

SUPPLEMENTARY DATA

Supplementary Table S1. Secondary outcomes (weight change and HbA1c change) for participants who have completed the programme, including respectively those for whom all data fields, except HbA1c, were complete (N=14,716) and for those with all data fields complete (N=9,420); univariate analysis

		Mean weight change, completed					Mean HbA1c change, completed				
		N	Mean weight at baseline	Mean weight change	95% CI lower	95% CI higher	N	Mean HbA1c at baseline	Mean HbA1c change	95% CI lower	95% CI higher
Total		14,716	82.4	-3.3	-3.4	-3.2	9,420	41.8	-2	-2.1	-2.0
Sex	Male	**	89.3	-3.7	-3.8	-3.6	**	41.8	-2.2	-2.3	-2.1
	Female	**	76.8	-3	-3.1	-2.9	**	41.8	-1.9	-2	-1.8
	Indeterminate	**	**	**	**	**	**	**	**	**	**
Age band	<40	175	89.3	-2.3	-3	-1.6	116	40.8	-1.7	-2.5	-0.9
	40-44	243	88.3	-1.9	-2.4	-1.4	141	41.7	-2	-2.7	-1.3
	45-49	413	87.5	-2.8	-3.3	-2.4	260	41.5	-1.4	-2	-0.9
	50-54	795	86.9	-2.9	-3.2	-2.6	516	41.8	-2	-2.4	-1.6
	55-59	1,373	86.8	-3.2	-3.4	-2.9	878	41.7	-1.9	-2.1	-1.6
	60-64	1,938	84.2	-3.4	-3.6	-3.2	1,293	41.7	-2	-2.2	-1.8
	65-69	3,193	83.3	-3.5	-3.6	-3.3	2,046	41.8	-2.2	-2.4	-2
	70-74	3,173	81.3	-3.5	-3.7	-3.4	2,043	41.8	-2.2	-2.4	-2.1
75+	3,413	77.4	-3.2	-3.4	-3.1	2,127	41.9	-1.9	-2.1	-1.8	
Ethnicity	Asian	1,319	71.9	-1.8	-2	-1.7	872	42.2	-1.7	-2	-1.5
	Black	867	85.5	-2.6	-2.8	-2.3	575	42.4	-1.6	-2	-1.2
	Mixed	231	82.7	-2.9	-3.4	-2.3	140	42.4	-1.9	-2.4	-1.3
	Other	71	78.6	-2.7	-3.7	-1.7	39	41.2	-1.3	-2.5	0
	White	12,228	83.3	-3.5	-3.6	-3.5	7,794	41.7	-2.1	-2.2	-2
Deprivation	IMD 1 (most deprived)	2,073	84	-2.9	-3.1	-2.7	1,291	41.7	-1.7	-1.9	-1.4
	IMD 2	2,728	82.9	-3.2	-3.4	-3	1,849	41.8	-2.1	-2.2	-1.9
	IMD 3	3,352	82.1	-3.2	-3.3	-3	2,261	41.9	-2.1	-2.2	-1.9
	IMD 4	3,224	82.1	-3.5	-3.7	-3.4	1,957	41.7	-2.1	-2.2	-1.9
	IMD5 (least deprived)	3,339	81.6	-3.6	-3.8	-3.5	2,062	41.8	-2.2	-2.4	-2
BMI grouping	Underweight/healthy	2,533	62.9	-2	-2.2	-1.9	1,671	41.3	-2.1	-2.3	-1.9
	Overweight	5,752	76.5	-3.2	-3.3	-3.1	3,704	41.6	-2	-2.2	-1.9
	Obese	6,431	95.1	-3.9	-4	-3.8	4,045	42.2	-2	-2.2	-1.9
Provider	Ingeus UK Ltd	2,357	83.8	-3.5	-3.7	-3.3	27	39.7	-1.3	-3.1	0.6

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		Mean weight change, completed					Mean HbA1c change, completed				
		N	Mean weight at baseline	Mean weight change	95% CI lower	95% CI higher	N	Mean HbA1c at baseline	Mean HbA1c change	95% CI lower	95% CI higher
	Living Well Taking Control LLP	2,156	83.3	-2.5	-2.7	-2.4	1,495	41	-0.7	-0.8	-0.6
	ICS Health and Wellbeing	7,009	81.4	-3.2	-3.3	-3.1	5,225	42.4	-2.1	-2.2	-2
	Reed Momenta Ltd	3,194	83	-4	-4.2	-3.9	2,673	41.1	-2.7	-2.8	-2.5

**Suppressed due to small numbers

SUPPLEMENTARY DATA

Supplementary Table S2. “Completion” of the programme as the dependent variable, including those for whom all data fields, except HbA1c, were complete (N=26,753); univariate analysis

		N	%	95% CI lower	95% CI upper	P value
	Total	26,753	55%	54%	56%	n/a
Sex	Male	11,942	55%	54%	56%	0.282
	Female	14,800	55%	54%	56%	
	Indeterminate	11	**	**	**	
Age band	<40	604	29%	25%	33%	<0.001
	40-44	693	35%	32%	39%	
	45-49	1,116	37%	34%	40%	
	50-54	1,873	42%	40%	45%	
	55-59	2,723	50%	49%	52%	
	60-64	3,489	56%	54%	57%	
	65-69	5,201	61%	60%	63%	
	70-74	5,161	61%	60%	63%	
75+	5,893	58%	57%	59%		
Ethnicity	Asian	3,087	43%	41%	44%	<0.001
	Black	1,821	48%	45%	50%	
	Mixed	513	45%	41%	49%	
	Other	181	39%	32%	46%	
	White	21,151	58%	57%	58%	
Deprivation	IMD 1 (most deprived)	4,430	47%	45%	48%	<0.001
	IMD 2	5,161	53%	51%	54%	
	IMD 3	5,922	57%	55%	58%	
	IMD 4	5,635	57%	56%	59%	
	IMD5 (least deprived)	5,605	60%	58%	61%	
	Underweight/ healthy	4,205	60%	59%	62%	<0.001
	Overweight	9,865	58%	57%	59%	
	Obese	12,683	51%	50%	52%	
Provider	Ingeus UK Ltd	5,868	40%	39%	41%	<0.001
	Living Well Taking Control LLP	3,067	70%	69%	72%	
	ICS Health and Wellbeing	11,752	60%	59%	61%	
	Reed Momenta Ltd	6,066	53%	51%	54%	

**Suppressed due to small numbers

SUPPLEMENTARY DATA

Supplementary Table S3. “Completion” of the programme as the dependent variable, including those for whom all data fields, except HbA1c, were complete (N=26,753); mixed effects logistic regression

		Odds Ratio	95% lower CI	95% upper CI	P value
Sex	Male	1.00			
	Female	1.00	0.95	1.05	0.92
	Indeterminate	0.39	0.11	1.37	0.14
Age group	<40	1.00			
	40-44	1.29	1.01	1.64	0.04
	45-49	1.35	1.09	1.69	0.01
	50-54	1.61	1.31	1.97	<0.001
	55-59	2.19	1.79	2.67	<0.001
	60-64	2.52	2.07	3.07	<0.001
	65-69	3.11	2.57	3.78	<0.001
	70-74	3.02	2.49	3.67	<0.001
75+	2.54	2.09	3.08	<0.001	
Deprivation	IMD 1 (most deprived)	1.00			
	IMD 2	1.18	1.09	1.29	<0.001
	IMD 3	1.29	1.18	1.41	<0.001
	IMD 4	1.37	1.25	1.49	<0.001
	IMD 5 (least deprived)	1.57	1.43	1.72	<0.001
Ethnicity	White	1.00			
	Asian	0.75	0.69	0.83	<0.001
	Black	1.04	0.93	1.17	0.45
	Mixed	0.82	0.68	0.99	0.04
	Other	0.83	0.60	1.13	0.23
BMI	Healthy / underweight	1.00			
	Overweight	0.96	0.89	1.04	0.30
	Obese	0.78	0.72	0.84	<0.001
Provider	ICS Health and Wellbeing	1.00			
	Ingeus UK Ltd	0.55	0.38	0.79	0.00
	Living Well Taking Control LLP	1.91	1.39	2.62	<0.001
	Reed Momenta Ltd	0.87	0.64	1.20	0.40

Random-effects Parameters	Estimate	Standard error	95% lower CI	95% upper CI
Local Referral Area: Identity				
var(_cons)	0.13	0.04	0.07	0.25

LR test vs. logistic model: $\chi^2(01) = 157.9$

Prob $\geq \chi^2 \Rightarrow 0.001$

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Supplementary Table S4. Mixed effects linear regression models for primary outcomes (weight change and HbA1c change), including respectively those for whom all data fields, except HbA1c, were complete (N=26,753) and for those with all data fields complete (N=16,083); Intention to treat analysis

		Weight change					HbA1c				
		Coefficient	95% lower CI	95% upper CI	Standard error	P value	Coefficient	95% CI lower	95% CI upper	Standard error	P value
	Baseline measurement (weight (kg) / HbA1c (mmol/mol))	-0.04	-0.05	-0.03	0	<0.001	-0.54	-0.56	-0.52	0.01	<0.001
	Number of intervention sessions attended	-0.37	-0.41	-0.33	0.02	<0.001	-0.22	-0.26	-0.18	0.02	<0.001
	Weight change	n/a	n/a	n/a	n/a	n/a	0.17	0.15	0.18	0.01	<0.001
Age group	<40										
	40-44	0.35	-0.43	1.12	0.4	0.38	0.02	-0.79	0.83	0.41	0.96
	45-49	-0.45	-1.16	0.26	0.36	0.21	0.54	-0.18	1.26	0.37	0.14
	50-54	-0.38	-1.04	0.28	0.34	0.26	0.32	-0.35	0.99	0.34	0.35
	55-59	-0.55	-1.19	0.08	0.32	0.09	0.52	-0.12	1.17	0.33	0.11
	60-64	-0.73	-1.36	-0.1	0.32	0.02	0.63	-0.01	1.26	0.32	0.05
	65-69	-0.72	-1.34	-0.1	0.32	0.02	0.62	-0.01	1.25	0.32	0.05
	70-74	-0.8	-1.43	-0.17	0.32	0.01	0.68	0.04	1.31	0.32	0.04
	75+	-0.74	-1.37	-0.12	0.32	0.02	0.99	0.36	1.62	0.32	<0.001
Sex	Male										
	Female	0.08	-0.07	0.24	0.08	0.28	0.16	0.03	0.3	0.07	0.02
	Indeterminate	-1.11	-5.03	2.81	2	0.58	2.64	-0.58	5.86	1.64	0.11
Ethnicity	White										
	Asian	0.7	0.42	0.97	0.14	<0.001	0.32	0.05	0.59	0.14	0.02
	Black	0.55	0.24	0.86	0.16	<0.001	0.6	0.28	0.92	0.16	<0.001
	Mixed	0.28	-0.25	0.81	0.27	0.3	0.35	-0.21	0.92	0.29	0.22
	Other	0.64	-0.3	1.58	0.48	0.19	1.07	0.02	2.11	0.54	0.05
Deprivation	IMD 1 (most deprived)										
	IMD 2	-0.16	-0.39	0.08	0.12	0.19	-0.27	-0.51	-0.03	0.12	0.03
	IMD 3	-0.08	-0.31	0.15	0.12	0.49	-0.22	-0.46	0.02	0.12	0.07
	IMD 4	-0.27	-0.51	-0.04	0.12	0.02	-0.12	-0.37	0.12	0.13	0.32
	IMD 5 (least deprived)	-0.31	-0.55	-0.07	0.12	0.01	-0.17	-0.42	0.08	0.13	0.18

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		Weight change					HbA1c				
		Coefficient	95% lower CI	95% upper CI	Standard error	P value	Coefficient	95% CI lower	95% CI upper	Standard error	P value
BMI grouping	Underweight/healthy										
	Overweight	-0.7	-0.9	-0.5	0.1	<0.001	0.45	0.26	0.64	0.1	<0.001
	Obese	-0.8	-1.06	-0.53	0.14	<0.001	0.82	0.62	1.01	0.1	<0.001
Provider	ICS Health and Wellbeing										
	Ingeus UK Ltd	-0.27	-0.68	0.15	0.21	0.2	-0.4	-1.75	0.95	0.69	0.56
	Living Well Taking Control LLP	0.77	0.41	1.13	0.18	<0.001	0.68	0.21	1.16	0.24	0.01
	Reed Momenta Ltd	0.73	0.35	1.11	0.19	<0.001	0	-0.48	0.48	0.25	0.99
	Constant	5.31	4.38	6.24	0.48	<0.001	22.35	21.18	23.52	0.6	<0.001

Random-effects Parameters	Weight change				HbA1c change			
	Estimate	Standard error	95% lower CI	95% upper CI	Estimate	Standard error	95% lower CI	95% upper CI
Local Referral Area: Identity								
var(_cons)	0.12	0.04	0.06	0.24	0.25	0.07	0.14	0.4
var (residual)	15.9	0.19	15.6	16.4	10.7	0.16	10.4	11.1

Weight change; LR test vs. linear model: $\chi^2(01) = 57.5$, Prob $\geq \chi^2 = <0.001$
HbA1c change; LR test vs linear model: $\chi^2(01) = 168.22$, Prob $\geq \chi^2 = <0.001$

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Supplementary Table S5. Mixed effects linear regression models for secondary outcomes (weight change and HbA1c change) using completer analysis, including respectively those for whom all data fields, except HbA1c, were complete, (N=14,716)) and for who all data fields were complete (N=9,420)

		Weight change					HbA1c				
		Coefficient	95% lower CI	95% upper CI	Standard error	P value	Coefficient	95% CI lower	95% CI upper	Standard error	P value
	Baseline measurement (weight (kg) / HbA1c (mmol/mol))	-0.04	-0.05	-0.03	0	<0.001	-0.54	-0.56	-0.52	0.01	<0.001
	Number of intervention sessions attended	-0.37	-0.41	-0.33	0.02	<0.001	-0.22	-0.26	-0.18	0.02	<0.001
	Weight change	n/a	n/a	n/a	n/a	n/a	0.17	0.15	0.18	0.01	<0.001
Age group	<40										
	40-44	0.35	-0.43	1.12	0.4	0.38	0.02	-0.79	0.83	0.41	0.96
	45-49	-0.45	-1.16	0.26	0.36	0.21	0.54	-0.18	1.26	0.37	0.14
	50-54	-0.38	-1.04	0.28	0.34	0.26	0.32	-0.35	0.99	0.34	0.35
	55-59	-0.55	-1.19	0.08	0.32	0.09	0.52	-0.12	1.17	0.33	0.11
	60-64	-0.73	-1.36	-0.1	0.32	0.02	0.63	-0.01	1.26	0.32	0.05
	65-69	-0.72	-1.34	-0.1	0.32	0.02	0.62	-0.01	1.25	0.32	0.05
	70-74	-0.8	-1.43	-0.17	0.32	0.01	0.68	0.04	1.31	0.32	0.04
	75+	-0.74	-1.37	-0.12	0.32	0.02	0.99	0.36	1.62	0.32	<0.001
Sex	Male										
	Female	0.08	-0.07	0.24	0.08	0.28	0.16	0.03	0.3	0.07	0.02
	Indeterminate	-1.11	-5.03	2.81	2	0.58	2.64	-0.58	5.86	1.64	0.11
Ethnicity	White										
	Asian	0.7	0.42	0.97	0.14	<0.001	0.32	0.05	0.59	0.14	0.02
	Black	0.55	0.24	0.86	0.16	<0.001	0.6	0.28	0.92	0.16	<0.001
	Mixed	0.28	-0.25	0.81	0.27	0.3	0.35	-0.21	0.92	0.29	0.22
	Other	0.64	-0.3	1.58	0.48	0.19	1.07	0.02	2.11	0.54	0.05
Deprivation	IMD 1 (most deprived)										
	IMD 2	-0.16	-0.39	0.08	0.12	0.19	-0.27	-0.51	-0.03	0.12	0.03
	IMD 3	-0.08	-0.31	0.15	0.12	0.49	-0.22	-0.46	0.02	0.12	0.07
	IMD 4	-0.27	-0.51	-0.04	0.12	0.02	-0.12	-0.37	0.12	0.13	0.32
	IMD 5 (least deprived)	-0.31	-0.55	-0.07	0.12	0.01	-0.17	-0.42	0.08	0.13	0.18

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		Weight change					HbA1c				
		Coefficient	95% lower CI	95% upper CI	Standard error	P value	Coefficient	95% CI lower	95% CI upper	Standard error	P value
BMI grouping	Underweight/healthy										
	Overweight	-0.7	-0.9	-0.5	0.1	<0.001	0.45	0.26	0.64	0.1	<0.001
	Obese	-0.8	-1.06	-0.53	0.14	<0.001	0.82	0.62	1.01	0.1	<0.001
Provider	ICS Health and Wellbeing										
	Ingeus UK Ltd	-0.27	-0.68	0.15	0.21	0.2	-0.4	-1.75	0.95	0.69	0.56
	Living Well Taking Control LLP	0.77	0.41	1.13	0.18	<0.001	0.68	0.21	1.16	0.24	0.01
	Reed Momenta Ltd	0.73	0.35	1.11	0.19	<0.001	0	-0.48	0.48	0.25	0.99
	Constant	5.31	4.38	6.24	0.48	<0.001	22.35	21.18	23.52	0.6	<0.001

Random-effects Parameters	Weight change				HbA1c change			
	Estimate	Standard error	95% lower CI	95% upper CI	Estimate	Standard error	95% lower CI	95% upper CI
Local Referral Area: Identity								
var(_cons)	0.12	0.04	0.06	0.24	0.25	0.07	0.14	0.4
var (residual)	15.9	0.19	15.6	16.4	10.7	0.16	10.4	11.1

Weight change: LR test vs. linear model: $\chi^2(01)=48.34$, $\text{Prob} > \chi^2 = <0.001$

HbA1c change: Linear test vs. linear model: $\chi^2(01) = 159.95$, $\text{Prob} > \chi^2 = <0.001$

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Supplementary Table S6. Mean weight change using multiple imputation data, univariate analysis

		Completed (N=17,252)				Intention to treat (N=32,665)			
		Mean weight at baseline	Mean weight change	95% CI lower	95% CI higher	Mean weight at baseline	Mean weight change	95% CI lower	95% CI higher
	Total	82.5	-3.4	-3.4	-3.3	83.6	-2.2	-2.3	-2.2
Sex*	Male	89.5	-3.8	-3.9	-3.7	90.2	-2.5	-2.6	-2.4
	Female	76.9	-3.0	-3.1	-3.0	78.3	-2.0	-2.1	-2.0
Age band	<40	89.1	-2.4	-3.0	-1.8	90.1	-1.1	-1.3	-0.8
	40-44	88.9	-2.1	-2.6	-1.6	90.3	-1.0	-1.3	-0.8
	45-49	87.8	-3.1	-3.5	-2.6	90.7	-1.7	-1.9	-1.5
	50-54	87.1	-3.0	-3.3	-2.7	89.0	-1.7	-1.9	-1.6
	55-59	86.8	-3.2	-3.4	-3.0	88.0	-2.0	-2.2	-1.9
	60-64	84.3	-3.4	-3.6	-3.2	85.3	-2.3	-2.5	-2.2
	65-69	83.2	-3.6	-3.7	-3.4	83.6	-2.6	-2.7	-2.5
	70-74	81.2	-3.6	-3.7	-3.5	81.6	-2.6	-2.7	-2.5
	75+	77.5	-3.3	-3.4	-3.2	77.2	-2.2	-2.3	-2.1
Ethnicity	Asian	72.5	-1.9	-2.1	-1.7	75.1	-1.0	-1.1	-0.9
	Black	85.6	-2.7	-3.0	-2.5	86.4	-1.7	-1.9	-1.6
	Mixed	82.9	-3.0	-3.5	-2.4	84.1	-1.7	-2.0	-1.4
	Other	78.7	-2.8	-3.7	-1.9	80.8	-1.5	-2.0	-1.0
	White	83.4	-3.6	-3.7	-3.5	84.6	-2.5	-2.5	-2.4
Deprivation	IMD 1 (most deprived)	84.0	-3.0	-3.1	-2.8	85.0	-1.7	-1.8	-1.6
	IMD 2	83.3	-3.3	-3.4	-3.1	84.4	-2.1	-2.2	-2.0
	IMD 3	82.4	-3.3	-3.4	-3.1	83.4	-2.2	-2.3	-2.1
	IMD 4	82.1	-3.6	-3.7	-3.4	83.3	-2.4	-2.5	-2.3
	IMD5 (least deprived)	81.5	-3.6	-3.8	-3.5	82.2	-2.6	-2.7	-2.5
BMI grouping	Underweight/healthy	62.9	-2.1	-2.2	-2.0	62.6	-1.4	-1.4	-1.3
	Overweight	76.6	-3.2	-3.3	-3.1	76.6	-2.2	-2.2	-2.1
	Obese	95.5	-4.0	-4.1	-3.9	96.0	-2.6	-2.6	-2.5
Provider	Ingeus UK Ltd	83.7	-3.5	-3.7	-3.3	85.0	-2.0	-2.1	-2.0
	Living Well Taking Control LLP	83.4	-2.5	-2.7	-2.3	84.3	-1.9	-2.0	-1.8
	ICS Health and Wellbeing	81.3	-3.2	-3.2	-3.1	82.3	-2.2	-2.3	-2.2
	Reed Momenta Ltd	83.4	-4.0	-4.1	-3.9	84.1	-2.5	-2.6	-2.4

*Due to very small numbers, Indeterminate was not imputed

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Supplementary Table S7. Mean HbA1c change for multiple imputation data, univariate analysis

		Completed (N=11,167)				Intention to treat (N=19,891)			
		Mean hba1c at baseline	Mean hba1c change	95% CI lower	95% CI higher	Mean hba1c at baseline	Mean hba1c change	95% CI lower	95% CI higher
	Total	41.8	-2.1	-2.2	-2.0	41.7	-1.2	-1.3	-1.2
Sex*	Male	41.7	-2.3	-2.4	-2.2	41.7	-1.4	-1.4	-1.3
	Female	41.8	-2.0	-2.1	-1.9	41.8	-1.2	-1.2	-1.1
Age band	<40	41.0	-2.0	-2.7	-1.3	41.1	-0.7	-1.0	-0.5
	40-44	41.8	-1.9	-2.5	-1.3	41.6	-0.7	-0.9	-0.4
	45-49	41.2	-1.4	-1.9	-0.9	41.4	-0.6	-0.8	-0.4
	50-54	41.7	-1.9	-2.3	-1.6	41.7	-0.9	-1.1	-0.8
	55-59	41.7	-2.0	-2.2	-1.7	41.8	-1.1	-1.2	-1.0
	60-64	41.7	-2.1	-2.3	-1.9	41.7	-1.3	-1.4	-1.2
	65-69	41.7	-2.2	-2.4	-2.1	41.7	-1.4	-1.6	-1.3
	70-74	41.8	-2.3	-2.4	-2.1	41.8	-1.5	-1.6	-1.4
	75+	41.9	-2.0	-2.2	-1.8	42.0	-1.3	-1.4	-1.2
	Ethnicity	Asian	42.1	-1.8	-2.0	-1.5	42.1	-0.8	-1.0
Black		42.1	-1.6	-1.9	-1.2	42.1	-0.8	-1.0	-0.6
Mixed		42.2	-1.9	-2.5	-1.2	42.1	-0.9	-1.3	-0.6
Other		41.0	-1.2	-2.5	0.1	41.1	-0.5	-1.1	0.1
White		41.7	-2.2	-2.3	-2.1	41.7	-1.4	-1.4	-1.3
Deprivation	IMD 1 (most deprived)	41.6	-1.7	-1.9	-1.4	41.8	-0.8	-0.9	-0.7
	IMD 2	41.8	-2.1	-2.3	-1.9	41.7	-1.2	-1.3	-1.1
	IMD 3	41.8	-2.1	-2.3	-2.0	41.8	-1.3	-1.4	-1.2
	IMD 4	41.7	-2.2	-2.4	-2.0	41.7	-1.3	-1.4	-1.2
	IMD5 (least deprived)	41.7	-2.3	-2.4	-2.1	41.7	-1.5	-1.6	-1.4
BMI grouping	Underweight/healthy	41.2	-2.1	-2.3	-1.9	41.2	-1.3	-1.5	-1.2
	Overweight	41.6	-2.1	-2.2	-2.0	41.6	-1.3	-1.4	-1.2
	Obese	42.1	-2.1	-2.2	-2.0	42.1	-1.2	-1.2	-1.1
Provider	Ingeus UK Ltd	39.4	-0.8	-2.2	0.7	39.3	-0.6	-1.7	0.5
	Living Well Taking Control	41.0	-0.7	-0.9	-0.6	40.9	-0.5	-0.6	-0.4
	ICS Health and Wellbeing	42.4	-2.1	-2.2	-2.0	42.3	-1.3	-1.3	-1.2
	Reed Momenta Ltd	41.2	-2.6	-2.7	-2.4	41.3	-1.4	-1.5	-1.3

*Due to very small numbers, Indeterminate was not imputed

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Supplementary Table S8. Mixed effects linear regression models for primary outcomes (weight change and HbA1c change) using Intention to treat analysis for multiple imputation data

		Weight change, intention to treat (N=32,665)					HbA1c change, intention to treat, (N=19,981)				
		Coefficient	95% lower CI	95% upper CI	Standard error	P value	Coefficient	95% CI lower	95% CI upper	Standard error	P value
Baseline measurement (weight (kg) / HbA1c (mmol/mol))		-0.03	-0.03	-0.02	0.00	<0.001	-0.32	-0.33	-0.31	0.01	<0.001
Number of intervention sessions attended		-0.32	-0.33	-0.31	0.00	<0.001	-0.17	-0.18	-0.16	0.00	<0.001
Weight change		n/a	n/a	n/a	n/a	n/a	0.14	0.13	0.15	0.01	<0.001
Sex*	Male										
	Female	0.13	0.04	0.22	0.05	0.01	0.1	0.02	0.18	0.04	0.02
Age group	<40										
	40-44	0.22	-0.12	0.57	0.17	0.2	0.18	-0.18	0.54	0.18	0.33
	45-49	-0.22	-0.53	0.08	0.16	0.15	0.49	0.16	0.81	0.17	<0.001
	50-54	-0.07	-0.36	0.22	0.15	0.65	0.39	0.08	0.69	0.16	0.01
	55-59	-0.12	-0.4	0.16	0.14	0.39	0.46	0.17	0.76	0.15	<0.001
	60-64	-0.28	-0.55	0	0.14	0.05	0.48	0.19	0.77	0.15	<0.001
	65-69	-0.38	-0.66	-0.11	0.14	0.01	0.47	0.18	0.76	0.15	<0.001
	70-74	-0.43	-0.7	-0.15	0.14	<0.001	0.49	0.2	0.78	0.15	<0.001
75+	-0.35	-0.63	-0.08	0.14	0.01	0.68	0.39	0.96	0.15	<0.001	
Ethnicity	White										
	Asian	0.44	0.29	0.6	0.08	<0.001	0.13	-0.03	0.3	0.08	0.12
	Black	0.24	0.05	0.42	0.09	0.01	0.34	0.13	0.55	0.11	<0.001
	Mixed	0.18	-0.11	0.47	0.15	0.23	0.11	-0.24	0.47	0.18	0.53
	Other	0.21	-0.28	0.7	0.25	0.4	0.41	-0.16	0.98	0.29	0.16
Deprivation	IMD 1 (most deprived)										
	IMD 2	-0.12	-0.25	0.01	0.07	0.07	-0.23	-0.37	-0.1	0.07	<0.001
	IMD 3	-0.07	-0.2	0.07	0.07	0.33	-0.25	-0.39	-0.11	0.07	<0.001
	IMD 4	-0.16	-0.3	-0.02	0.07	0.03	-0.17	-0.31	-0.03	0.07	0.02
	IMD 5 (least deprived)	-0.22	-0.36	-0.09	0.07	<0.001	-0.22	-0.37	-0.07	0.08	<0.001
BMI grouping	Underweight/healthy										
	Overweight	-0.53	-0.66	-0.41	0.06	<0.001	0.25	0.13	0.38	0.06	<0.001
	Obese	-0.71	-0.87	-0.55	0.08	<0.001	0.48	0.36	0.61	0.06	<0.001
Provider	ICS Health and										

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		Weight change, intention to treat (N=32,665)					HbA1c change, intention to treat, (N=19,981)				
		Coefficient	95% lower CI	95% upper CI	Standard error	P value	Coefficient	95% CI lower	95% CI upper	Standard error	P value
	Wellbeing										
	Ingeus UK Ltd	-0.12	-0.36	0.13	0.13	0.36	0.17	-0.76	1.09	0.47	0.73
	Living Well Taking Control LLP	0.66	0.43	0.89	0.12	<0.001	0.49	0.18	0.8	0.16	<0.001
	Reed Momenta Ltd	0.3	0.09	0.51	0.11	0.01	-0.12	-0.41	0.16	0.14	0.39
	Constant	3.09	2.66	3.52	0.22	<0.001	13.17	12.58	13.77	0.3	<0.001

Random-effects Parameters	Weight change				HbA1c change			
	Estimate	Standard error	95% lower CI	95% upper CI	Estimate	Standard error	95% lower CI	95% upper CI
Local Referral Area: Identity								
sd(_cons)	0.2	0.04	0.15	0.3	0.31	0.05	0.24	0.42
sd (residual)	3.5	0.01	3.4	3.5	2.9	0.01	2.9	2.9

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Supplementary Table S9. “Completion” of the programme as the dependent variable, using multiple imputation data (N=32,665), mixed effect logistic regression

		Odds Ratio	95% lower CI	95% upper CI	P value
Sex*	Male	1			
	Female	0.99	0.95	1.04	0.77
Age group	<40	1.00			
	40-44	1.28	1.03	1.58	0.02
	45-49	1.36	1.12	1.64	<0.001
	50-54	1.58	1.32	1.89	<0.001
	55-59	2.19	1.84	2.60	<0.001
	60-64	2.56	2.16	3.04	<0.001
	65-69	3.11	2.62	3.68	<0.001
	70-74	2.92	2.47	3.46	<0.001
75+	2.48	2.09	2.93	<0.001	
Ethnicity	White	1.00			
	Asian	0.74	0.68	0.81	<0.001
	Black	1.06	0.95	1.18	0.33
	Mixed	0.85	0.71	1.02	0.07
	Other	0.79	0.60	1.05	0.10
Deprivation	IMD 1 (most deprived)	1.00			
	IMD 2	1.20	1.11	1.30	<0.001
	IMD 3	1.33	1.23	1.44	<0.001
	IMD 4	1.40	1.29	1.51	<0.001
	IMD 5 (least deprived)	1.59	1.46	1.72	<0.001
BMI	Healthy / underweight	1.00			
	Overweight	0.97	0.91	1.04	0.44
	Obese	0.80	0.75	0.86	<0.001
Provider	ICS Health and Wellbeing	1.00			
	Ingeus UK Ltd	0.54	0.38	0.77	<0.001
	Living Well Taking Control LLP	2.05	1.50	2.81	<0.001
	Reed Momenta Ltd	0.84	0.61	1.15	0.28

Random-effects Parameters	Estimate	Standard error	95% lower CI	95% upper CI
Local Referral Area: Identity sd(_cons)	0.37	0.06	0.27	0.51

*Due to very small numbers, Indeterminate was not imputed