Cost-Effectiveness of the PReDicT Test: Results and Lessons Learned from a European Multinational Depression Trial

N23

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Objectives

- Long delays are common between the initiation of antidepressant therapy and the identification of an effective treatment regimen. The P1vital® PReDicT Test was developed as a digital tool to provide an early indication of response or non-response to antidepressant medication, helping reduce time to recovery.
- A randomised-controlled trial has been conducted (2016-2019) in five European countries (DE, ES, F, NL, UK) to assess its clinical and cost-effectiveness in primary depression care.

Methods

- An incremental within-trial economic evaluation compares the value of the PReDicT Test with Treatment-As-Usual (TaU) over 24 weeks.
- Resource use data were obtained using the multi-lingual online patient self-report HEQ instrument measuring health and social care resource use, medication, informal care, productivity losses and socio-demographics.
- Between group differences in costs and outcomes using quality-adjusted life years (QALYs) based on the EQ-5D-5L, alternatively capability weighted life years (CWLYs) based on the OxCAP-MH capabilities (UK and D) are assessed following missing data imputation using a regression-based approach adjusted for country specifics and sensitivity analyses.
- Missing QALY, CWLY and cost data were imputed using 'multiple imputation using chained equations' (MICE), under the assumption that these data were missing at random.

Table 1 Patients characteristics at baseline

	PReDicT (N=460)	TaU (N=453)
Female sex, n (%)	285 (61.96)	282 (62.25)
Mean age (SD)	38.70 (13.53)	39.21 (14.00)
Paid & self-employment, n (%)	307 (66.74)	298 (65.79)
Unemployed, n (%)	61 (13.26)	45 (9.93)
Living situation, n (%)		
Living alone	103 (22.39)	116 (25.61)
Living with husband/wife or together as a couple	238 (51.74)	213 (47.02)
Living with parents or other relatives or others	119 (25.87)	124 (27.37)
Mean length of depression, years (SD)	4.29 (7.32)	4.65 (7.49)
Mean QIDS score (SD)	15.401 (4.541)	15.485 (4.263)
Mean EQ-5D-5L index (SD) [1]	0.704 (0.236)	0.703 (0.200)
Mean EQ-5D-5L VAS (SD)	50.712 (20.137)	51.992 (20.023)
Mean OxCAP-MH score (SD) [2]	61.429 (13.386)	59.894 (12.069)

[1] Based on Ludwig K. et al. (2018) German value set for the EQ-5D-5L. Pharmacoeconomics
[2] Data were only collected in England (UK) and Germany (DE), PReDicT (N=170) and TaU (N=160)

Fig 1a EQ-5D-5L index between baseline and 24 weeks follow-up, imputed full data set with unique DE 5L tariff

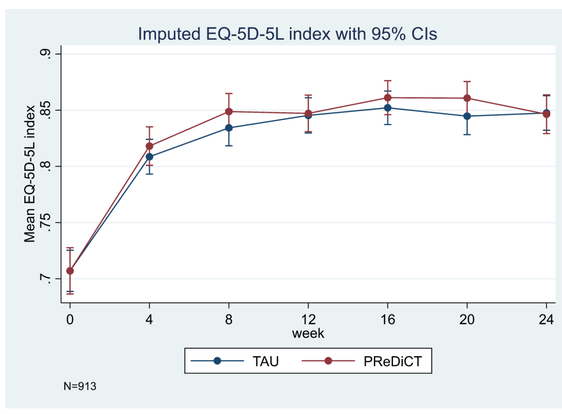
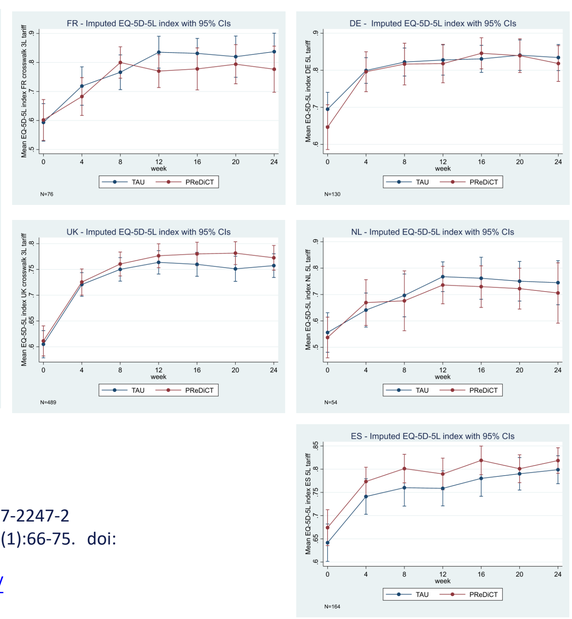


Fig 1b EQ-5D-5L index between baseline and 24 weeks follow-up by country, imputed full data set with national tariffs



Results

- Baseline: mean age=39 years, baseline QIDS score=16, 38% males.
- From the 913 (DE: 130, ES: 164, F: 76, NL: 54, UK: 489) patients randomized **(Table 1)**, 24-week follow-up data were available for 534 patients.
- 24-week health economics instrument completion rates significantly varied between countries (DE: 48%, ES: 61%, F: 86%, NL: 70%, UK: 55%).
- Total median completion time for the three health economics instruments were 11min at baseline vs. 4 min at 24 weeks.
- Completers of the HEQ at 24-week significantly differ in their age from non-completers (+4.23 years, p<0.000) and length of depression (+650.5 days, p<0.000).
- Both groups significantly improved on the EQ5D-5L (PReDicT:+0.14, TaU:+0.15) and the OxCAP-MH (PReDicT:+7.57, TaU:+8.03). (**Fig 1a & 2a**)
- Participants in the PReDicT arm demonstrated a significantly higher OxCAP-MH score at week 24 compared to participants in TaU arm (+2.3, p=0.028, n=913). **(Fig 2a & 2b)**
- No significant differences between groups could be observed for employed participants (n=347) for absenteeism, presenteeism or for informal care (n=534). (**Table 2**)

Fig 2a OxCAP-MH score between baseline and 24 weeks follow-up, imputed full data set

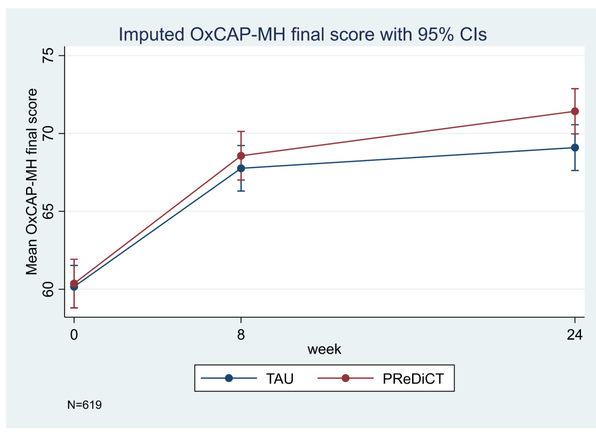


Fig 2b OxCAP-MH score between baseline and 24 weeks follow-up by country, imputed full data set

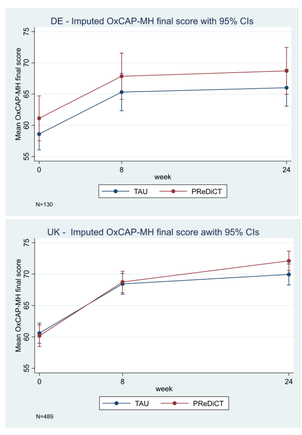


Table 2 Observed productivity loss and informal care (N=534)

		W0 to W24			
	N	PReDicT	N	TaU	p-value[1]
Absenteeism – Mean weeks of work missed (SD)	181	4.0 (6.62)	166	4.4 (7.16)	0.5972
Presenteeism – Mean weeks of efficiency loss during work (SD)	181	1.2 (2.32)	166	1.1 (2.50)	0.6934
Mean hours of informal care (SD)	274	47.4 (211.56)	260	48.4 (258.69)	0.9632

W0 = baseline, W24 = 24 weeks follow-up. [1] paired t-test

Conclusions

- The HEQ embedded in an adaptive online system shows considerably reduced data collection burden and data missingness.
- Final cost and cost-effectiveness analyses are ongoing. The clinical and cost-effectiveness significance of the OxCAP-MH score difference between the arms at 24 weeks is currently under investigation.
- Previous suggestions that the main economic benefits of the PReDicT test may fall on the employment sector will have to be examined following imputation and regression adjustment.
- The great between-country variations in follow-up completion rates, outcome results and costs are likely to reflect substantial underlying system and depression care differences. These and other semantic as well as unit cost heterogeneities will be addressed via intensive sensitivity analyses.

References

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This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 696802.