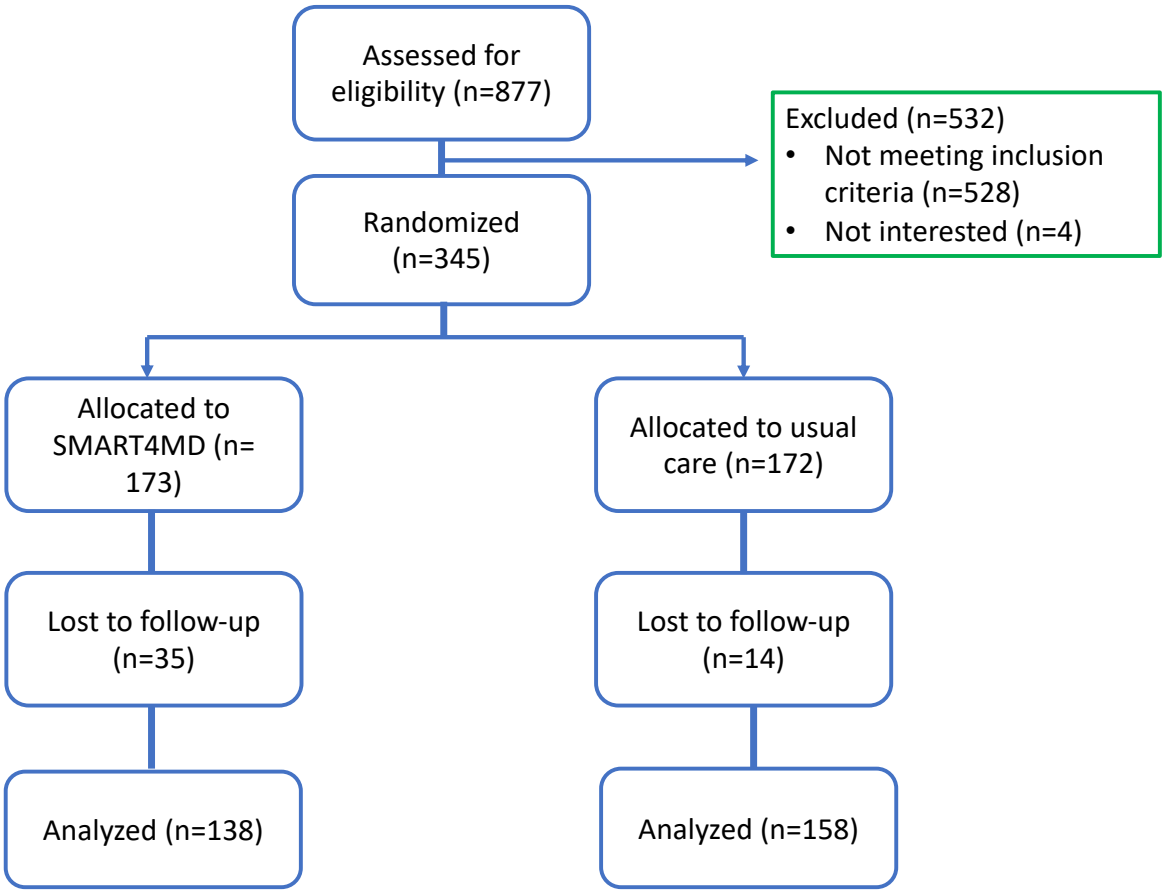
Supplementary Material

Short Term Economic Evaluation of the Digital Platform Support, Monitoring And Reminder Technology for Mild Dementia (SMART4MD) for People with Mild Cognitive Impairment and Their Informal Caregivers

Supplementary Figure 1. Flowchart of the participants in the SMART4MD trial



Supplementary Table 1. Cost in SEK/visit to specialized out-patient clinics and primary care

Type of visit	Specialized out-patient clinic/primary care	2017	2018
Doctor	Ear-nose-throat	3,836	4,296
Nurse	Ear-nose-throat	2,884	3,334
Other profession	Ear-nose-throat	2,292	2,522
Doctor	Medicine/Rehab	4,854	5,181
Nurse	Medicine/Rehab	3,655	3,916
Other profession	Medicine/Rehab	2,562	2,817
Doctor	Adult psychiatry	5,023	5,025
Nurse	Adult psychiatry	1,754	1,954
Other profession	Adult psychiatry	1,959	2,370
Doctor	Surgical Clinic	4,479	5,989
Nurse	Surgical Clinic	2,822	4,295
Other profession	Surgical Clinic	3,040	3,672
Doctor	Eye clinic	2,868	2,762
Nurse	Eye clinic	1,452	1,594
Other profession	Eye clinic	1,916	2,123
Doctor	Gynecology clinic	3,995	4,773
Midwife	Gynecology clinic	1,523	1,492
Doctor	Thorax Center	5,644	6,253
Nurse	Thorax Center	2,722	2,677
Other profession	Thorax Center	3,958	3,642
Doctor	Orthopedics	3,487	3,677
Nurse	Orthopedics	1,980	2,109
Doctor	Infection	2,248	2,631
Nurse	Infection	1,321	1,362
Other profession	Infection	1,310	1,684
Nurse	Anesthesia	3,679	2,974
Doctor	Primary care	1,200	1,200
Nurse	Primary care	700	700
Other profession	Primary care	700	700

Supplementary Table 2. Reasons for not participating in SMART4MD trial

Reason to drop-out from SMART4MD trial	Intervention	Control	Total
Physical reasons	3	1	4
Cognitive reasons	1	1	2
Simply do not want to participate in trial	24	9	33
Other reasons	1	1	2
Deceased	1	0	1
Not able to attend M6 visit, but continued the study	5	1	6
Incomplete data	0	1	1
Total	35	14	49

Supplementary Table 3. Difference in baseline characteristics of dropouts and non-dropout PwMCI

Characteristics	Intervention Group		Control Group	
	Dropouts (n=35)	Non-dropouts (n=138)	Dropouts (n=14)	Non-dropouts (n=158)
Age[a]	76.74 (0.76)	75.98 (0.44)	75.86 (1.26)	76.35 (0.42)
Gender, n (%)				
Male	17 (49)	80 (58)	5 (36)	98 (62)
Female	18 (51)	58 (42)	9 (64)	60 (38)
Education, n (%)				
Elementary School	10 (29)	47 (34)	3 (21)**	61 (39)
Secondary School	10 (29)	47 (34)	8 (58)	30 (19)
Higher Education	15 (42)	43 (32)	3 (21)	67 (42)
Civil status, n (%)				
Single	8 (23)	38 (28)	7 (50)*	35 (22)
Married/living together	27 (77)	100 (72)	7 (50)	123 (78)
QoL-AD[a]	41.2 (1.06)	40.39 (0.44)	40.36 (1.69)	40.94 (0.42)
EQ-5D-3L index score[a]	0.88 (0.01)	0.90 (0.007)	0.83 (0.04)*	0.89 (0.007)
MMSE score[a]	26.11 (0.38)	26.63 (0.14)	26.36 (0.58)	26.82 (0.13)

MMSE, Mini-Mental State Examination; PwMCI, person with mild cognitive impairment; QoL-AD, quality of life in Alzheimer disease; n, number; %, percentage

[a]Mean (standard error); Significance levels: $p<0.05$*, 0.01** and 0.001***. Independent sample t-test is used to assess the statistical differences between dropouts and non-dropouts (inter-group [between groups] analysis).

Supplementary Table 4. Difference in baseline characteristics of dropouts and non-dropout informal caregiver

Characteristics	Intervention Group		Control Group	
	Dropouts (n=35)	Non-dropouts (n=138)	Dropouts (n=14)	Non-dropouts (n=158)
Age[a]	70.8 (2.00)	69.82 (0.86)	60.64 (4.02)**	70.01 (0.85)
Gender, n (%)				
Male	15 (43)	42 (30)	7 (50)	46 (29)
Female	20 (57)	96 (70)	7 (50)	112 (71)
Education, n (%)				
Elementary School	4 (11)	40 (30)	1 (7)	35 (22)
Secondary School	16 (46)	48 (35)	5 (36)	55 (35)
Higher Education	15 (43)	48 (35)	8 (57)	67 (43)
Civil status, n (%)				
Single	5 (14)	18 (13)	2 (14)	18 (11)
Married/living together	30 (86)	120 (87)	12 (86)	140 (89)
QoL-AD[a]	39 (0.95)	39.51 (0.51)	36.64 (2.08)	39.39 (0.46)
EQ-5D-3L index score[a]	0.91 (0.009)	0.90 (0.007)	0.91 (0.02)	0.89 (0.008)
ZBI[a, b]	43. 31 (0.94)	43.58 (0.53)	40.71 (2.37)	43.35 (0.51)

MMSE, Mini-Mental State Examination; PwMCI, person with mild cognitive impairment; QoL-AD, quality of life in Alzheimer disease; ZBI, Zarit Caregiver Burden Inventory; n, number; %, percentage

[a]Mean (standard error); b: N=171 for control group at baseline; Significance levels: $p<0.05$*, 0.01** and 0.001***. Independent sample t-test is used to assess the statistical differences between dropouts and non-dropouts (inter-group [between groups] analysis).

Supplementary Table 5. Mean cost, health effect and differences by bootstrap (5000) for intervention and control group

	Intervention		Control		Difference (Intervention-Control)		
	Mean	SE	Mean	SE	Mean	Bootstrap SE	Bootstrap 95% CI
PwMCI							
Change in EQ-5D-3L index score	-0.00714	0.0020	-0.00355	0.0017	-0.00358	0.0027	-0.009 to 0.002
MMSE adjusted	27.59	0.12	27.38	0.11	0.2100	0.17	-0.12 to 0.54
Adjusted QoL-AD: composite score	39.40	0.27	39.07	0.27	0.3322	0.38	-0.42 to 1.08
Average total cost	8187.79	762.09	8175.31	750.69	12.48	1072.88	-2090.33 to 2115.28
Informal Caregiver							
Change in EQ-5D-3L index score	-0.0026	0.0017	-0.0054	0.0018	0.0028	0.0025	-0.002 to 0.008
Zarit burden adjusted	43.28	0.33	43.05	0.36	0.23	0.49	-0.74 to 1.20
Average total cost	6049.92	762.61	6589.10	742.20	-539.18	1063.59	-2623.78 to 1545.42
Dyads (PwMCI plus Informal Caregiver)							
Change in EQ-5D-3L index score	-0.0098	0.003	-0.0089	0.003	-0.00083	0.004	-0.008 to 0.006
Average total cost	14237.7	1133.57	14764.41	1080.39	-526.71	1578.99	-3621.48 to 2568.06

MMSE, Mini-Mental State Exam; PwMCI, person with mild cognitive impairment; QoL-AD, quality of life in Alzheimer disease; ZBI, Zarit Caregiver Burden Inventory.

Note: adjustments are made on baseline data of the estimates. No statistically significant differences were found.

DRG codes

DRG codes were missing for three observations in inpatient hospital admission. For these cases we used the average inpatient hospital admission cost per day in Blekinge region of Sweden for 2018 (SEK9500) and multiplied with number of inpatient days. For outpatient care, approximately 73% DRG codes were missing. In these cases, we costed the visits based on the average cost per visit in Blekinge region for 2018, stratified for specialized clinics. The exception was the eye-nose-throat clinic where the average cost was unavailable. Instead, we used the average cost per visit for all outpatient care in Blekinge region.

Table

Table 1| CHEERS checklist—Items to include when reporting economic evaluations of health interventions

Section/item	Item No	Recommendation	Reported on page No/ line No
Title and abstract			
Title	1	Identify the study as an economic evaluation or use more specific terms such as "cost-effectiveness analysis", and describe the interventions compared.	1
Abstract	2	Provide a structured summary of objectives, perspective, setting, methods (including study design and inputs), results (including base case and uncertainty analyses), and conclusions.	2
Introduction			
Background and objectives	3	Provide an explicit statement of the broader context for the study.	4-5
		Present the study question and its relevance for health policy or practice decisions.	5
Methods			
Target population and subgroups	4	Describe characteristics of the base case population and subgroups analysed, including why they were chosen.	5-7, 10-12
Setting and location	5	State relevant aspects of the system(s) in which the decision(s) need(s) to be made.	6
Study perspective	6	Describe the perspective of the study and relate this to the costs being evaluated.	7
Comparators	7	Describe the interventions or strategies being compared and state why they were chosen.	6-7
Time horizon	8	State the time horizon(s) over which costs and consequences are being evaluated and say why appropriate.	5, 10
Discount rate	9	Report the choice of discount rate(s) used for costs and outcomes and say why appropriate.	10
Choice of health outcomes	10	Describe what outcomes were used as the measure(s) of benefit in the evaluation and their relevance for the type of analysis performed.	8
Measurement of effectiveness	11a	*Single study-based estimates:* Describe fully the design features of the single effectiveness study and why the single study was a sufficient source of clinical effectiveness data.	5-12
	11b	*Synthesis-based estimates:* Describe fully the methods used for identification of included studies and synthesis of clinical effectiveness data.	
Measurement and valuation of preference based outcomes	12	If applicable, describe the population and methods used to elicit preferences for outcomes.	
Estimating resources and costs	13a	*Single study-based economic evaluation:* Describe approaches used to estimate resource use associated with the alternative interventions. Describe primary or secondary research methods for valuing each resource item in terms of its unit cost. Describe any adjustments made to approximate to opportunity costs.	7-8
	13b	*Model-based economic evaluation:* Describe approaches and data sources used to estimate resource use associated with model health states. Describe primary or secondary research methods for valuing each resource item in terms of its unit cost. Describe any adjustments made to approximate to opportunity costs.	
Currency, price date, and conversion	14	Report the dates of the estimated resource quantities and unit costs. Describe methods for adjusting estimated unit costs to the year of reported costs if necessary. Describe methods for converting costs into a common currency base and the exchange rate.	7
Choice of model	15	Describe and give reasons for the specific type of decision-analytical model used. Providing a figure to show model structure is strongly recommended.	
Assumptions	16	Describe all structural or other assumptions underpinning the decision-analytical model.	
Analytical methods	17	Describe all analytical methods supporting the evaluation. This could include methods for dealing with skewed, missing, or censored data; extrapolation methods; methods for pooling data; approaches to validate or make adjustments (such as half cycle corrections) to a model; and methods for handling population heterogeneity and uncertainty.	
Results			
Study parameters	18	Report the values, ranges, references, and, if used, probability distributions for all parameters. Report reasons or sources for distributions used to represent uncertainty where appropriate. Providing a table to show the input values is strongly recommended.	12-14, 28-34
Incremental costs and outcomes	19	For each intervention, report mean values for the main categories of estimated costs and outcomes of interest, as well as mean differences between the comparator groups. If applicable, report incremental cost-effectiveness ratios.	12-14,32
Characterising uncertainty	20a	*Single study-based economic evaluation:* Describe the effects of sampling uncertainty for the estimated incremental cost and incremental effectiveness parameters, together with the impact of methodological assumptions (such as discount rate, study perspective).	14, 33-34

BMJ: first published as 10.1136/bmj.f1049 on 25 March 2013. Downloaded from http://www.bmj.com/ on 20 September 2018 by guest. Protected by copyright.

No commercial reuse: See rights and reprints http://www.bmj.com/permissions Subscribe: http://www.bmj.com/subscribe

(continued)

Section/item	Item No	Recommendation	Reported on page No/ line No
	20b	*Model-based economic evaluation:* Describe the effects on the results of uncertainty for all input parameters, and uncertainty related to the structure of the model and assumptions.	
Characterising heterogeneity	21	If applicable, report differences in costs, outcomes, or cost-effectiveness that can be explained by variations between subgroups of patients with different baseline characteristics or other observed variability in effects that are not reducible by more information.	14,33-34
Discussion			
Study findings, limitations, generalisability, and current knowledge	22	Summarise key study findings and describe how they support the conclusions reached. Discuss limitations and the generalisability of the findings and how the findings fit with current knowledge.	14-20
Other			
Source of funding	23	Describe how the study was funded and the role of the funder in the identification, design, conduct, and reporting of the analysis. Describe other non-monetary sources of support.	21
Conflicts of interest	24	Describe any potential for conflict of interest of study contributors in accordance with journal policy. In the absence of a journal policy, we recommend authors comply with International Committee of Medical Journal Editors recommendations.	21

For consistency, the CHEERS statement checklist format is based on the format of the CONSORT statement checklist

BMJ: first published as 10.1136/bmj.f1049 on 25 March 2013. Downloaded from http://www.bmj.com/ on 20 September 2018 by guest. Protected by copyright.

No commercial reuse: See rights and reprints http://www.bmj.com/permissions Subscribe: http://www.bmj.com/subscribe