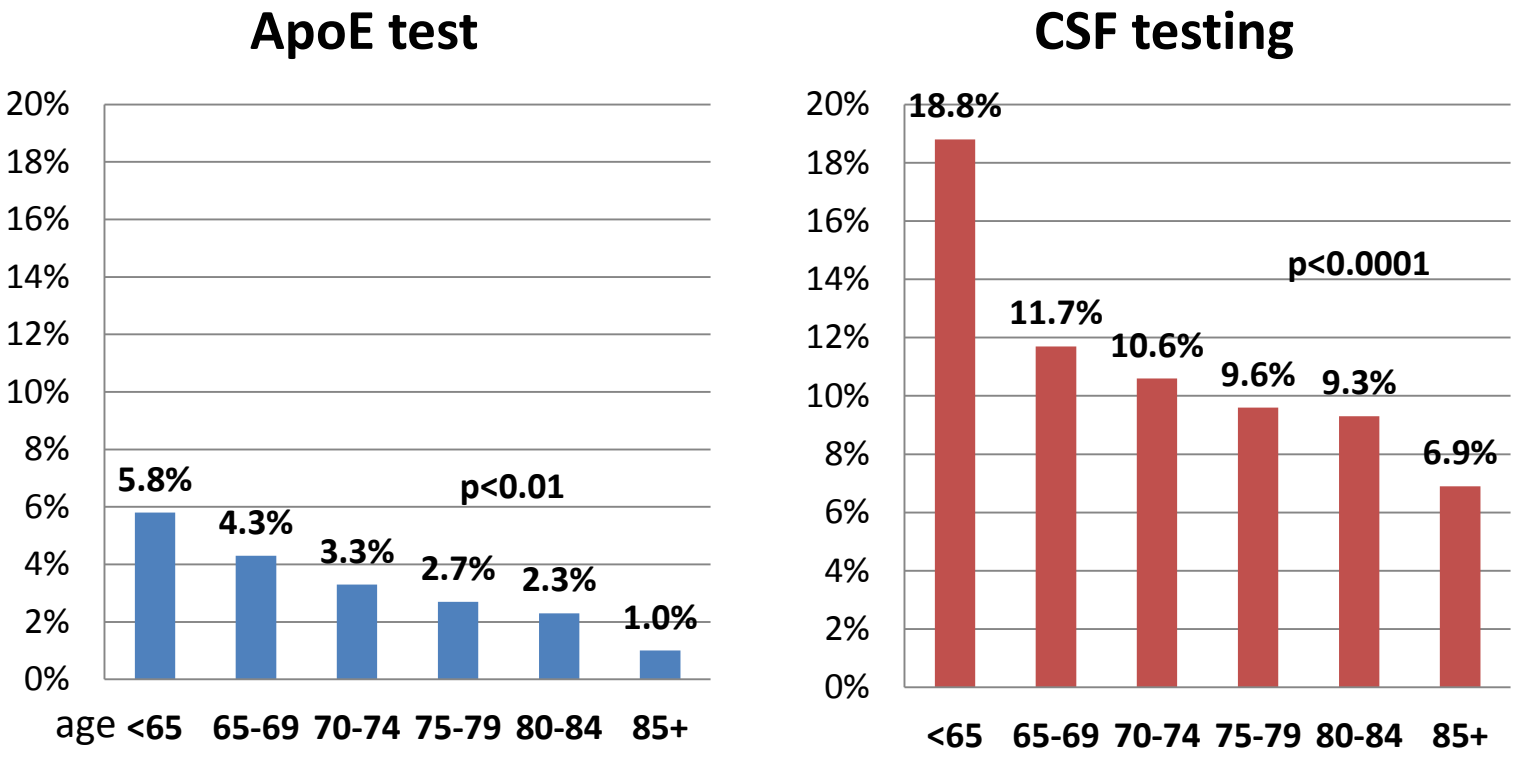
- 2010 and 2013 data comparison: ***Scans***



- **PET scan** as a effective tool to reveal the presence of amyloid plaques was only utilized in approximately **3% of patients**
- In 2013 there was still a considerable proportion of patients where the physician **didn't use any scans to aid the diagnosis AD**

Which factors drove the use of certain tests?

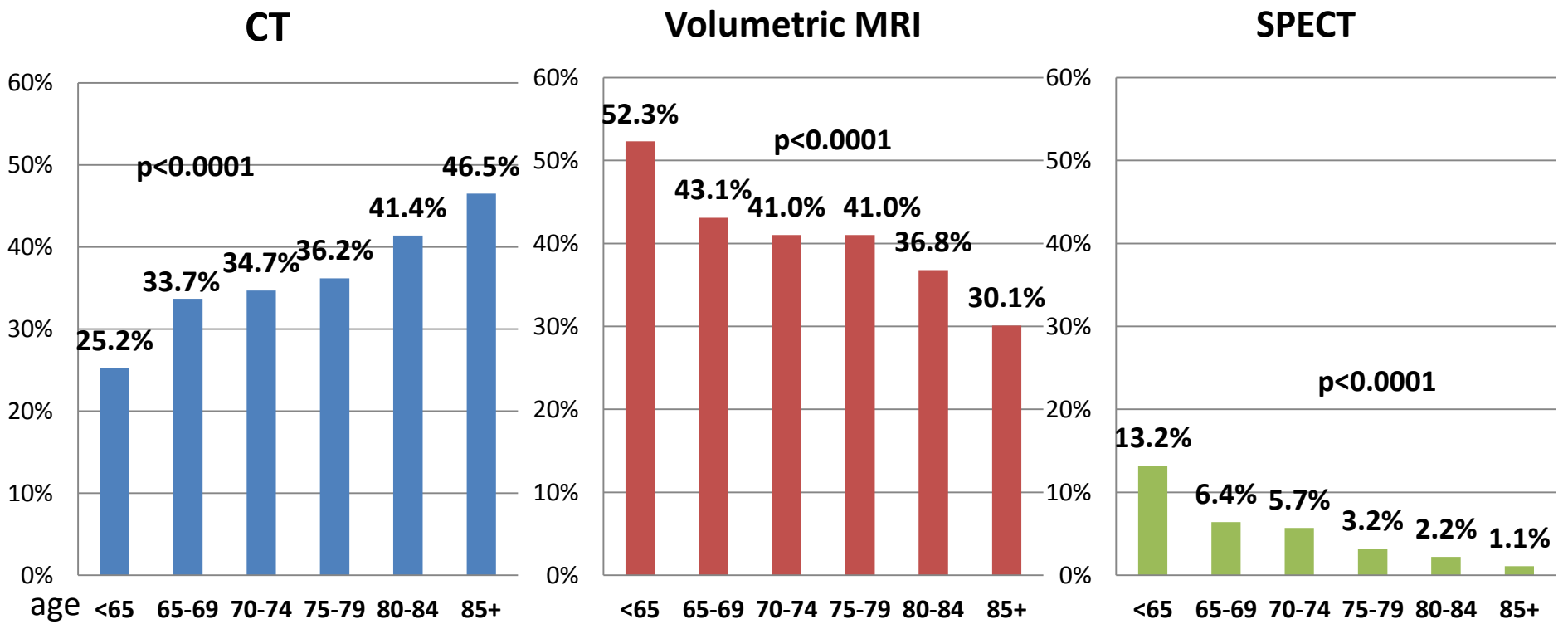
- 2013 data stratified by **<u>age at diagnosis</u>**: ***ApoE and CSF testing***



The **older** a patient was at diagnosis, the **less likely** they were to receive an **ApoE or CSF test to aid** their diagnosis

Which factors drove the use of certain tests?

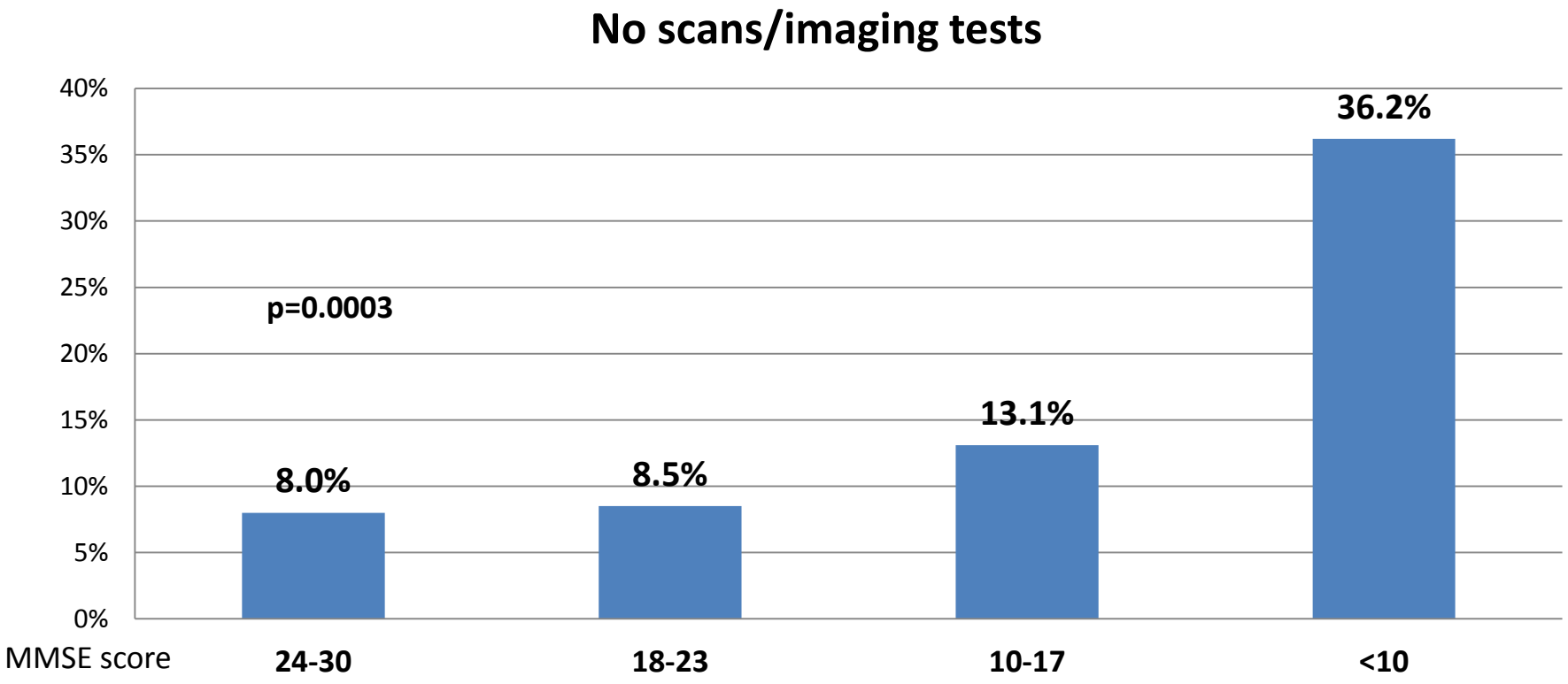
- 2013 data stratified by **age at diagnosis**: ***Scans***



- The **older** a patient was at diagnosis
  - ➢ the **more likely** they were to receive **CT scan to aid their diagnosis**
  - ➢ the **less likely** they were to receive **volumetric MRI or SPECT to aid their diagnosis**

Which factors drove the use of certain tests?

- 2013 data stratified by **MMSE at diagnosis**: ***No scans/imaging***



Patients with a **worse MMSE at diagnosis** were **more likely** to have **no scans/imaging** conducted to aid diagnosis

Conclusions

- implications from the results

- **Severity of CI** and **age at diagnosis** appear to drive the likelihood of physicians using certain tests to aid the diagnosis of AD in patients
- More advanced diagnostic tools like scans are still not widely utilized in clinical practice – highlighting the need to **increase physician awareness**
- Early diagnosis of AD will be aided by **reliable diagnostic tools** that enable physicians to make a diagnosis **before symptoms are clinically evident**; such advances can lead to early detection and **opportunity for early intervention**
- However it should be noted that none of these tests are yet able to prove a diagnosis of AD on their own, highlighting **the continued importance of a detailed case history in making the diagnosis of AD**