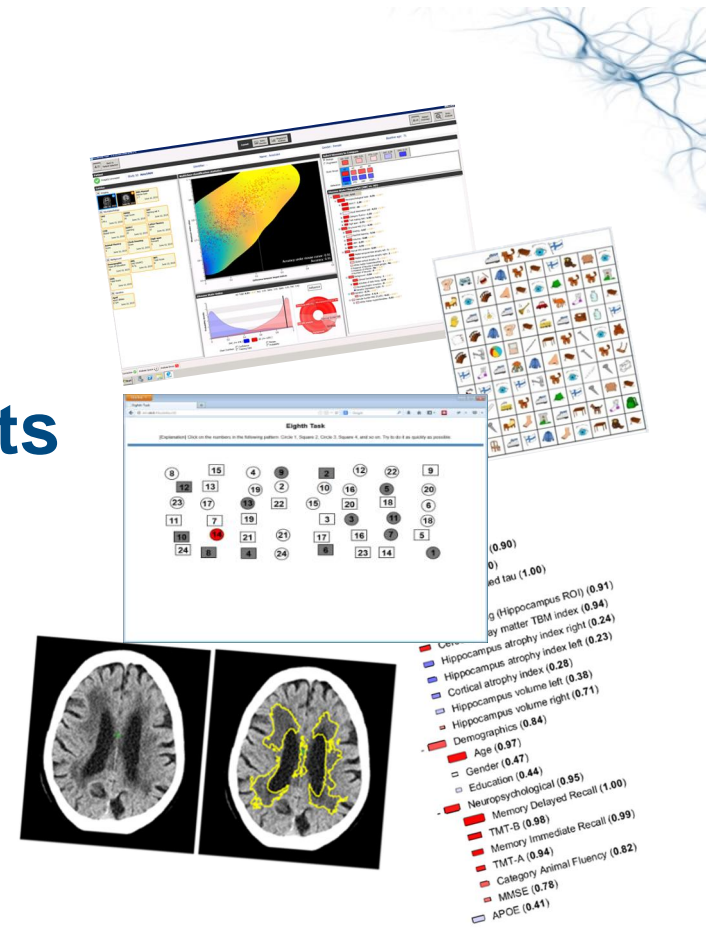




PredictND results

Jyrki Lötjönen
Combinostics Ltd



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Prospective study - validation



Standard clinical work-up for 795 patients (69 ± 10 years) at four European memory clinics:

Group	N	[%]
Dementia	338	42,5
MCI	157	19,7
CN	259	32,6
DROPOUT	41	5,2

Protocol:

- assessment without the tool,
- assessment with the tool,
- ground truth: diagnosis at 12-month FU and progression at 18/24-month FU.

Results (preliminary):

1. Improves the confidence (low/moderate/high) of the diagnosis:

Etiology diagnosis (N=597)	Confidence ↑ [%]	Confidence ↓ [%]
Correct diagnosis	14,2	4,2
Wrong diagnosis	2,7 *	1,5

* 6/16 cases: AD vs. AD posterior, or AD vs. VaD vs. Mixed AD-VaD

2. No difference in diagnostic accuracy observed.



4S. Validation of low cost methods in differentiation against traditional methods

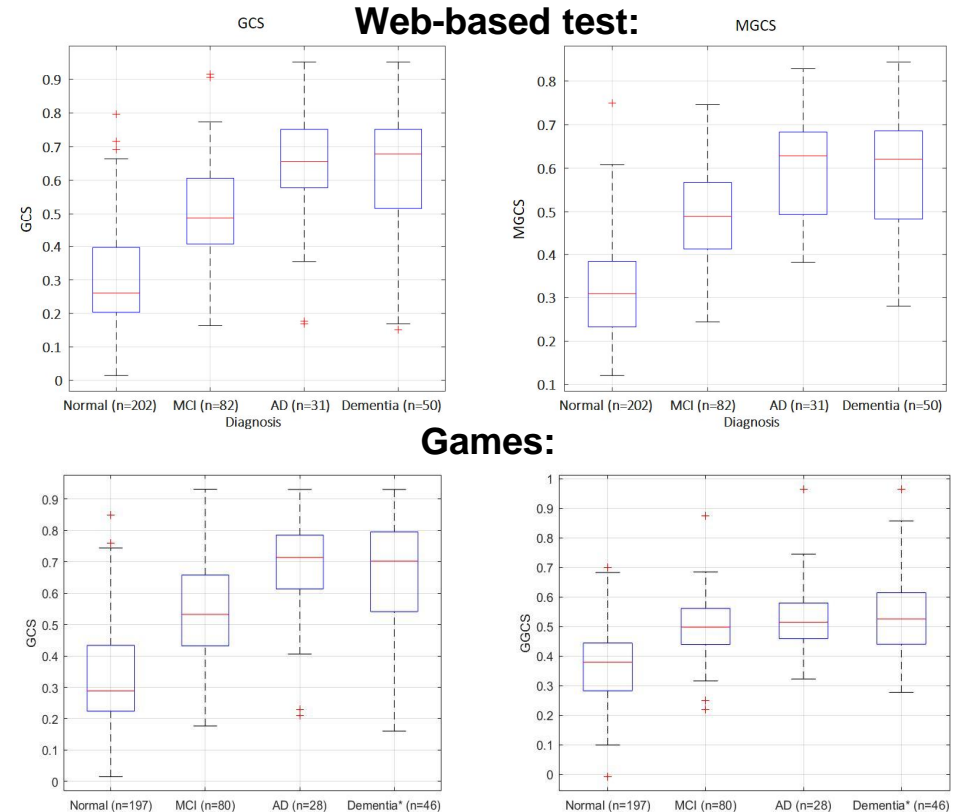


Web-based cognitive test and games were tested in about 340 memory clinic patients with full clinical work-up.

Results:

- § Web-based test performed equally to standard neuropsychological tests.
- § No major difference observed in performing the test at clinic or home.
- § Games produced also clinically relevant information.

10/26/2017 *Mahdiani et al., AAIC-17, AE-17*





Differential diagnostics (retrospective)



Data from the Amsterdam dementia cohort:

- comprehensive clinical and neuropsychological tests,
- visual and automatic imaging biomarkers,
- CSF biomarkers.

Results:

- **Balanced accuracy was 82.3 %.**

	All	CN	AD	FTLD	DLB	VaD
N	504	118	223	92	47	24
Age	65 ± 8	61 ± 9	66 ± 7	63 ± 7	68 ± 9	69 ± 6
Females	44 %	38 %	54 %	45 %	13 %	38 %
MMSE	23 ± 5	28 ± 1	21 ± 5	24 ± 5	23 ± 4	24 ± 5

Clin\Tool	CN	AD	FTLD	DLB	VaD
CN	105	1	4	7	1
AD	1	179	21	18	4
FTLD	5	6	70	8	3
DLB	1	7	2	35	2
VaD	0	1	0	1	22



Ab42 & injury biomarkers in clinical practice



Data from the Amsterdam dementia cohort:

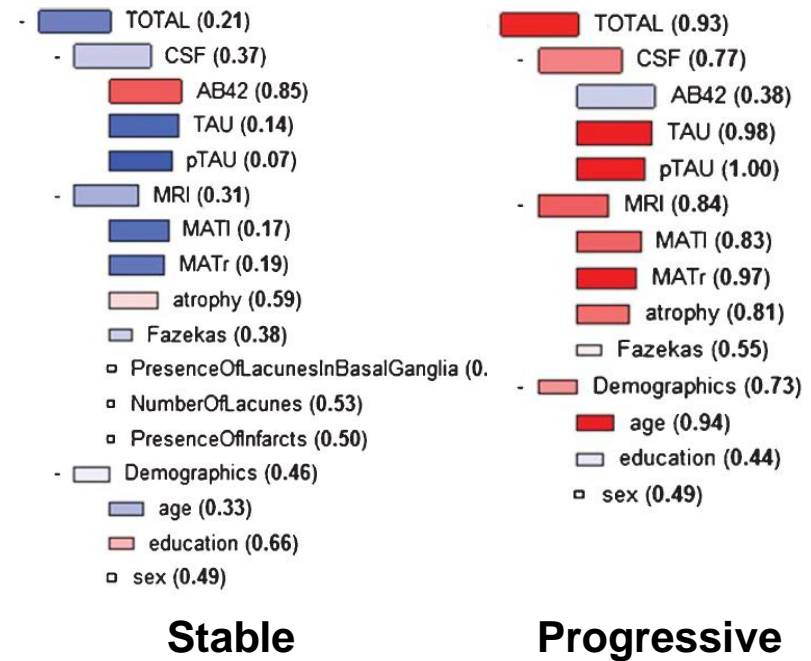
- DSI/DSF model developed using CN and AD cases,
- validated in predicting conversion from MCI (72 stable and 139 progressive).

Results:

- 49 % of cases had uninformative biomarkers by NIA-AA criteria,
- DSI/DSF produced results to all cases with AUC=0.82.

10/26/2017

Rhodus-Meester et al, JAD 2016





Prognosis of clinical progression in subjective cognitive decline

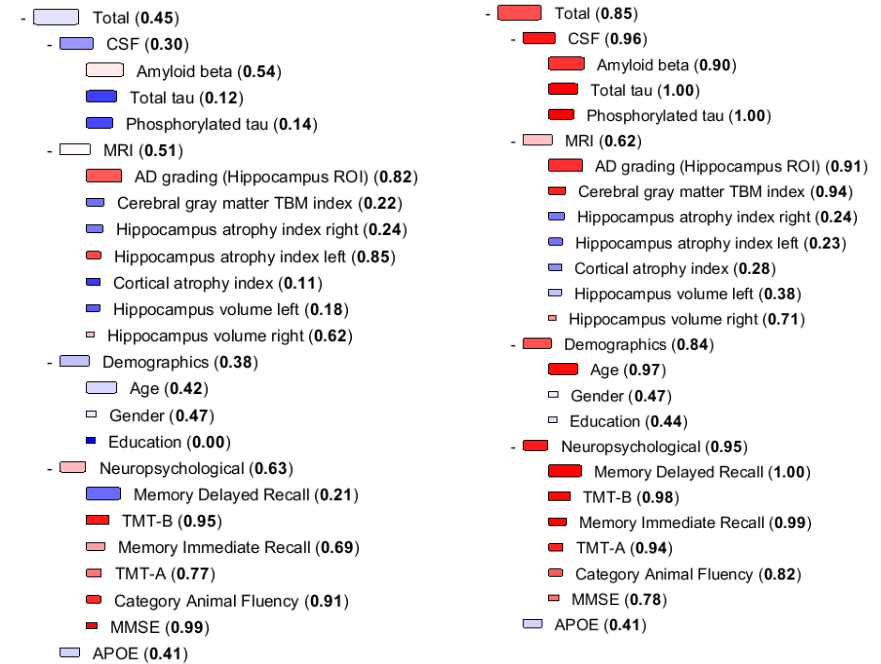


Data from three cohorts:

- Amsterdam Dementia Cohort (N=354),
- Barcelona (N=51),
- German Dementia Competence Network (N=269)

Results:

- Promising results AUC=0.73 which is at the same level as obtained in the MCI progression prediction.



Stable

Progressive

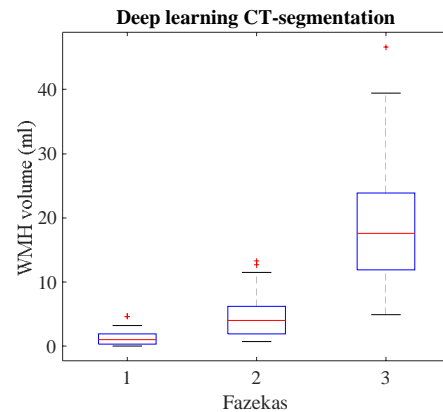
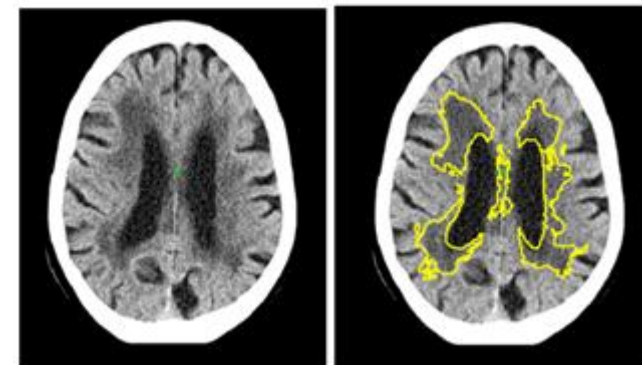
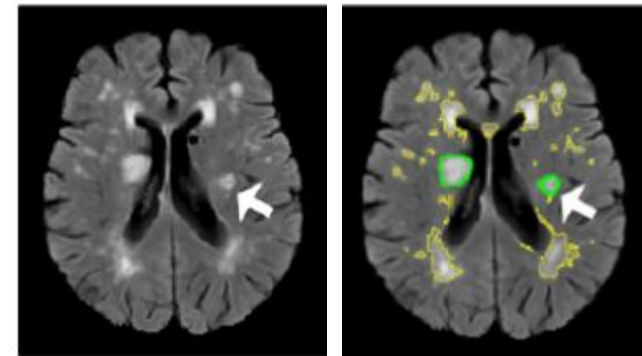


S27. Image quantification using deep learning

Convolutional neural networks were developed for detecting lesions from MRI (FLAIR) and CT images.

Results:

Promising results both for MRI and CT.





Augmenting DSI/DSF with Amyloid-PET

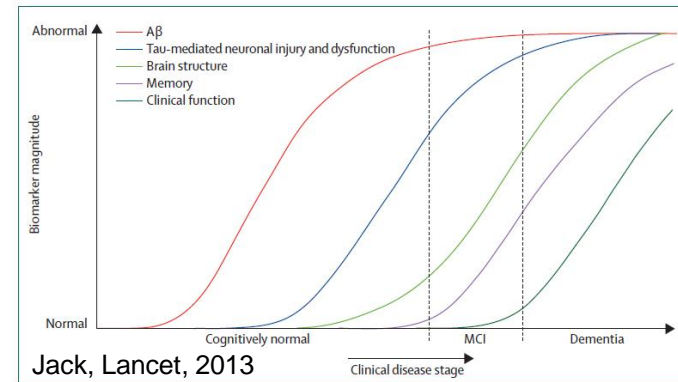


Data from GE Healthcare's study (GE067-005)

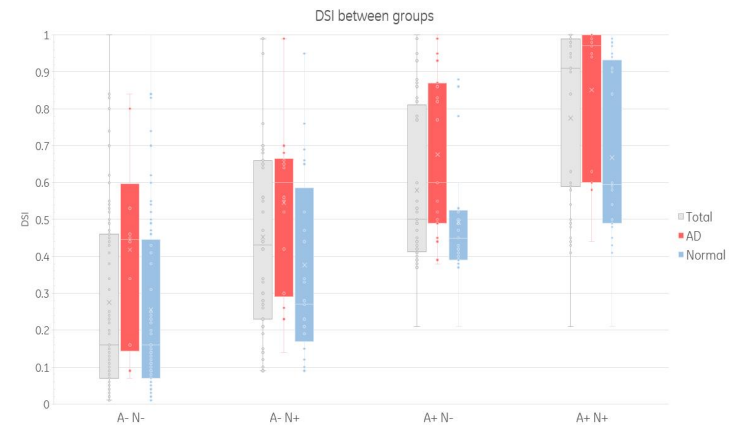
- 223 subjects with MMSE, MRI and Amyloid-PET

Results:

Combining all data shows that DSI follows the cascade of Alzheimer's disease.



Amyloid PET and MRI categorisation	Number of subjects	Survival Fraction Estimate (95% CI) after 36 months	PredictND Median DSI
A- N-	83	0.86 (0.75, 0.92)	0.16
A- N+	42	0.53 (0.36, 0.68)	0.43
A+ N-	40	0.46 (0.28, 0.62)	0.50
A+ N+	57	0.12 (0.13, 0.39)	0.91



10/26/2017

Moreland et al, submitted



What next?

PredictND will finish in Jan 2018 but several substudies are still ongoing and several new ones coming from the unique PredictND cohort.

Companies working actively in making the research results also available in clinical practice.



VU University
Alzheimer Center
Amsterdam



10/26/2017