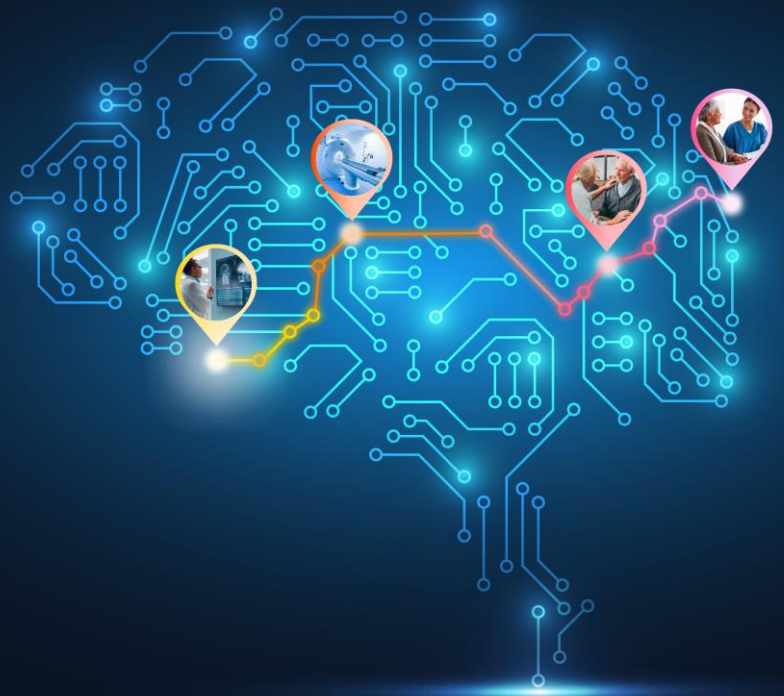
SYMPOSIUM

Clinical care pathway for Alzheimer's disease: Driving improvements in diagnosis



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Expert panel

Dr Sharon Cohen (Chair)
Toronto Memory Program,
Toronto, ON, Canada

Prof. Sven Haller
Centre d'Imagerie Médicale Cornavin,
Geneva, Switzerland

Dr Ronan Factora
Cleveland Clinic,
Cleveland, OH, USA

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Agenda

Introduction and welcome
Dr Sharon Cohen

Early and accurate diagnosis of AD in the DMT era
Dr Sharon Cohen

Imaging and fluid biomarkers in the pathway to AD diagnosis
Prof. Sven Haller

Collaborative patient-centred care across the AD continuum
Dr Ronan Factora

Summary and close
Dr Sharon Cohen

Each session will include interactive audience polling, a patient case study and audience Q&As

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Learning objectives

1. Summarize the value of an early and accurate Alzheimer's disease diagnosis for optimal patient outcomes in an era of disease-modifying therapies
2. Outline the steps to diagnosis of Alzheimer's disease and the recommended tests and assessments to support a biological diagnosis
3. Assess the role of the multidisciplinary team in supporting a patient with Alzheimer's disease along the disease continuum

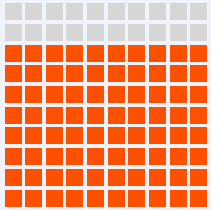
Early and accurate diagnosis of AD in the DMT era

Dr Sharon Cohen
Toronto Memory Program,
Toronto, ON, Canada

AD facts and figures

The timely and accurate diagnosis of AD is an unmet need in clinical practice

1 in 3 seniors die with AD or another dementia*[1]



AD accounts for **60–80%** of all dementia cases*[2]

In primary care, **>50%** of patients with cognitive impairment are not recognized/correctly diagnosed[3]

Diagnosis is often **delayed** by **~2–3 years** after symptom onset[4]

It is estimated that **75%** of people with dementia remain **undiagnosed** worldwide[5]

*Based on US data.

AD, Alzheimer's disease.

1. Alzheimer's Association. 2023. Available at: www.alz.org/media/Documents/alzheimers-facts-and-figures-infographic.pdf (accessed 14 September 2023);
2. Alzheimer's Association. *Alzheimers Dement*. 2023;19:1598–695; 3. Angioni D, et al. *J Prev Alzheimers Dis.* 2022;9:569–79;
4.Sabbagh MN, et al. *Neurol Ther*. 2017;6(Suppl. 1):83–95; 5. Gauthier S, et al. Available at: www.alzint.org/u/World-Alzheimer-Report-2022.pdf (accessed 14 September 2023).

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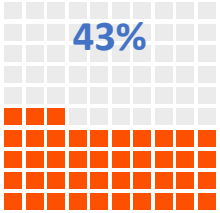
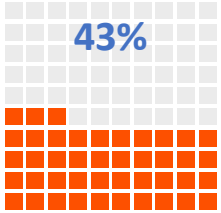
Barriers to diagnosis of MCI or AD*

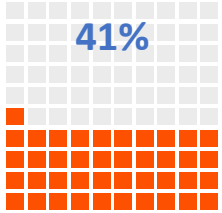
Clinician factors



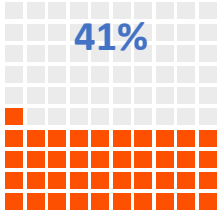
Lack of definitive tests



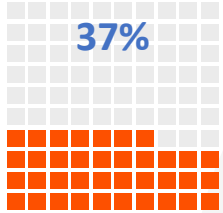
Waiting lists too long



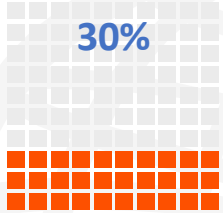
Limited treatment options restrict value of diagnosis



Belief that symptoms are part of normal ageing

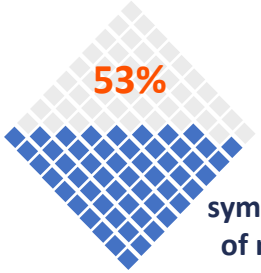


Concern about impact of diagnosis on patient



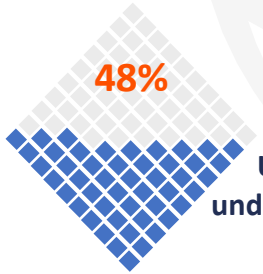
Lack of diagnostic pathway or diagnostic tools

Patient factors



Belief that symptoms are part of normal ageing

Patients not disclosing symptoms



Unwillingness to undergo further testing

*Data from a cross-sectional survey of 1,365 PCPs and specialists (geriatricians, neurologists, psychiatrists and psychogeriatricians) from Europe (France, Germany, Italy, Spain and the UK), USA and Canada, who routinely manage patients with complaints of age-related cognitive impairment.
AD, Alzheimer's disease; MCI, mild cognitive impairment; PCP, primary care physician.
Judge D, et al. *Int J Alzheimers Dis*. 2019;2019:3637954.

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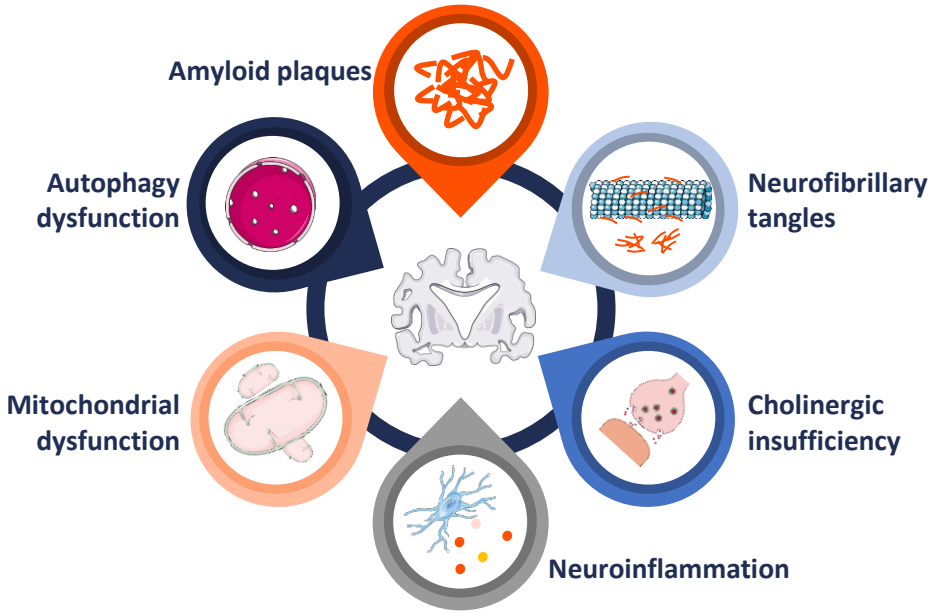
The complexity of AD

Pathophysiology[1]



Symptoms[2]

- Forgetting recent events; disoriented to time/place
- Difficulty naming objects or using the wrong name
- Misplacing belongings; difficulty with way-finding
- Difficulty concentrating; difficulty multitasking
- Difficulty with object use; difficulty with calculation
- Reduced problem solving, planning, organizing
- Decreased insight and poor judgement
- Decreasing ability to perform IADL then BADL
- Apathy, anxiety, depression, agitation, sleep disturbance, delusions, social withdrawal

AD, Alzheimer's disease; BADL, basic activity of daily living; IADL, instrumental activities of daily living.
1. Dhapola R, et al. *Inflammopharmacology*. 2021;29:1669–81; 2. Alzheimer's Association. *Alzheimers Dement*. 2023;19:1598–695.

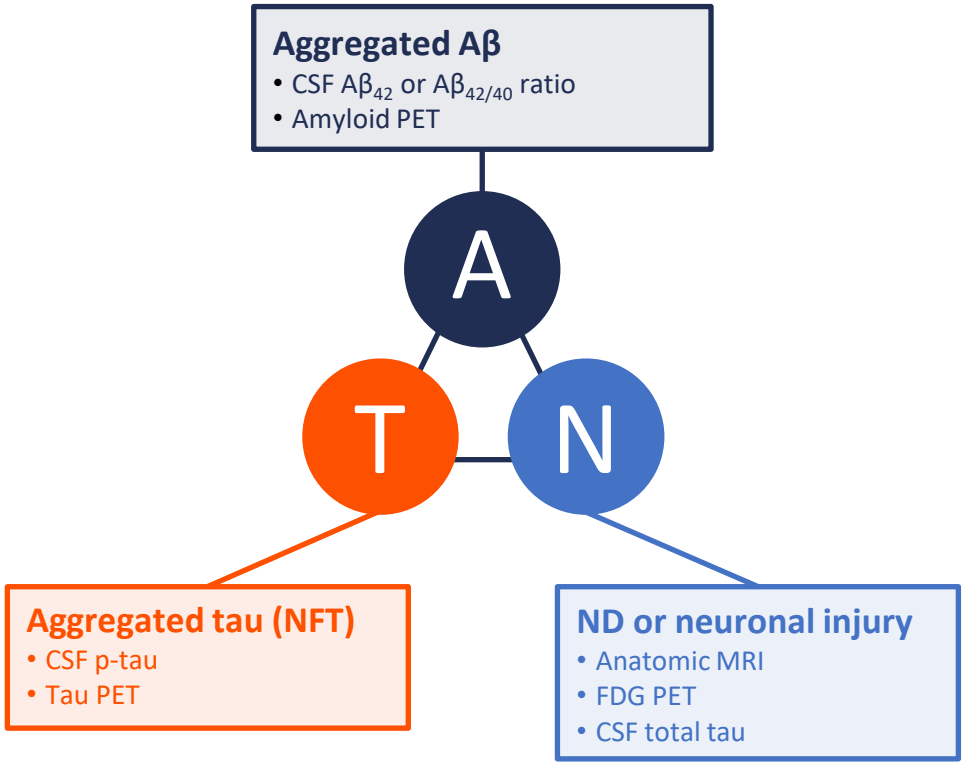
Why an early and accurate diagnosis matters

- Acknowledges patient and family concerns and their need for diagnostic certainty[1,2]
- Determines appropriate pharmacological treatment, including eligibility for newly approved DMTs[1,2]
- Enables patients to plan for the future when they can still be involved in decision making[1,2]
- Can promote shared management[1,2]
- Facilitates access to individualized support services for patient and family[1,2]
- Demystifies and destigmatizes AD[1,2]
- Avoidance of dangerous and challenging behaviour (e.g. traffic accidents, stoves left on)[1,2]
- Helps facilitate treatment or management of coexisting conditions that may worsen cognitive function[1,2]

AD, Alzheimer's disease; DMTs, disease-modifying therapy.

1. Dubois B, et al. *J Alzheimers Dis*. 2016;49:617–31; 2. Alzheimer's Disease International. Available at: www.alzint.org/about/symptoms-of-dementia/importance-of-early-diagnosis/ (accessed 14 September 2023).

The ATN biomarker classification



ATN profile	Biomarker category
A - T - N -	Normal AD biomarkers
A + T - N -	AD pathologic change
A + T + N -	AD
A + T + N +	AD
A + T - N +	AD and concomitant suspected non-AD pathologic change
A - T + N -	Non-AD pathologic change
A - T - N +	
A - T + N +	

AD continuum

Aβ, amyloid-beta; AD, Alzheimer's disease; ATN, amyloid/tau/neurodegeneration; CSF, cerebrospinal fluid; FDG, fluorodeoxyglucose; MRI, magnetic resonance imaging; ND, neurodegeneration; NFT, neurofibrillary tangle; p-tau, phosphorylated tau; PET, positron emission tomography.

Jack CR Jr, et al. *Alzheimers Dement*. 2018;14:535–62.

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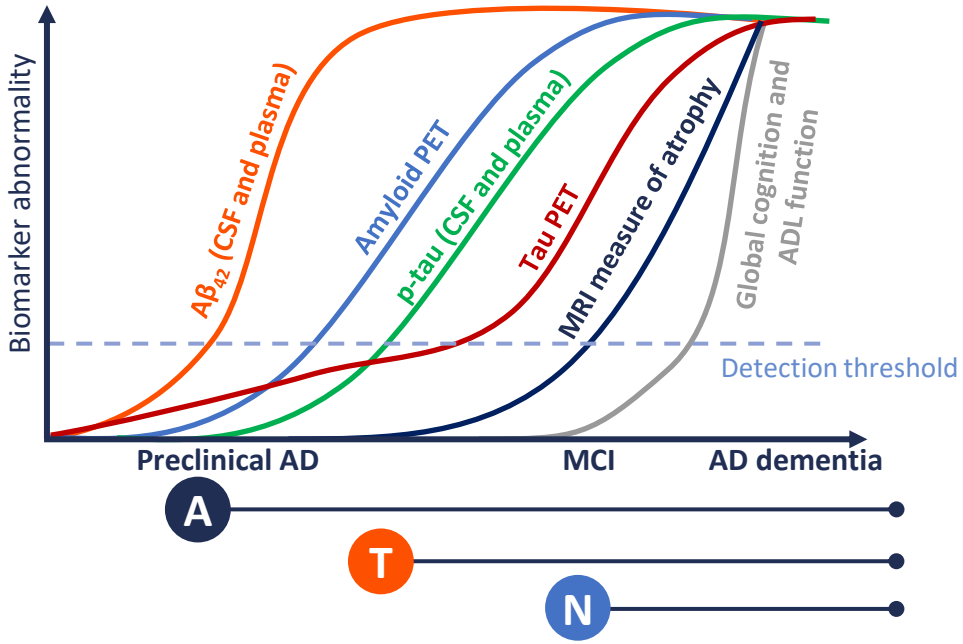
Biomarker trajectories in AD

Biomarkers and the ATN classification[1–3]



Aβ, amyloid-beta; AD, Alzheimer's disease; ADL, activities of daily living; ATN, amyloid/tau/neurodegeneration; CSF, cerebrospinal fluid; MCI, mild cognitive impairment; MRI, magnetic resonance imaging; p-tau, phosphorylated tau; PET, positron emission tomography.

1. Hansson O. *Nat Med*. 2021;27:954–63; 2. McDade E, et al. *Alzheimers Dement (N Y)*. 2020;6:e12069; 3. Counts SE, et al. *Neurotherapeutics*. 2017;14:35–53.

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Beyond the ATN biomarker classification

NIA-AA Revised Clinical Criteria for AD: AD may be diagnosed by any abnormal core AD biomarker

			FLUID	IMAGING
Core biomarkers	A	Aβ proteinopathy	$Aβ_{42/40}$	Amyloid PET
	T	AD tau proteinopathy	p-tau181, p-tau217	Tau PET
Non-specific biomarkers of AD pathophysiology	N	Injury, dysfunction or degeneration of neuropil	NfL	Anatomic MR, FDG PET
	I	Inflammation	GFAP	
Biomarkers of non-AD co-pathology	V	Vascular brain injury		Anatomic infarction, WMH abundant dilated perivascular spaces
	S	α-Synuclein	αSyn-SAA*	

*Only informative when measured in CSF.

Aβ , amyloid-beta; AD, Alzheimer's disease; ATN, amyloid/tau/neurodegeneration; CSF, cerebrospinal fluid; FDG, fluorodeoxyglucose; GFAP, glial fibrillary acidic protein; MR, magnetic resonance; NfL, neurofilament light chain; NIA-AA, The National Institute on Aging and the Alzheimer's Association; p-tau, phosphorylated tau; PET, positron emission tomography; WMH, white matter hyperintensities.

NIA-AA. 2023. Available at: https://aaic.alz.org/downloads2023/NIA-AA-Revised-Clinical-Criteria-AAIC-2023.pdf (accessed 14 September 2023).

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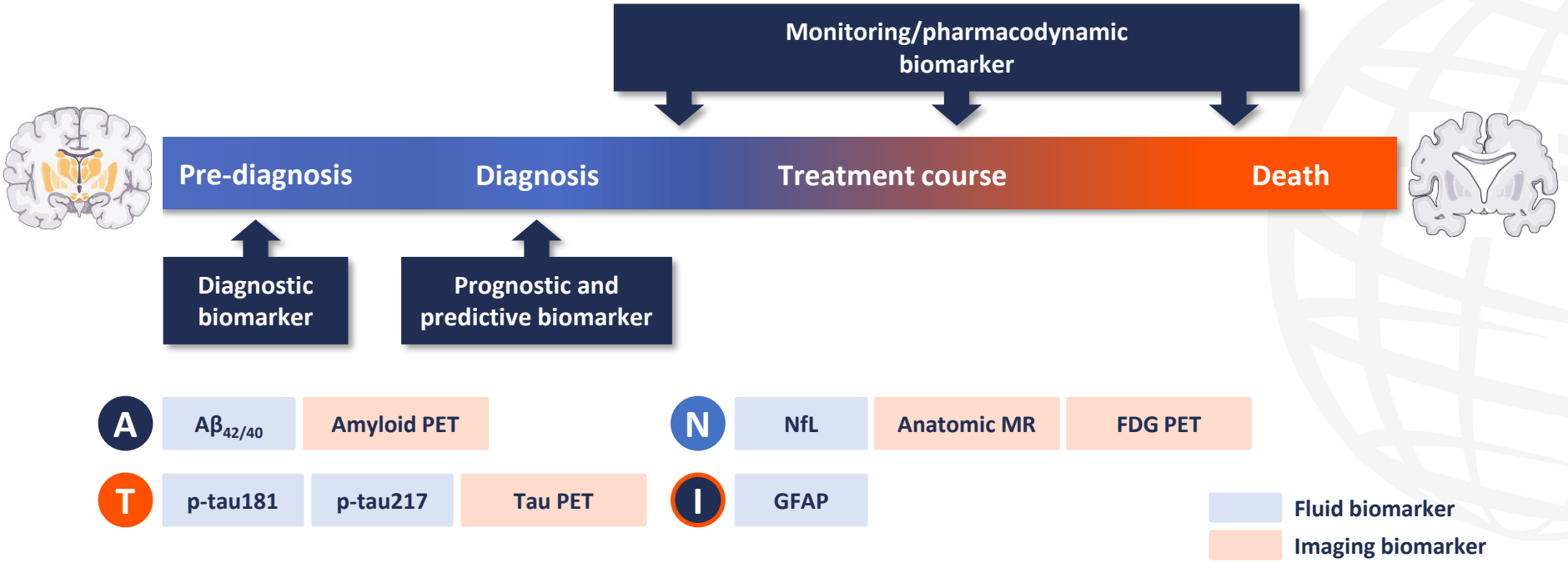
Biomarkers across the clinical continuum[1,2]



Aβ , amyloid-beta; FDG, fluorodeoxyglucose; GFAP, glial fibrillary acidic protein; MR, magnetic resonance; NfL, neurofilament light chain; NIA-AA, The National Institute on Aging and the Alzheimer's Association; p-tau, phosphorylated tau; PET, positron emission tomography; 1. Cummings J, Kinney J. *Medicina (Kaunas)*. 2022;58:952; 2. NIA-AA. 2023. Available at: https://aaic.alz.org/downloads2023/NIA-AA-Revised-Clinical-Criteria-AAIC-2023.pdf (accessed 14 September 2023).

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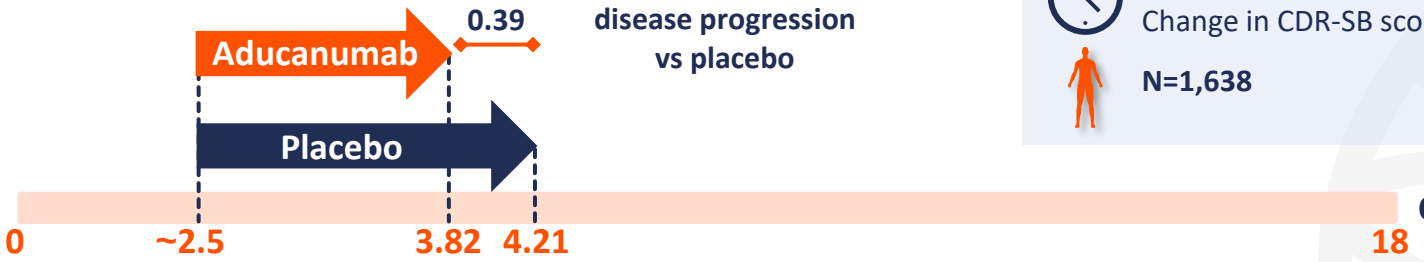
Amyloid-targeting therapies: FDA approved

Aducanumab[1]

EMERGE



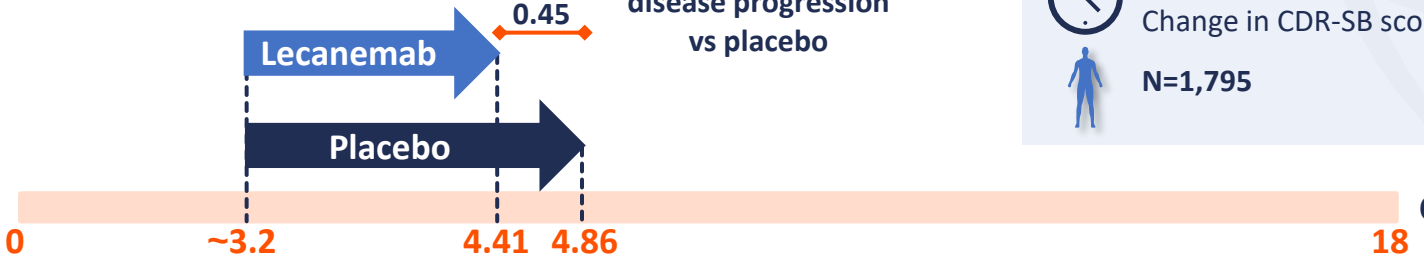
22% slowing of disease progression vs placebo

Primary endpoint:
Change in CDR-SB score at 78 weeks

N=1,638

Lecanemab[2,3]

Clarity AD



27% slowing of disease progression vs placebo

Primary endpoint:
Change in CDR-SB score at 18 months

N=1,795

Direct comparisons between trials should not be made due to differences in trial design.
CDR-SB, Clinical Dementia Rating–Sum of Boxes; FDA, US Food and Drug Administration.

1. Budd Haeberlein S, et al. *J Prev Alzheimers Dis*. 2022;9:197–210; 2. van Dyck CH, et al. *N Engl J Med*. 2023;388:9–21.

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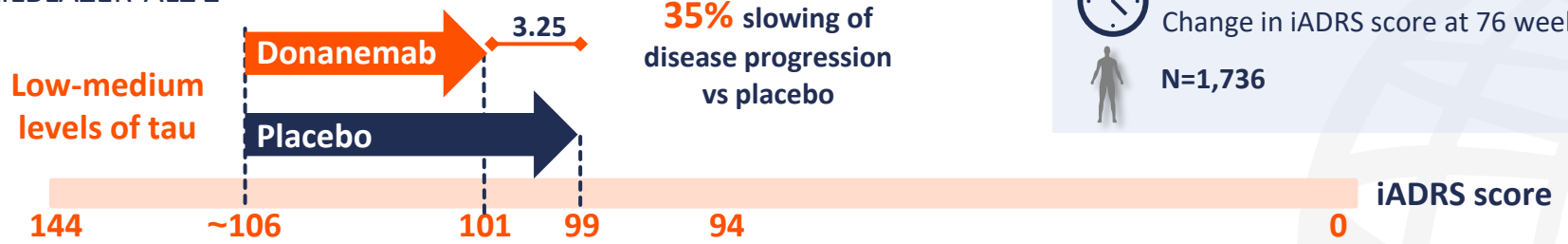
Amyloid-targeting therapies: Under review

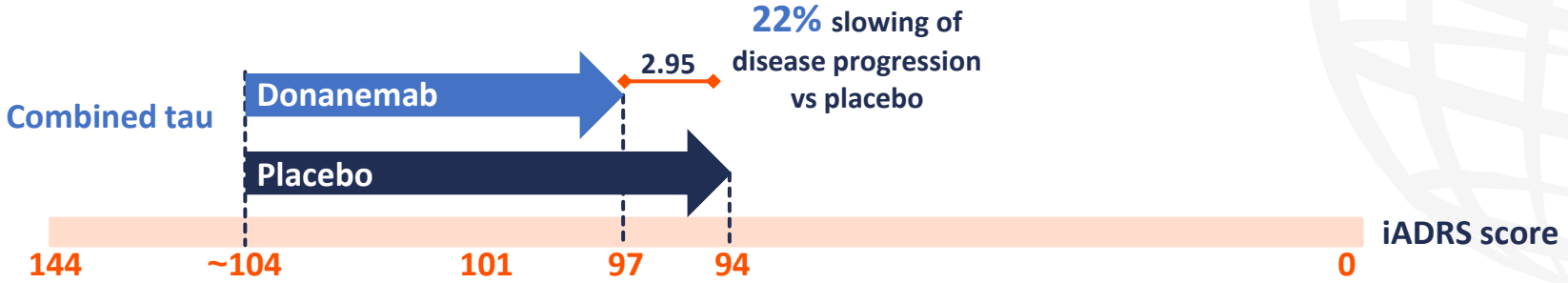
Donanemab[1,2]

TRAILBLAZER-ALZ 2



Primary endpoint:
Change in iADRS score at 76 weeks

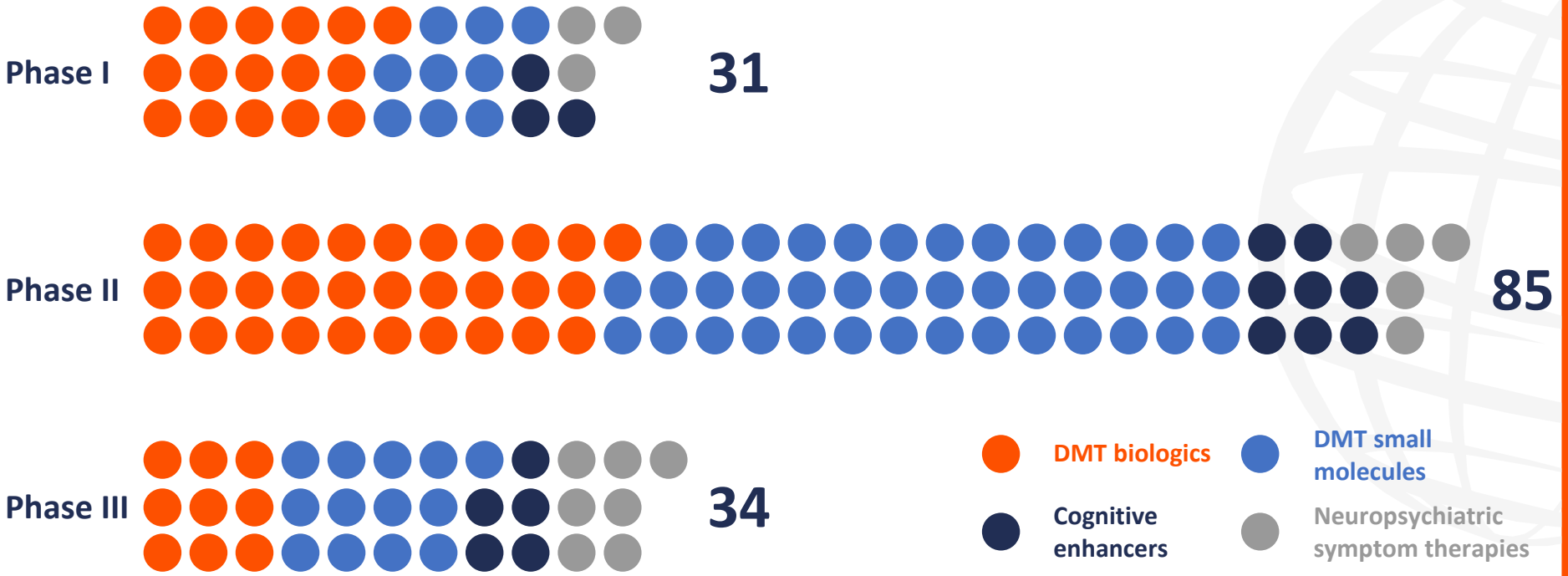
N=1,736



iADRS, Integrated Alzheimer's Disease Rating Scale.

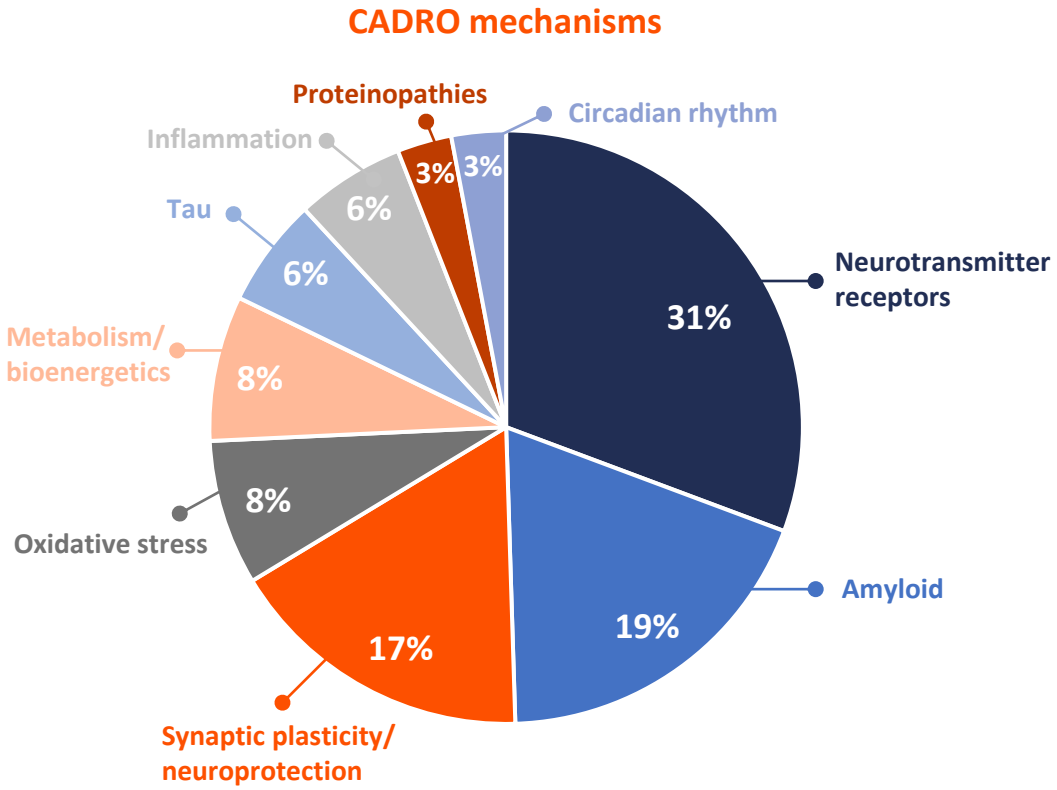
1. Sims JR, et al. *JAMA.* 2023;330:512–27;
2. Alzheimer's Research UK. Available at: www.alzheimersresearchuk.org/blog/new-alzheimers-drug-donanemab-what-is-it-and-how-does-it-work/ (accessed 15 September 2023).

2023 AD drug development pipeline



AD, Alzheimer's disease; DMT, disease-modifying therapy.
Cummings J, et al. *Alzheimers Dement (N Y).* 2023;9:e12385.

Mechanism of action of agents in phase III



CADRO, Common Alzheimer's Disease Research Ontology.
Cummings J, et al. *Alzheimers Dement (N Y).* 2023;9:e12385.

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Imaging and fluid biomarkers in the pathway to AD diagnosis

Professor Sven Haller
Centre d'Imagerie Médicale Cornavin,
Geneva, Switzerland

Step 1: Detect

Detect | Assess | Differentiate | Diagnose | Treat & Monitor

Recommended assessments	
Patient history, including family history	Medication count
Caregiver perspective	Lifestyle data (smoking, alcohol, exercise)
Medical and disease history	

Porsteinsson AP, et al. *J Prev Alzheimers Dis*. 2021;8:371–86.

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Step 2: Assess/differentiate

Recommended assessments

- Physical examination
- Neurological examination
- Blood tests (full blood count)
- Genotyping (in selected cases)

Cognitive tests: AD8, IQCODE, MMSE, MoCA, Mini-Cog, QDRS

Functional tests: A-IADL-Q, FAST, FAQ

Behavioural tests: GDS, NPI-Q

MRI

FDG-PET*

*Usually considered after a diagnostic workup.

AD8, Ascertain Dementia 8; A-IADL-Q, Amsterdam Instrumental Activities of Daily Living Questionnaire; FAQ, Functional Activities Questionnaire; FAST, Functional Analysis Screening Tool; FDG-PET, fluorodeoxyglucose positron emission tomography; GDS, Geriatric Depression Scale; IQCODE, Informant Questionnaire on Cognitive Decline in the Elderly; Mini-Cog, Mini Cognitive Assessment Instrument; MMSE, Mini Mental State Examination; MoCA, Montreal Cognitive Assessment; MRI, magnetic resonance imaging; NPI-Q, Neuropsychiatric Inventory Questionnaire; QDRS, Quick Dementia Rating System.

Porsteinsson AP, et al. *J Prev Alzheimers Dis*. 2021;8:371–86.

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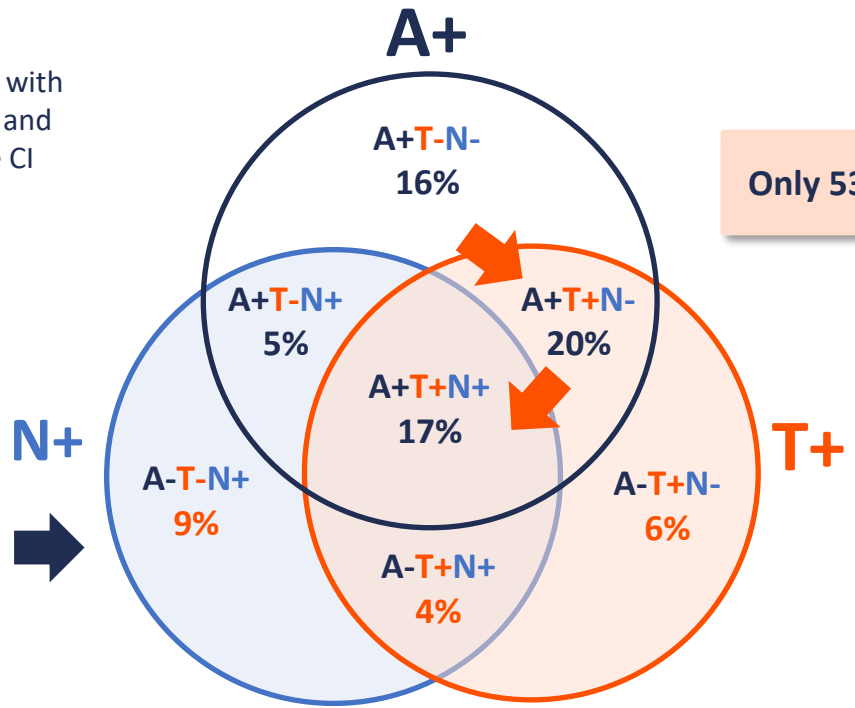
Application of the ATN disease progression model

81 patients with subjective and objective CI



16% + 20% + 17% = 53%[1]

Only 53% of patients are on the classical AD path[1–3]

AD, Alzheimer's disease; ATN, amyloid/tau/neurodegeneration; CI, cognitive impairment.

1. Dodich A, et al. *Eur J Nucl Med Mol Imaging*. 2020;47:247–55; 2. Jack CR Jr, et al. *Alzheimers Dement.* 2018;14:535–62; 3. Tan MS, et al. *Alzheimers Res Ther.* 2020;12:55.

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Atypical AD variants[1,2]

Visuospatial variant AD

Posterior cortical atrophy

Language variant AD

Logopenic variant of primary progressive aphasia

Behavioural variant AD

No consensus criteria established to date

Motor variant AD

Corticobasal syndrome

Several atypical AD variants exist based on clinical symptoms and neuroanatomical distribution of pathology[2]

AD, Alzheimer's disease.

1. Haller S, et al. *Radiology*. 2023;308:e230173; 2. Polsinelli AJ, Apostolova LG. *Continuum (Minneap Minn).* 2022;28:676–701.

More than typical AD

Not every dementia is AD[1]

Not every AD is typical AD[1,2]

AD, Alzheimer's disease.

1. Haller S, et al. *Radiology*. 2023;308:e230173; 2. Polsinelli AJ, Apostolova LG. *Continuum (Minneap Minn).* 2022;28:676–701.

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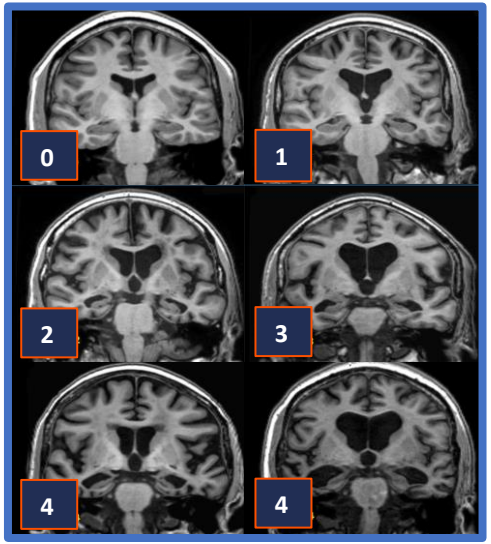
Magnetic resonance imaging

Abnormality[1] Decreased volume of hippocampus and other temporal lobe structures → **Pathology**[1] Tissue loss and neurodegeneration

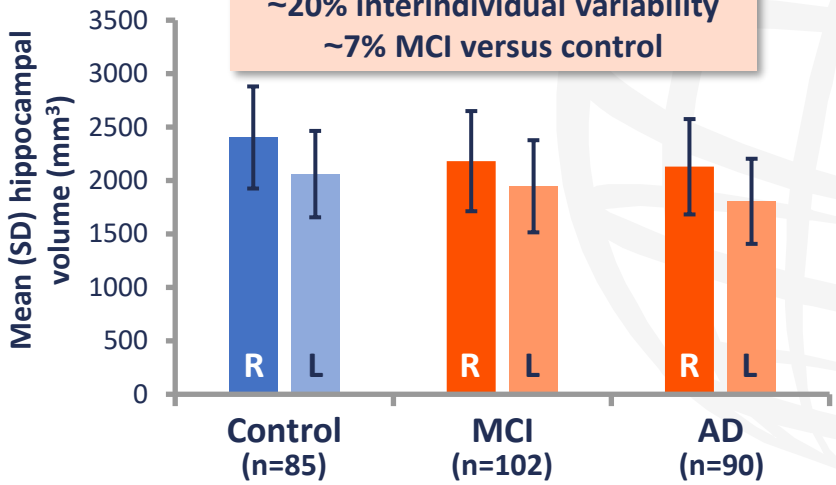
MTA visual rating scale[2]



<75 years:
Score ≥2 abnormal
>75 years:
Score ≥ 3 abnormal

Hippocampal volumetry[3]
(volume MRI acquisitions)

~20% interindividual variability
~7% MCI versus control



AD, Alzheimer's disease; L, left hippocampus; MCI, mild cognitive impairment; MRI, magnetic resonance imaging; MTA, medial temporal lobe atrophy; R, right hippocampus; SD, standard deviation.

1. Frisoni GB, et al. *Lancet Neurol*. 2017;16:661–76; 2. Radiology Assistant. Available at: https://radiologyassistant.nl/neuroradiology/dementia/role-of-mri#mr-protocol (accessed 15 September 2023); 3. Frankó, E, et al. *PLoS One*. 2013;8:e71354.

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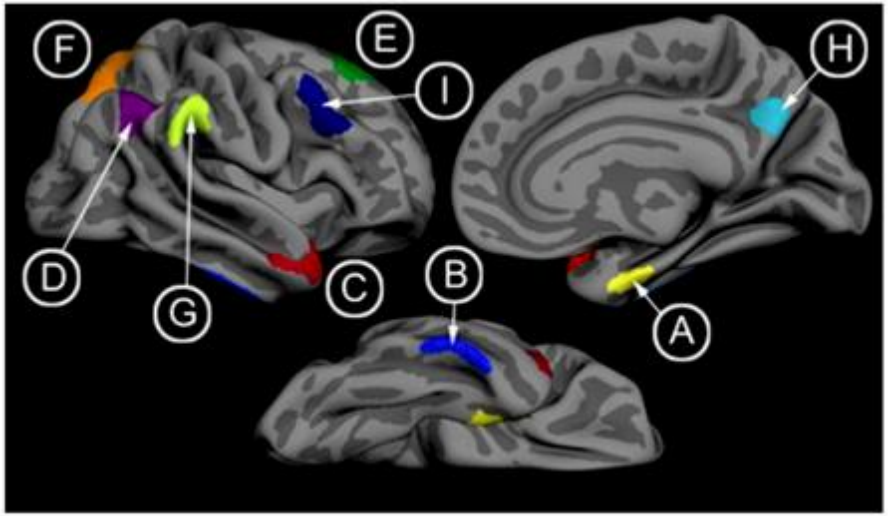
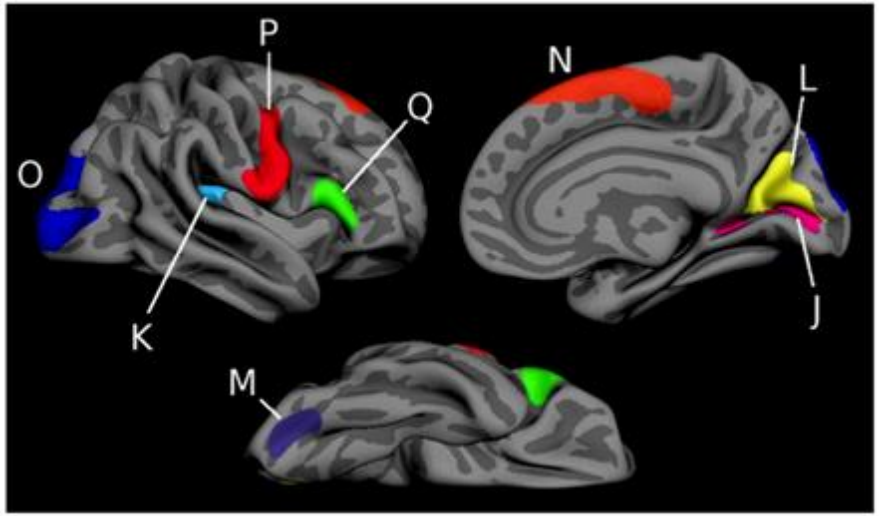
Patterns of AD atrophy

Cortical signature of AD



Cortical signature of normal ageing



A. Medial temporal
B. Inferior temporal
C. Temporal pole
D. Angular
E. Superior frontal
F. Superior parietal
G. Supramarginal
H. Precuneus
I. Middle frontal
J. Calcarine
K. Caudal insula
L. Cuneus
M. Caudal fusiform
N. Dorsomedial frontal
O. Lateral occipital
P. Precentral
Q. Inferior frontal

AD is characterized by atrophy patterns not limited to the hippocampus

Figures reproduced from Dickerson BC, et al. *Front Aging Neurosci.* 2013;5:55 (CC BY).
AD, Alzheimer's disease.
Dickerson BC, et al. *Front Aging Neurosci*. 2013;5:55.

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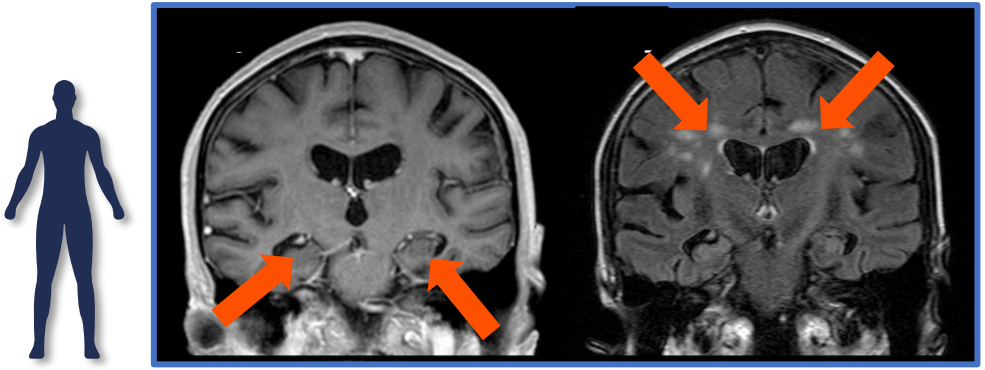
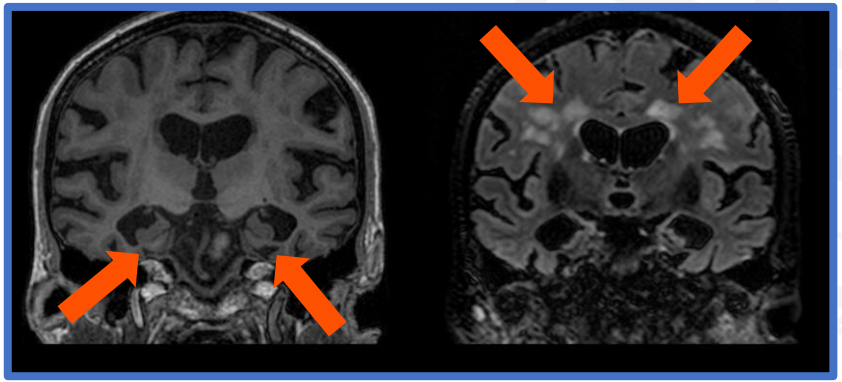
Mixed AD type and vascular diseases



77 years old

5 years later

82 years old



AD, Alzheimer's disease.
Image courtesy of Haller S. Personal communication 2023.

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Interaction of AD and vascular pathology

SUPRA-ADDITIVE EFFECTS

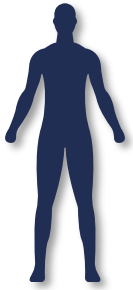
1 + 1 > 2

The combined effect of both vascular and neurodegenerative pathological processes is more pronounced than the simple linear addition of the two effects

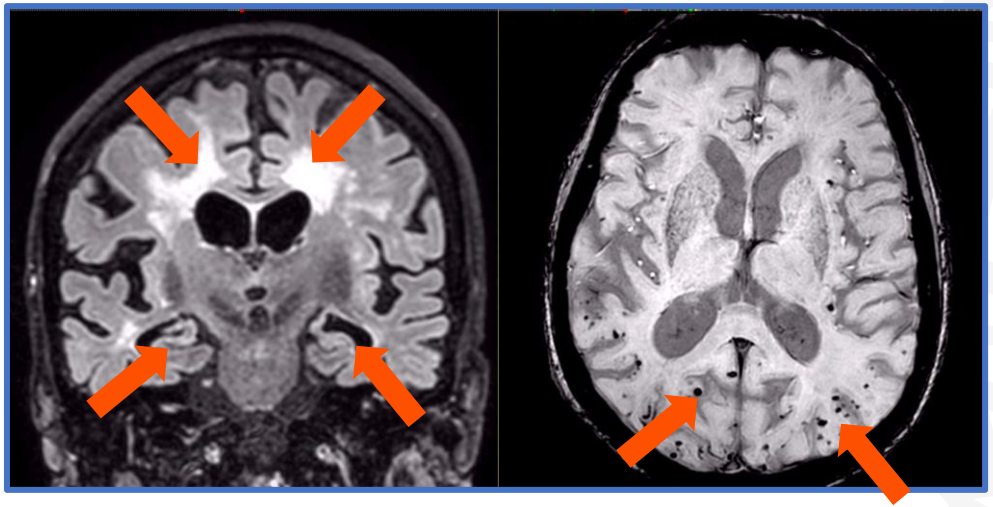
AD, Alzheimer's disease.

Haller S, Barkhof F. *Radiology*. 2017;282:311–3.

Mixed pathology: Cerebral amyloid angiopathy and AD



82-year-old female with cognitive decline



AD, Alzheimer's disease.
Image courtesy of Haller S. Personal communication 2023.

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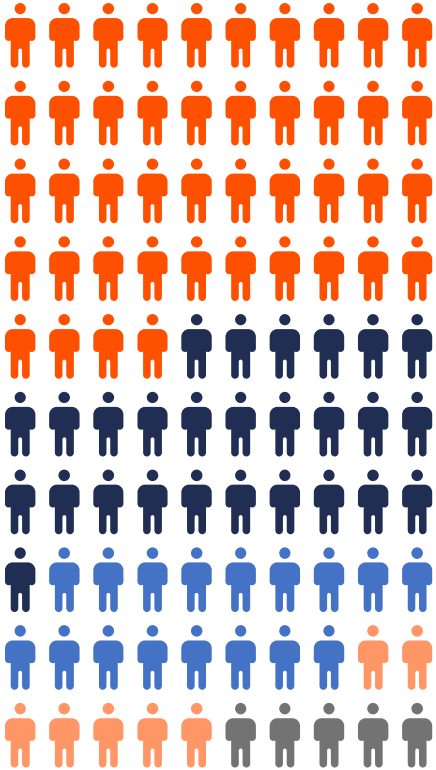
Heterogenous pathology of AD

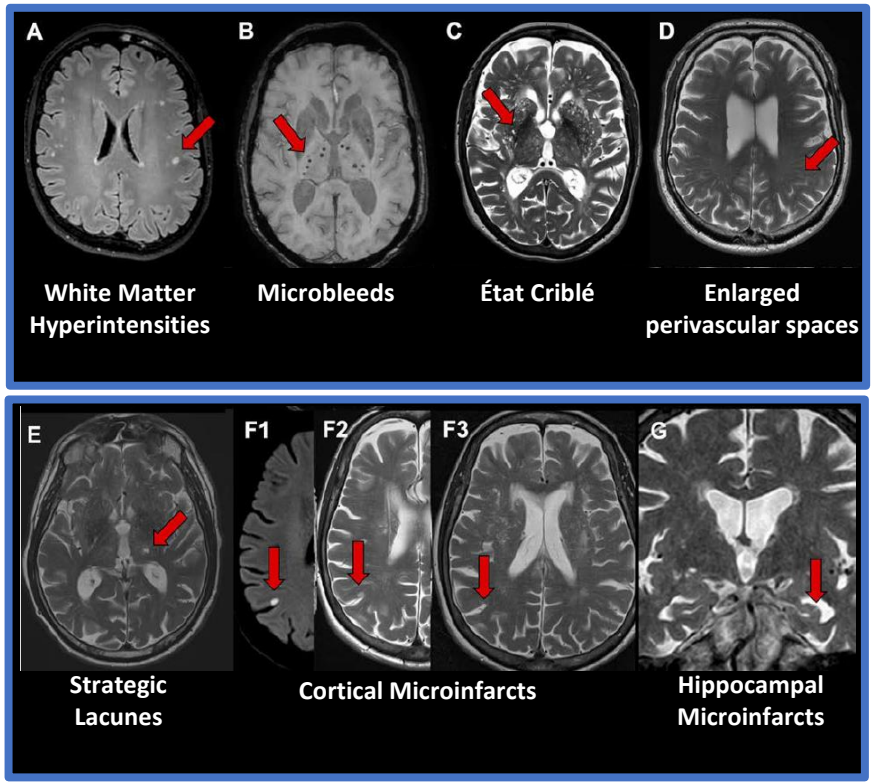


- **AD (44%)**
- **AD + vascular dementia (27%)**
- **AD + Lewy body disease (17%)**
- **AD + vascular dementia + Lewy body disease (7%)**
- **Other (5%)**
  - AD + tau (1.7%)
  - AD + hippocampal sclerosis (0.5%)
  - AD + vascular dementia + tau (0.8%)
  - AD + vascular dementia + hippocampal sclerosis (0.6%)
  - AD + Lewy body disease + tau (0.6%)
  - AD + Lewy body disease + hippocampal sclerosis (0.2%)
  - AD + Lewy body disease + vascular dementia + hippocampal sclerosis (0.5%)
  - AD + Lewy body disease + vascular dementia + tau (0.2%)

AD, Alzheimer's disease.

Rabinovici GD, et al. *Alzheimers Dement (N Y)*. 2016;3:83–91.

MRI markers of cerebrovascular disease



MRI has the advantage of providing several markers of cerebrovascular disease in one imaging session

However, an individual case may have various MRI markers of cerebrovascular disease and therefore it can be difficult to decide what burden of vascular disease contributes to cognitive impairment

Consequently, there is a large variability in the radiologic reporting of the various MRI markers of cerebrovascular disease

MRI, magnetic resonance imaging.

Haller S, et al. *Radiology*. 2023;308:e230173.

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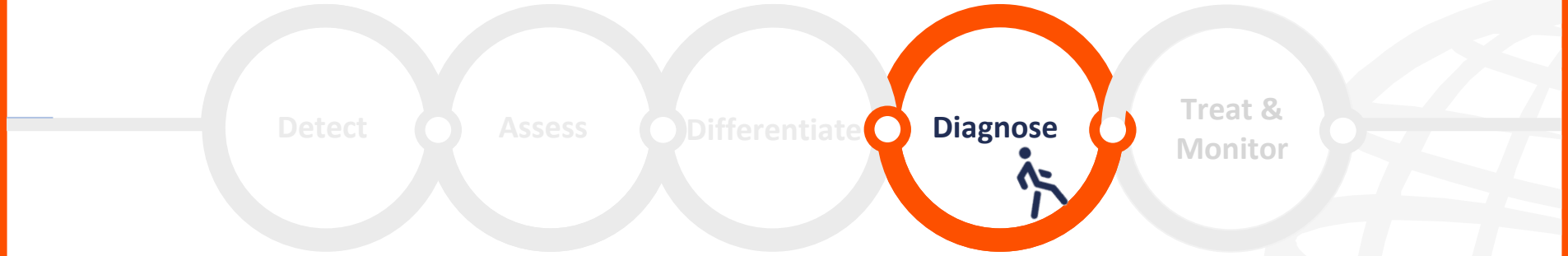
Step 3: Diagnose



Recommended assessments

- Amyloid PET
- CSF $A\beta_{42}$, p-tau, t-tau
- CSF $A\beta_{42}/A\beta_{40}$

Emerging tests

- Tau PET
- Blood-based biomarkers

Aβ, amyloid beta; CSF, cerebrospinal fluid; p-tau, phosphorylated-tau; PET, positron emission tomography; t-tau, total-tau.

Porsteinsson AP, et al. *J Prev Alzheimers Dis*. 2021;8:371–86.

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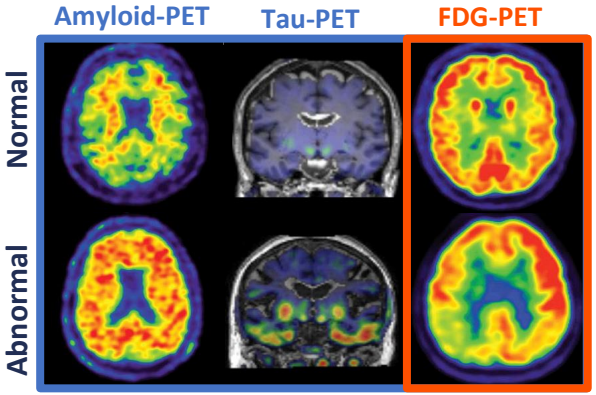
Multiparametric imaging for AD: FDG-PET

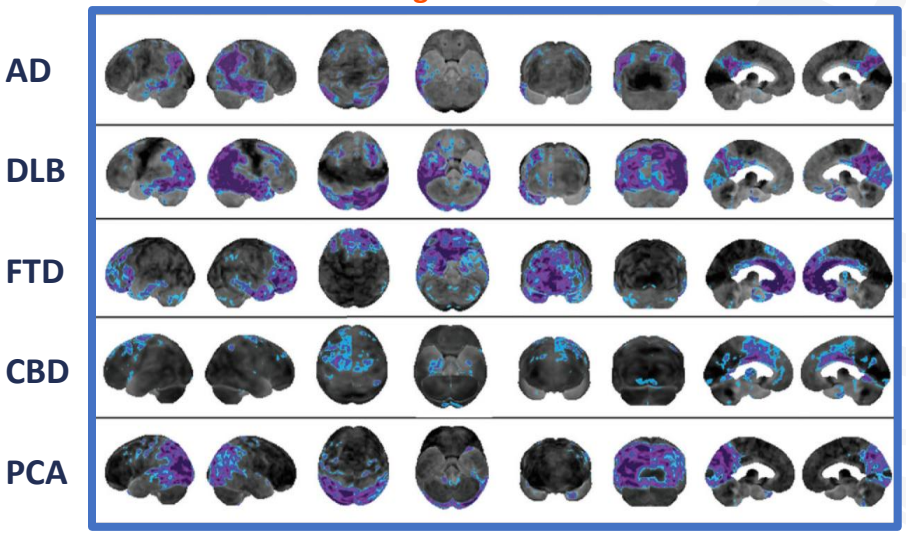
Abnormality[1] Decreased uptake in posterior cingulate-precuneus and temporoparietal cortex → **Pathology**[1] Glucose hypometabolism and neurodegeneration

PET imaging biomarkers[2]



Differential diagnosis[2]

Brain FDG-PET patterns of hypometabolism seen in various neurodegenerative disorders[3]



FDG-PET is useful in differentiating between various types of primary dementia[3]

AD, Alzheimer's disease; CBD, corticobasal degeneration; DLB, dementia with Lewy bodies; FDG, fluorodeoxyglucose; FTD, frontotemporal dementia; PCA, posterior cerebral atrophy; PET, positron emission tomography.

1. Frisoni GB, et al. *Lancet Neurol*. 2017;16:661–76; 2. Kate MT, et al. *Alzheimers Res Ther*. 2018;10:112; 3. Brown RKJ, et al. *Radiographics*. 2014;34:684–701.

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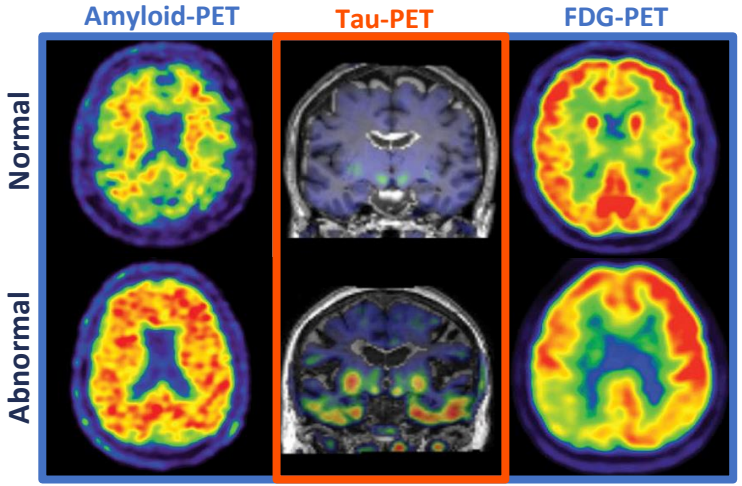
Multiparametric imaging for AD: Tau-PET

Abnormality[1]	Increased uptake in medial-basal and lateral temporal cortex	**Pathology**[1]	Deposition of paired helical filament tau

PET imaging biomarkers[2]



Rule in AD[3]

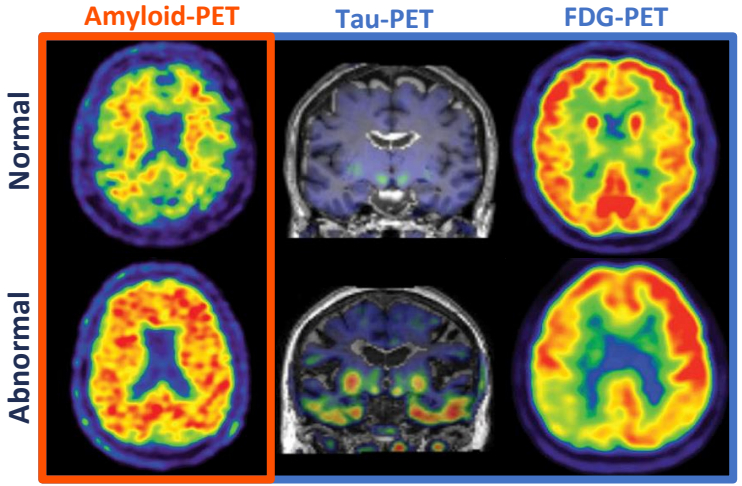
AD, Alzheimer's disease; FDG, fluorodeoxyglucose; PET, positron emission tomography.

1. Ossenkoppele R, et al. *JAMA.* 2018;320:1151–62; 2. ten Kate M, et al. *Alzheimers Res Ther*. 2018;10:112; 3. Haller S, et al. *Radiology*. 2023;308:e230173.

Multiparametric imaging for AD: Amyloid-PET

Abnormality[1]	Increased cortical retention	→	Pathology[1]	Deposition of β-amyloid in the cortex

PET imaging biomarkers[2]



AD, Alzheimer's disease; FDG, fluorodeoxyglucose; PET, positron emission tomography.

1. Frisoni GB, et al. *Lancet Neurol*. 2017;16:661–76; 2. ten Kate M, et al. *Alzheimers Res Ther*. 2018;10:112; 3. Haller S, et al. *Radiology*. 2023;308:e230173.

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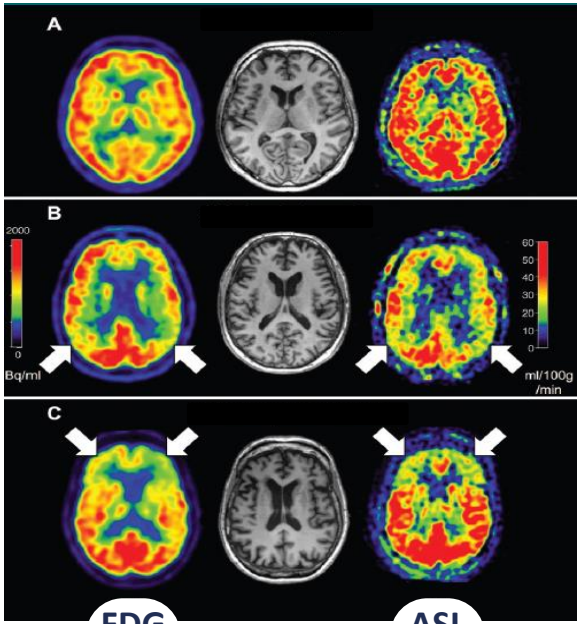
Artificial spin labelling MRI

Transverse FDG and ASL images

Normal ageing

AD

FTD



ASL MRI is used to assess cerebral blood flow non-invasively by magnetically labelling inflowing blood

ASL pattern is remarkably similar to the pattern of the hypometabolism **seen with FDG-PET**

Image reproduced with permission from Haller S, et al. *Radiology*. 2016;281:337–56; © Radiological Society of North America, 2016.
AD, Alzheimer's disease; ASL, artificial spin labelling; FDG, fluorodeoxyglucose; FTD, frontotemporal dementia; MRI, magnetic resonance imaging; PET, positive emission tomography.
Haller S, et al. *Radiology*. 2016;281:337–56.

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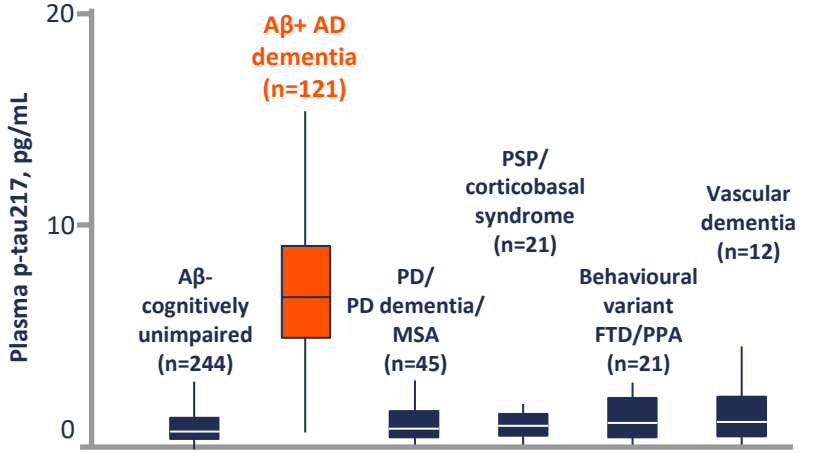
Plasma p-tau217 vs CSF and tau-PET biomarkers

Discriminative accuracy of plasma p-tau217 for AD vs other neurodegenerative diseases in the BioFINDER-2 Study[1]

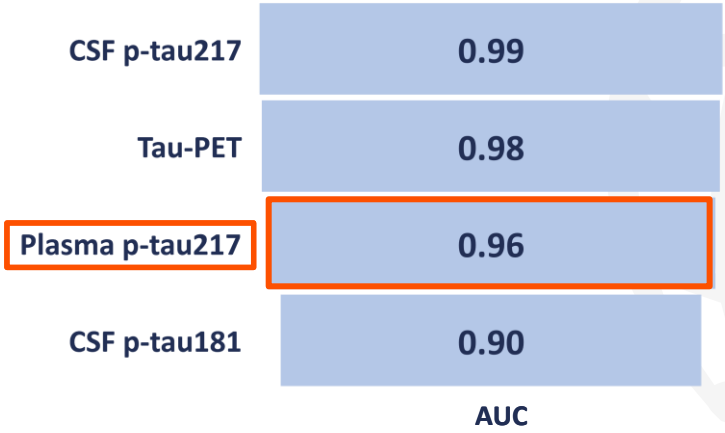
Levels of p-tau217 in plasma across diagnostic groups[1]



Plasma p-tau217 levels are increased by 300–700% in symptomatic AD[2]

AD dementia vs other neurodegenerative diseases: ROC curve analysis for comparison of plasma p-tau217 vs CSF and PET[1]

AD dementia n=121, non-AD n=99



Plasma p-tau can differentiate AD from non-AD diseases similar to CSF p-tau and tau-PET[2]

Aβ, amyloid-beta; AD, Alzheimer's disease; AUC, area under curve; CSF, cerebrospinal fluid; FTD, frontotemporal dementia; MSA, multiple system atrophy; PD, Parkinson's disease; PET, positron emission tomography; PPA, primary progressive aphasia; PSP, progressive supranuclear palsy; p-tau, phosphorylated tau; ROC, receiver operating characteristic.

1. Palmqvist S, et al. *JAMA.* 2020;32:772–81; 2. Angioni D, et al. *J Prev Alzheimers Dis.* 2022;9:569–79.

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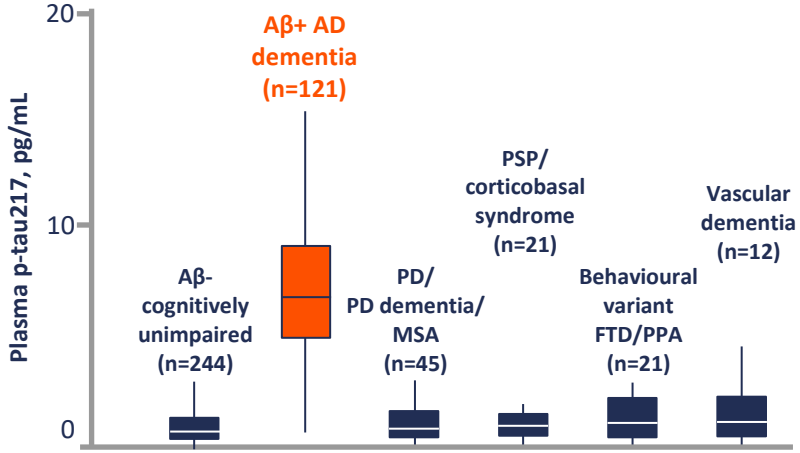

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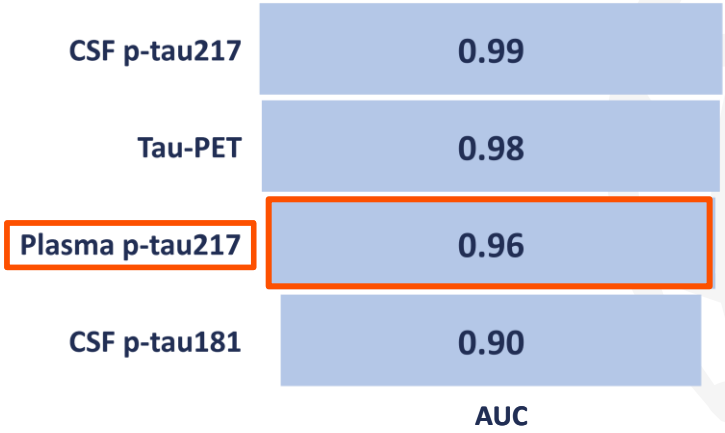

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Advantages and limitations of current AD biomarkers

MODALITY	ADVANTAGES	DISADVANTAGES
 MRI	• Measures cerebral atrophy[1] • Measures vascular markers[2] • Measures brain function (ASL)[3] • Information on non-AD pathology[2]	• Relatively late event (compared with CSF and PET measures)[1] • Cannot directly detect core pathophysiological features (Aβ, tau)[1]
 Amyloid/tau PET	• High accuracy for AD diagnosis[4] • Suitable for patients with contraindications to lumbar puncture[4]	• Expensive[1,4,5] • Limited availability[1,4] • Uses radiation[4,5] • Abnormal also in other conditions[6]
 CSF	• High accuracy for AD diagnosis[4] • Relatively inexpensive[4] • Enables analyses of inflammation, tau pathology and neurodegeneration[4]	• Invasive[1,4,7] • Reluctance around lumbar puncture[5]
 Blood	• Accessible/cost effective[8] • Less invasive than CSF[8] • Easily repeated measurements over time[8]	• No localization[8] • Additional validation required to confirm accuracy[8]

Aβ, amyloid-beta; AD, Alzheimer's disease; ASL, artificial spin labelling; CSF, cerebrospinal fluid; MRI, magnetic resonance imaging; PET, positron emission tomography.

1. Baird AL, et al. *Front Neurol*. 2015;16:236; 2. Frisoni GB, et al. *Nat Rev Neurol*. 2010;6:67–77; 3. Haller S, et al. *Radiology*. 2016; 281:337; 4. Hardy-Sosa A, et al. *Front Aging Neurosci*. 2022;14:683689; 5. Porsteinsson AP, et al. *J Prev Alzheimers Dis*. 2021;8:371–86; 6. Chapleau M, et al. *J Nucl Med*. 2022;63:13S–19S; 7. Luebke M, et al. *Biomark Neuropsychiatry*. 2023;8:100062; 8. Hampel H, et al. *Nat Aging*. 2022;2:692–703.

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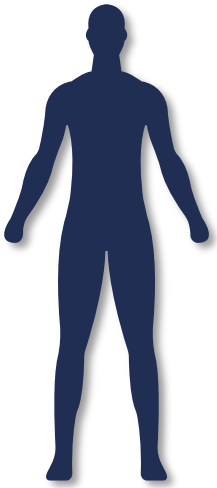
Step 4: Treat and monitor

Detect → Assess → Differentiate → Diagnose → **Treat & Monitor**

Amyloid-modifying therapies (monitor for ARIA)

Symptomatic treatments

Lifestyle changes



Clinical trial registries

Social work support

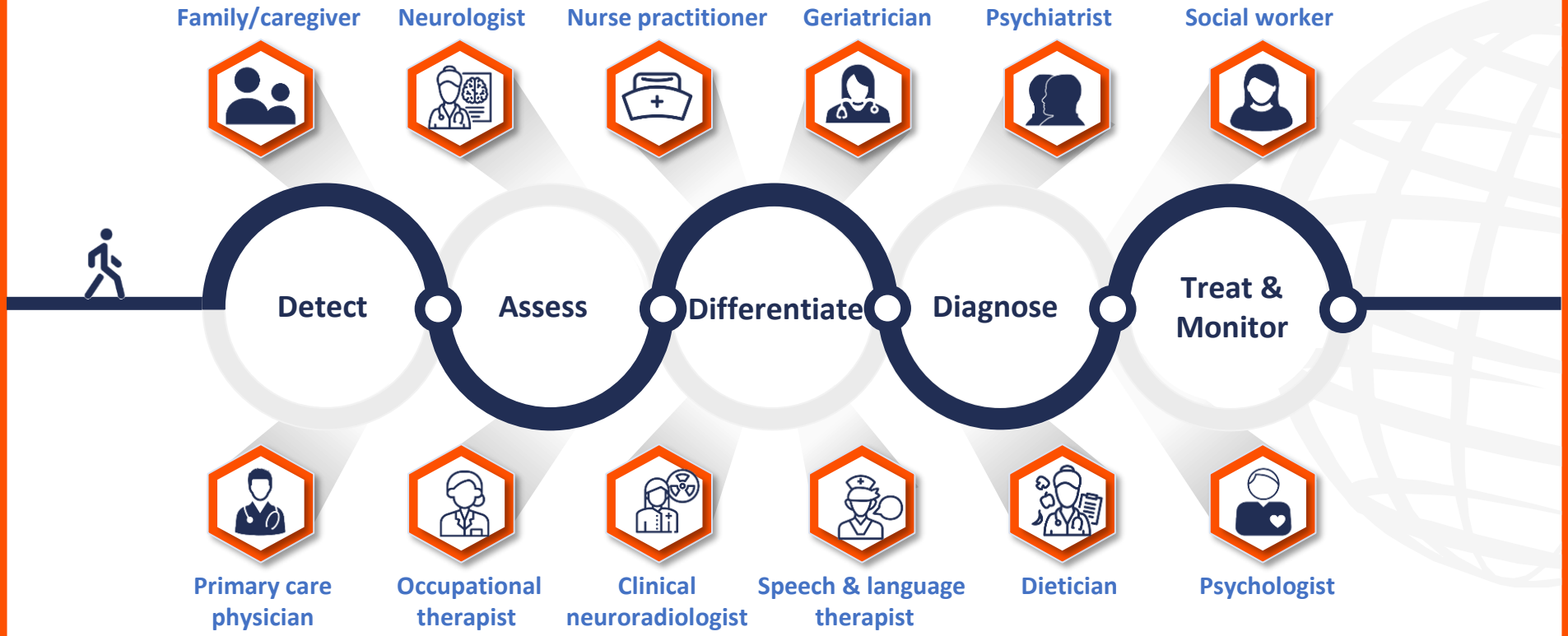
ARIA, amyloid-related imaging abnormalities.

Porsteinsson AP, et al. *J Prev Alzheimers Dis*. 2021;8:371–86.

Collaborative patient-centred care across the AD continuum

Dr Ronan Factora
Cleveland clinic,
Cleveland, OH, USA

HCPs involved across the patient's AD journey[1–4]



AD, Alzheimer's disease; HCP, healthcare professional.

1. Grand JH, et al. *J Multidiscip Healthc*. 2011;4:125–47; 2. Ellison JM. 2021. Available at: www.brightfocus.org/alzheimers/article/understanding-health-care-team-alzheimers-disease (accessed 29 September 2023); 3. Galvin JE, et al. *Front Neurol*. 2021;11:592302; 4. Rowley PA, et al. *Semin Ultrasound CT MR*. 2020;41:572–83.

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Role of HCPs across the AD continuum

	Detect	Assess and differentiate	Diagnose	Treat and monitor
 **Non-dementia trained HCP**	☑ Cognitive impairment ☑ Family history ☑ Quick memory test			
 **Dementia trained HCP**	☑ Cognitive impairment ☑ Family history ☑ Quick memory test	☑ Genetic test ☑ In-depth cognitive test ☑ Differential diagnosis		☑ Initiation of treatment ☑ Adverse events reporting ☑ Monitoring MRI/vital signs ☑ Quick memory test
 **Dementia specialist**		☑ Genetic test ☑ In-depth cognitive test ☑ Differential diagnosis	☑ AD pathology ☑ Communicate diagnosis ☑ Select treatment	☑ Initiation of treatment ☑ Adverse events reporting ☑ Monitoring MRI/vital signs ☑ Quick memory test

AD, Alzheimer's disease; HCP, healthcare professional; MRI, magnetic resonance imaging.

Galvin JE, et al. *Front Neurol*. 2021;11:592302.

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Example roles and responsibilities[1,2]

PRIMARY CARE PHYSICIAN

- Suspicion
- Referral
- Screening

NEURO-PSYCHOLOGIST

- Perform cognitive tests
- Interpret cognitive data
- Provide therapy
- Support patient & family

NEUROLOGIST/ GERIATRICIAN

- Diagnose
- Initiate management
- Monitor progression
- Refer to subspecialist if necessary

NURSE PRACTITIONER

- Monitor symptoms
- Provide information
- Assist in preparing for dementia progression
- Respond to issues

OCCUPATIONAL THERAPIST

- Help patient adapt to diminished ability
- Home management

SOCIAL WORKER

- Help to manage burden of disease
- Support family and caregiver(s)

1. Grand JH, et al. *J Multidiscip Healthc*. 2011;4:125–47; 2. Ellison JM. 2021. Available at: www.brightfocus.org/alzheimers/article/understanding-health-care-team-alzheimers-disease (accessed 29 September 2023).

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Fundamentals of patient-centred care

- Detection and diagnosis[1]
- Medical management[1]
- Assessment and care planning[1]
- Information, education and support[1]
- Transitions and coordination of services[1]
- Therapeutic environment and safety[1]
- Staffing[1]
- Ongoing care[1]

"Person-centered care is a philosophy of care built around the needs of the individual and contingent upon knowing the unique individual through an interpersonal relationship"[2]

1. Fazio S, et al. *Gerontologist.* 2018;58:S1–9; 2. Fazio S, et al. *Gerontologist*. 2018;58:S10–9.

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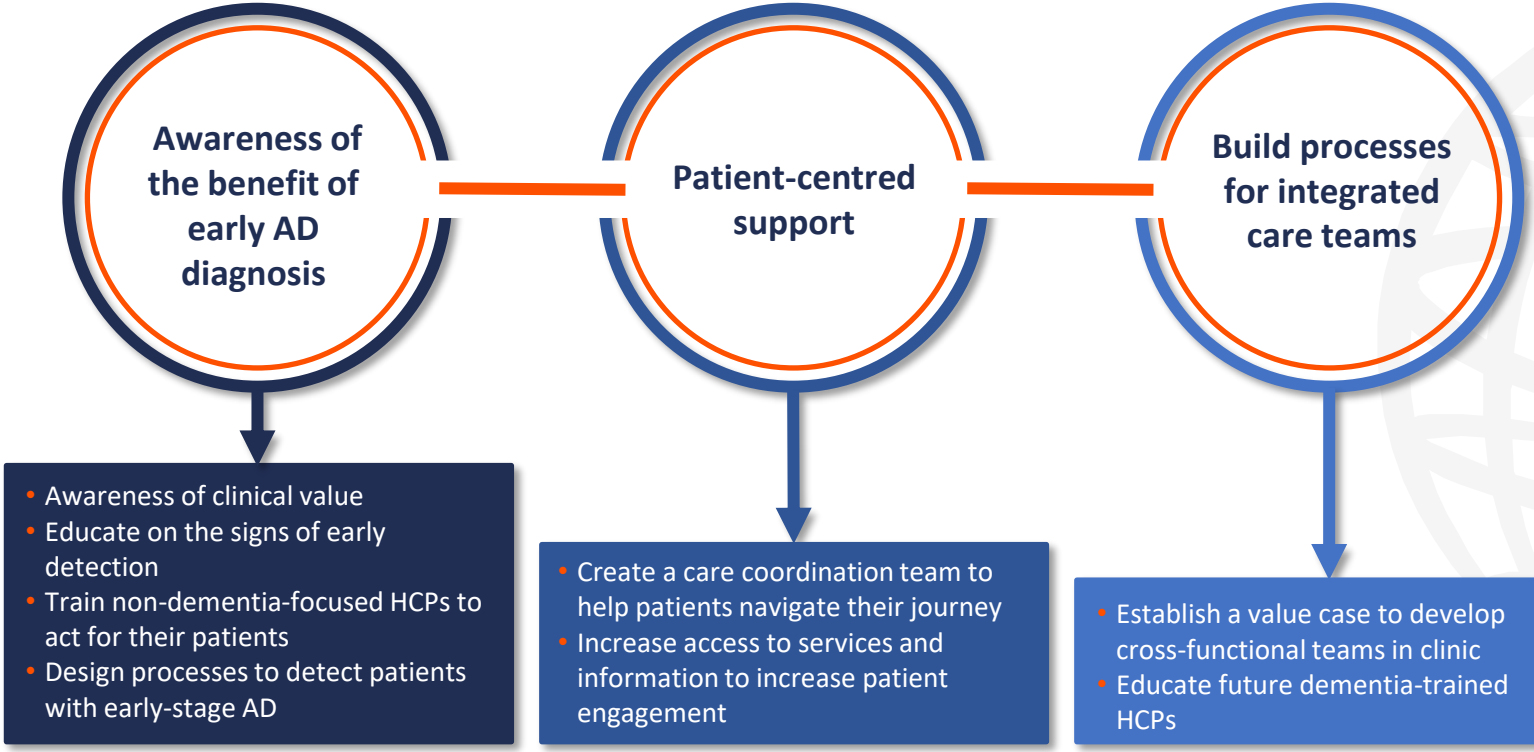
Focus areas to improve AD care



AD, Alzheimer's disease; HCP, healthcare professional.

Galvin JE, et al. *Front Neurol*. 2021;11:592302.

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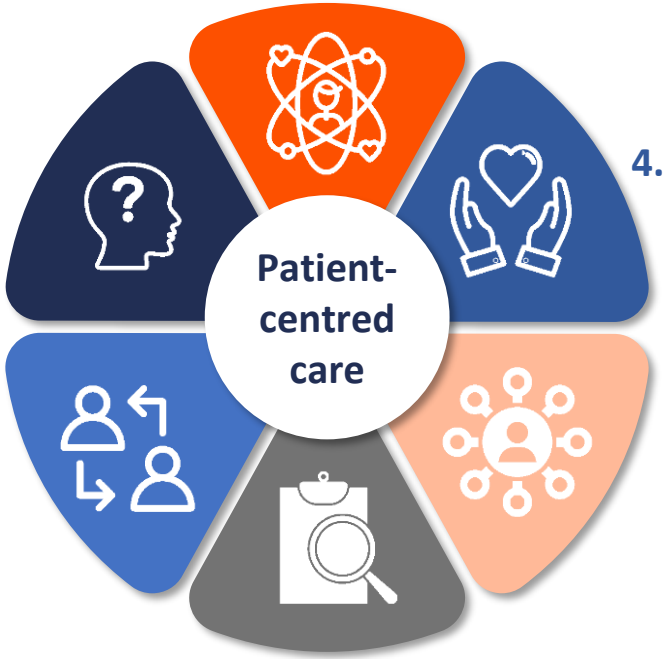
Recommendations for patient-centred care

1. Know the person living with dementia

2. Recognize and accept the person's reality

3. Identify and support opportunities for meaningful engagement



4. Build and nurture authentic, caring relationships

5. Create and maintain a supportive community for all individuals

6. Evaluate care practices regularly and make appropriate changes

Fazio S, et al. *Gerontologist*. 2018;58:S10–9.

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Potential impact of a care coordination team

AD, Alzheimer's disease; HCP, healthcare professional.

Galvin JE, et al. *Front Neurol*. 2021;11:592302.

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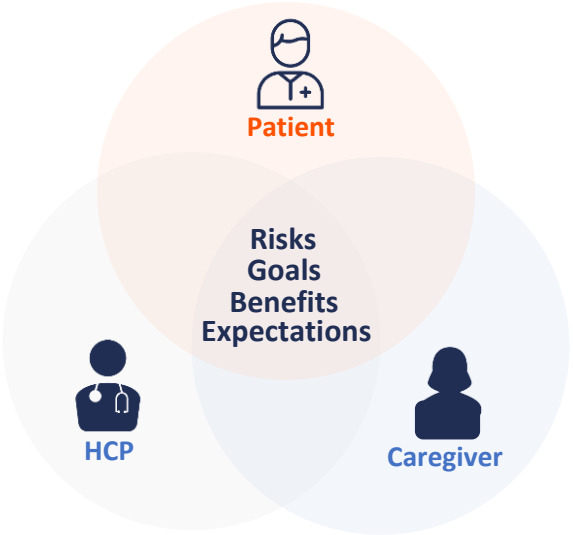
Patient education on anti-amyloid therapies for AD

Alignment of care goals



Potential patient tool

AIMS

- Intervene at early symptomatic stages
- Remove brain amyloid-beta plaques
- Slow disease-related cognitive decline

CAVEATS

- The disease is more than just amyloid
- Treatment is not a cure
- Genetic factors influence side effects

Are they suitable?

RISK

- High test and visit burden
- Potentially high financial costs
- Infusion reactions
- Brain swelling or bleeding (ARIA)

ALTERNATIVES

- Existing oral medications
- Lifestyle modifications
- Future approved drugs
- Clinical trials

AD, Alzheimer's disease; ARIA, amyloid-related imaging abnormalities; HCP, healthcare professional.

Ramanan VK, et al. *Neurology*. 2023;10:10.1212/WNL.0000000000207757. Online ahead of print.

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