Appendix 1

eTable 1. Postmatch Covariates Balance: Asynchronous Cohort

Variables	Program (n=1,021)	Comparison (n=1,021)	SMD
Prenatal total medical cost PMPM	$848.76	$837.32	0.069
Age	31.22	31.45	0.055
Risk score	4.61	4.29	0.011
Pct. Asian	57(5.58%)	57(5.58%)	0.008
Pct. Black	361(35.36%)	349(34.18%)	0.018
Pct. White	553(54.16%)	563(55.14%)	0.000
Pct. Hispanic	40(3.92%)	38(3.72%)	0.010
Pct. Other	50(4.90%)	52(5.09%)	0.007
Pct. with Hypertension	93(9.11%)	91(8.91%)	0.010
Pct. with Diabetes	34(3.33%)	28(2.74%)	0.013
Pct. with Cardiovascular Conditions	13(1.27%)	14(1.37%)	0.008
Pct. with Depression	138(13.52%)	144(14.10%)	0.004
Pct. with Anxiety Disorders	148(14.50%)	157(15.38%)	0.001

Note: Standardized Mean Differences (SMD) <0.1 indicate no significant difference between groups.

eTable 2. Postmatch Covariates Balance: Contemporaneous Cohort

Variables	Program (n=1,276)	Comparison (n=1,276)	SMD
Prenatal total medical cost PMPM	$861.40	$872.50	0.073
Age	31.27	31.56	0.047
Risk score	4.12	4.57	0.014
Pct. Asian	61(4.78%)	62(4.86%)	0.012
Pct. Black	472(36.99%)	483(37.85%)	0.016
Pct. White	687(53.84%)	674(52.82%)	0.005
Pct. Hispanic	46(3.61%)	46(3.61%)	0.011
Pct. Other	56(4.39%)	57(4.47%)	0.012
Pct. with Hypertension	124(9.72%)	117(9.16%)	0.008
Pct. with Diabetes	36(2.82%)	35(2.73%)	0.011
Pct. with Cardiovascular Conditions	15(1.18%)	12(0.91%)	
			0.010
Pct. with Depression	217(17.01%)	211(16.54%)	0.008
Pct. with Anxiety Disorders	153(11.99%)	132(10.32%)	0.002

Note: Standardized Mean Differences (SMD) <0.1 indicate no significant difference between groups.

A visualization of the covariate balance test is depicted in eFigure1

Online-Only Methods

Identification strategy:

Using the notation from Rubin, we denote the average treatment effect on the treated post-intervention ($ATET_{t=2}$) as follows:

$$ATET_{t=2} = E \ (Y_{t=2}^1 - Y_{t=2}^0 | \ D = 1) = E[\ E \ (Y_{t=2}^1 - Y_{t=2}^0 | \ X = x, D = 1) \ | \ D = 1]$$

where $ATET_{t=2}$ is the average treatment effect on those respondents. Y indicates the observed outcomes, and other observables are denoted by X. The treatment variable D equals 1 if the group is being treated.[1]

We have 1,021 treated individuals and 1,021 controls in the asynchronous comparison group, whereas the contemporaneous comparison group contains 1,276 treated and 1,276 controls. For each member who enrolled in the Heart Safe Motherhood program, we denoted the treatment status as 1 ($D = 1$). The outcome variable is defined as adverse clinical outcomes following delivery discharge (stroke, DIC, eclampsia, pulmonary edema, HELLP syndrome, MI, and cardiomyopathy).

Robustness Checks

eTables 3a and 4a Present results from four specifications. (1) The Covariate adjusted regression on matched samples is the analyses presented in the main manuscript and in included here for comparison. (2) The doubly robustness method that combines regression and propensity score methods to estimate the treatment effect on our outcome. Since both regression and propensity score matching relies on the correct model specification to yield unbiased results, we only need either one of the models to have the correct specification by combining the two approaches.2 (3) The covariate adjusted regression on unmatched samples compares all intervention group patients (n=1,700) to all eligible patients from the asynchronous cohort (n=1,591; eTable 43a) and all eligible patients from the contemporaneous cohort (n=12,163; eTable 4a). (4) We also conducted a difference-in-difference analysis on the matched samples.

All four estimators yield comparable results in both direction and magnitude across both comparison groups.

Appendix 2. Robustness Checks for 6-Month Outcomes: Asynchronous Cohort

Models	Outcomes	Mean (treated)	Mean (untreated)	Difference	Robust SE	95% CI
Covariate adjusted regression on matched samples (Published version)	Adv. Outcomes	27	49	-22	33.38	[-24.1, -19.9]
	Spec. Visit	841	759	82	90.41	[76.5, 87.5]
	ER Visit	23	30	-7	43.52	[-9.7, -4.3]
	IP Visit	14	21	-7	38.11	[-9.3, -4.6]
	Cardiologist Visit	131	98	33	73.26	[28.5, 37.5]
	Medical Costs PMPM	-	-	36.2*	42.37	[33.6, 38.8]
Doubly Robust Estimator	Spec. Visit	892	807	85	88.45	[79.6, 90.4]
	Adv. Outcomes	26	43	-17	31.41	[-18.9, -15.1]
	ER Visit	18	26	-8	43.37	[-10.7, -5.3]
	IP Visit	21	32	-11	31.84	[-12.9, -9.1]
	Cardiologist Visit	143	115	28	72.03	[23.6, 32.4]
	Medical Costs PMPM	-	-	33.7*	41.62	[31.2, 36.3]
Covariate adjusted regression on unmatched samples	Adv. Outcomes	25	53	-28	35.76	[-30.2, -25.8]
	Spec. Visit	914	821	93	94.37	[87.2, 98.8]
	ER Visit	21	31	-10	44.85	[-12.8, -7.3]
	IP Visit	27	35	-8	42.92	[-10.6, -5.4]
	Cardiologist Visit	157	124	33	78.51	[28.2, 37.8]
	Medical Costs PMPM	-	-	72.3*	52.79	[69.1, 75.5]
Covariate adjusted Difference-in-Differences on matched sample	Spec. Visit	858	782	76	89.72	[70.5, 81.5]
	ER Visit	16	25	-9	36.91	[-11.3, -6.7]
	IP Visit	23	29	-6	42.83	[-8.6, -3.4]
	Cardiologist Visit	138	113	25	39.16	[22.6, 27.4]
	Medical Costs PMPM	-	-	39.6	80.21	[34.7, 44.5]

Appendix 3. Robustness Checks for 6-Month Outcomes: Contemporaneous Cohort

Models	Outcome	Mean (treated)	Mean (untreated)	Difference	Robust SE	95% CI
Covariate adjusted regression on matched samples (Published version)	Adv. Outcomes	42	69	-27	39.56	[-29.4, -24.6]
	Spec. Visit	1104	1012	92	102.39	[85.7, 98.3]
	ER Visit	29	41	-12	47.51	[-14.9, -9.1]
	IP Visit	19	28	-9	56.28	[-12.4, -5.6]
	Cardiologist Visit	152	106	46	89.75	[40.5, 51.5]
	Medical Costs PMPM	-	-	29.4*	64.22	[25.9, 32.9]
Doubly Robust Estimator	Adv. Outcomes	38	57	-19	33.63	[-21.1, -16.9]
	Spec. Visit	1085	1022	63	96.41	[57.1, 68.9]
	ER Visit	32	47	-15	43.94	[-17.7, -12.3]
	IP Visit	22	32	-10	53.12	[-13.3, -6.7]
	Cardiologist Visit	163	125	38	85.84	[32.7, 43.3]
	Medical Costs PMPM	-	-	28.3	52.07	[25.4, 31.2]
Covariate adjusted regression on unmatched samples	Adv. Outcomes	32	53	-21	35.42	[-23.2, -18.8]
	Spec. Visit	1121	1032	89	96.46	[83.1, 94.9]
	ER Visit	26	34	-8	46.83	[-10.9, -5.1]
	IP Visit	16	28	-12	57.27	[-15.5, -8.5]
	Cardiologist Visit	172	136	36	90.32	[30.5, 41.5]
	Medical Costs PMPM	-	-	59.6*	63.28	[56.1, 63.1]
Covariate adjusted Difference-in-Differences on matched sample	Spec. Visit	1098	1036	62	96.23	[56.1, 67.9]
	ER Visit	21	27	-6	47.31	[-8.9, -3.1]
	IP Visit	15	19	-4	53.12	[-7.26, -0.7]
	Cardiologist Visit	177	143	34	93.76	[28.3, 39.8]
	Medical Costs PMPM	-	-	31.2	70.97	[27.3, 35.1]

References:

1. Rubin, D. B., & Thomas, N. (1996). Matching Using Estimated Propensity Scores: Relating Theory to Practice. Biometrics, 52(1), 249. https://doi.org/10.2307/2533160

2. Funk, M. J., Westreich, D., Wiesen, C., Stürmer, T., Brookhart, M. A., & Davidian, M. (2011, April 1). Doubly robust estimation of causal effects. American journal of epidemiology. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3070495/