

Supplementary materials for:

Safford MM, Andreae S, Cherrington AL, et al. Peer coaches to improve diabetes outcomes in rural Alabama: a cluster randomized trial. *Ann Fam Med*. 2015;13(Suppl 1):S18-S26. Doi: 10.1370/afm.1798.

Details of data collection

At baseline and 12-month follow-up, trained research assistants recorded participants' height, weight and blood pressure (BP) and transcribed medications using pill bottle review. BP was measured after a 3 minute seated rest with both feet on the ground, and the last of two measurements was used for analysis. Participants were asked to wear indoor light clothing and to take off shoes when weight and height were measured. A wall-mounted stadiometer was used to measure height. A1c and low density lipoprotein cholesterol (LDL-C) were measured using point-of-service equipment in capillary finger stick blood (National Glycohemoglobin

Standardization Project compliant DCA2000 for A1c; Cardiocheck PA[®] for LDL-C, which is calibrated to the Centers for Disease Control standard and assesses direct LDL-C, permitting assessment when triglycerides are elevated). All blood analyzer equipment was standardized and quality controlled per manufacturer specifications.

All participants completed detailed in-person and follow-up interviews administered by trained, certified, and quality-controlled community members. Quality of life was assessed using the Euroqol 5-D;^{21,22} diabetes distress was assessed using the Diabetes Distress Scale;²³ and participant activation was assessed using the Patient Activation Measure.^{24,25} [Please see main text for references]

Appendix Table 1. Characteristics of Intervention and Control clusters in the Encourage cluster-randomized trial.

Cluster	Cluster Size	Number of Participants per Cluster	Number of Practices** per Cluster	Mean Number of Participants per Practice (Range)	Distance Traveled by Participants to Practice in Miles \pm SD (Range)
Intervention					
4	Small	45	16	2.8 (1-17)	21.8 \pm 21.6 (0-117)
9		55	16	3.4 (1-20)	17.3 \pm 16.6 (0-70)
12*		0	1	0	0
1	Large	8	3	2.6 (1-6)	3.8 \pm 10.6 (0-30)
5		7	3	2.3 (1-3)	3.6 \pm 6.2 (0-14)
8		36	8	4.5 (1-12)	7.3 \pm 15 (0-58)
11		47	11	4.3 (1-22)	11.7 \pm 14 (0-45)
Control					
6	Small	38	23	1.7 (1-5)	21.8 \pm 21.6 (0-117)
7		103	37	2.8 (1-18)	17.3 \pm 16.6 (0-70)
2	Large	2	1	1	3.75 \pm 10.6 (0-30)
3		79	17	4.6 (1-50)	3.6 \pm 6.2 (0-14)
10		4	3	1.3 (1-2)	11.7 \pm 14 (0-45)

*No participants were recruited from cluster 12. **As detailed in Andrae, et al, (reference 17 in the main manuscript) we initially recruited 12 primary care practices in 12 different communities. However, recruitment at the practices was insufficient, thus we eventually expanded to recruit in the communities surrounding each practice using respondent-driven sampling, a recruitment strategy that has been used to engage hard-to-reach individuals (see Heckathorn DD, reference 20 in the main manuscript). Therefore, the cluster was defined by the community surrounding each of the participating practices. In this table, we report the number of primary care practices that participants in each community/cluster attended.

Appendix Table 2. Characteristics of Encourage cluster-randomized trial participants with and without follow-up.

<i>Variable</i>	<i>With Follow-up</i>	<i>Without Follow-up</i>	<i>p-value</i>
N	359	65	
Age (mean, SD)	60.2 ± 12.1	56.4 ± 15.7	0.06
Female (n, %)	270 (75.2)	52 (80.0)	0.41
Blacks (n, %)	312 (87.4)	54 (83.1)	0.55
Education (n, %)			
≤ High school	111 (31.3)	14 (21.5)	0.27
High school graduate	151 (42.5)	33 (50.8)	
Some college, college graduate	93 (26.2)	18 (27.7)	
Annual household income (n, %)			
≥ \$40,000	65 (18.1)	10 (15.4)	0.57
< \$40,000	259 (72.1)	46 (70.8)	
Not available	35 (9.8)	9 (13.9)	
Number of all medications (mean ± SD)	7.8 ± 4.0	7.0 ± 4.2	0.19
Treated with insulin (n, %)	141 (39.4)	24 (37.5)	0.78
Baseline hemoglobin A1c (mean ± SD)	7.9 ± 1.9	8.2 ± 2.3	0.26
Baseline body mass index (mean ± SD)	36.3 ± 8.5	36.2 ± 9.8	0.95
Baseline systolic blood pressure (mean ± SD)	135.2 ± 21.4	138.0 ± 28.6	0.47
Baseline LDL-C (mean ± SD)	110.6 ± 38.2	110.9 ± 45.5	0.96
Baseline depression (mean ± SD)	6.4 ± 5.6	7.8 ± 6.2	0.07
Baseline diabetes distress (mean ± SD)	2.1 ± 1.2	2.3 ± 1.2	0.62
Baseline PAM (mean ± SD)	27.8 ± 6.1	27.9 ± 6.4	0.91
Baseline EuroQol 5D (mean ± SD)	0.76 ± 0.2	0.74 ± 0.2	0.36

*LDL-C = low density lipoprotein cholesterol. PAM = patient activation measure. P-values from χ^2 tests for categorical variables and t-tests for continuous variables.

Note: Of the 65 unretained individuals, 34 were control and 31 were intervention participants. For the 31 intervention participants, their mean number of contacts was 7.4 (range 0-21), which is lower than the mean number of contacts for the intervention completers (13.0, range 0-53).

Analysis of Intervention Dose

Several analyses examined the effect of the intervention dose as reflected in the number of contacts with peer advisors (see Appendix Table 1). We first created a variable that reflected the intervention dose as designed, defined as the receipt of 9 contacts within the first 10 weeks, followed by an additional 8 contacts over the next 10 months, which closely corresponded to the intervention design. We then examined the total contact number as a continuous variable; the receipt of ≥ 17 contacts as a dichotomous variable; and the duration of the exposure, defined as the number of days between the first and last contacts. As can be seen from Appendix Table 3, three of the coefficients had p-values < 0.05 , but 25 did not. The three statistically significant associations were observed in three different approaches to defining intervention dose, in three different outcomes. The overall picture does not present a convincing pattern that any of these measures of intervention dose had a significant relationship with the study's outcomes.

Appendix Table 3. Analysis of intervention dose in the Encourage cluster-randomized trial.

<i>Outcome</i>	<i>Per Protocol Intervention*</i>		<i>Total Contact Number</i>		<i>>17 Contacts</i>		<i>Exposure Duration**</i>	
	<i>Coef</i>	<i>p</i>	<i>Coef</i>	<i>p</i>	<i>Coef</i>	<i>p</i>	<i>Coef</i>	<i>p</i>
A1c	0.76	0.03	0.01	0.66	0.00	1.00	0.00	0.64
Body Mass Index	0.86	0.18	0.04	0.19	0.41	0.45	0.00	0.08
Systolic BP	2.92	0.57	-0.09	0.71	-0.54	0.89	0.01	0.49
LDL-C	2.64	0.72	-0.20	0.59	-3.06	0.60	-0.04	0.21
EuroQol 5D	-0.06	0.15	0.00	0.92	-0.08	0.02	0.00	0.17
Diabetes Distress	-0.28	0.21	-0.02	0.03	-0.30	0.09	0.00	0.13
Patient Activation	1.04	0.44	0.03	0.67	1.21	0.26	0.01	0.32

*Protocol-specified intervention defined as 9 contacts within 10 weeks and 8 additional contacts over the following 10 months.

**Exposure duration defined as the number of days between the first and last contacts.

BP = blood pressure. Coef = Coefficient. LDL-C = low density lipoprotein cholesterol.

P-values from t-tests.

Appendix Table 4. Characteristics of Encourage trial participants in the control (top) and intervention arms (bottom), by follow-up before and after 15 months after baseline.

<i>Variable</i>		<i>Within 15 Months</i>	<i>After 15 Months</i>	<i>p-value</i>
Control	N	131	61	
	Age (mean ± SD)	62.7 ± 12.7	57.8 ± 11.0	0.01
	Female (n, %)	96 (73.9)	44 (71.0)	0.81
	Blacks (n, %)	102 (79.1)	53 (85.5)	0.39
	Education (n, %)			
	≤ High school	41 (32.0)	17 (27.4)	0.69
	High school graduate	49 (38.3)	23 (37.1)	
	Some college, college graduate	38 (29.7)	22 (35.5)	
	Annual household income (n, %)			
	≥ \$40,000	16 (12.3)	6 (9.7)	0.89
	< \$40,000	104 (80)	51 (82.3)	
	Not available	10 (7.7)	5 (8.1)	
	Number of all medications (mean ± SD)	8.4 ± 4.2	7.2 ± 3.6	0.06
	Treated with insulin (n, %)	47 (36.4)	28 (45.2)	0.32
	Baseline hemoglobin A1c (mean ± SD)	7.7 ± 1.9	8.3 ± 1.9	0.04
	Baseline body mass index (mean ± SD)	35.4 ± 9.2	37.5 ± 8.8	0.13
	Baseline systolic blood pressure (mean ± SD)	134.1 ± 21.5	139.2 ± 20.4	0.13
	Baseline LDL-C (mean ± SD)	115.5 ± 39.6	103.1 ± 36.1	0.04
	Baseline depression (mean ± SD)	6.5 ± 5.5	6.0 ± 6.0	0.54
	Baseline diabetes distress (mean ± SD)	2.1 ± 1.1	2.2 ± 1.3	0.88
	Baseline PAM (mean ± SD)	28.3 ± 6.1	27.3 ± 7.7	0.36
	Baseline EuroQol 5D (mean ± SD)	0.78 ± 0.2	0.78 ± 0.2	0.85
<i>Variable</i>		<i>Within 15 Months</i>	<i>After 15 Months</i>	<i>p-value</i>
Intervention	N	139	29	
	Age (mean ± SD)	58.6 ± 12.0	61.9 ± 10.8	0.16
	Female (n, %)	106 (76.8)	25 (83.3)	0.59
	Blacks (n, %)	131 (94.9)	27 (93.1)	0.76
	Education (n, %)			
	≤ High school	42 (30.9)	11 (36.7)	0.82
	High school graduate	66 (48.5)	13 (43.3)	
	Some college, college graduate	28 (20.6)	6 (20.0)	
	Annual household income (n, %)			
	≥ \$40,000	9 (6.5)	1 (3.3)	0.57
	< \$40,000	114 (82.6)	24 (80.0)	
	Not available	15 (10.9)	5 (16.7)	
	Number of all medications (mean ± SD)	7.8 ± 4.1	6.3 ± 3.2	0.06
	Treated with insulin (n, %)	54 (39.1)	13 (43.3)	0.83
	Baseline hemoglobin A1c (mean ± SD)	7.9 ± 2.0	8.4 ± 2.5	0.23
	Baseline body mass index (mean ± SD)	36.8 ± 7.7	35.5 ± 7.8	0.40
	Baseline systolic blood pressure (mean ± SD)	132.5 ± 21.6	144.2 ± 19.9	0.01
	Baseline LDL-C (mean ± SD)	108.8 ± 38.7	112.0 ± 32.1	0.67
	Baseline depression (mean ± SD)	6.21 ± 5.6	7.3 ± 5.6	0.35
	Baseline diabetes distress (mean ± SD)	2.1 ± 1.2	2.2 ± 1.2	0.71
	Baseline PAM (mean ± SD)	28.0 ± 5.6	25.7 ± 3.2	0.03
	Baseline EuroQol 5D (mean ± SD)	0.74 ± 0.2	0.71 ± 0.2	0.41

LDL-C = low density lipoprotein cholesterol. PAM = patient activation measure. SD = standard deviation. P-values from χ^2 tests for categorical variables and t-tests for continuous variables.