

Trends in Remote Patient Monitoring Before and After the COVID-19 Pandemic in the United States: A Rural/Urban and Racial/Ethnic Group Comparison

Supplemental Materials

	2018		2019		2020	
	N=4,280		N=13,803		N=50,528	
	N	%	N	%	N	%
Age at end of reference year						
<65	497	11.61	1754	12.71	5898	11.67
65-75	2268	52.99	6833	49.50	24011	47.52
76-85	1180	27.57	3843	27.84	15302	30.28
>85	335	17.83	1373	9.95	5317	10.52
Sex						
Male	2205	51.52	6638	48.09	23035	45.59
Female	2075	48.48	7165	51.91	27493	54.41
Race						
Non-Hispanic White	3147	73.53	9915	71.83	35940	71.13
Non-Hispanic Black	464	10.84	1931	13.99	6904	13.66
Other						
Race/Asian/PI/AN	163	3.81	622	4.51	3047	6.03
Hispanic or Latino	443	10.35	1117	8.09	3708	7.34
Unknown	63	1.47	218	1.58	929	1.84
Rurality						
Rural	607	14.18	1557	11.28	5863	11.6
Urban	3579	83.62	11861	85.93	43463	86.02
Unknown	94	2.20	385	2.79	1202	2.38
Ever enrolled in dual eligibility						
No	3441	80.40	10733	77.76	39315	77.81
Yes	839	19.60	3070	22.24	11213	22.19
Census Regions						
Northeast	856	20.00	2422	17.55	8771	17.36
Midwest	733	17.13	1864	13.50	6847	13.55
South	1973	46.10	7404	53.64	26679	52.80
West	270	6.31	805	5.83	4093	8.10
Missing	448	10.47	1308	9.48	4138	8.19

Supplemental Table A. Patient characteristics and demographics

Models were fit using the following equation:

$$y = \alpha + \beta_1 T + \beta_2 X + \beta_3 T \times X + \beta_4 Z + \beta_5 T \times Z + \beta_6 Z \times X + \beta_7 T \times Z \times X + \varepsilon$$

y	RPM utilization rate per 100,000 beneficiaries
T	Time of observation starting with January 2018 (T=1) and ending with December 2020 (T=36)
X	Study Phase where X was 0 pre-interruption time (i.e., January 2018 through March 2020) and 1 post-interruption time (i.e., April 2020 through December 2020)
Z	Binary indicator for treatment (1) and control (0).
β_1	Pre-interruption slope
β_2, β_3	Level and slope change respectively from pre- to post-interruption time for the control group
β_4, β_5	Level and slope difference respectively between the treatment and control groups during the pre-interruption period
β_6	Level difference between treatment and control groups during the post-interruption period
β_7	Difference-in-difference estimate for the slopes between treatment and control groups by pre- and post-interruption periods

	Rural status stratified by race/ethnicity						Urban status stratified by race/ethnicity					
	NHB vs. NHW		Hispanic vs. NHW		Others vs. NHW		NHB vs. NHW		Hispanic vs. NHW		Others vs. NHW	
	estimate	p-value	estimate	p-value	estimate	p-value	estimate	p-value	estimate	p-value	estimate	p-value
Intercept	-5.0808	0.0504	-5.0808	0.0504	-5.0808	0.0504	-12.3682	0.0405	-12.3682	0.0405	-12.3682	0.0405
C pre-trend	1.1556	<.0001	1.1556	<.0001	1.1556	<.0001	2.5798	<.0001	2.5798	<.0001	2.5798	<.0001
C post-level change	12.6367	<.0001	12.6367	<.0001	12.6367	<.0001	27.6439	<.0001	27.6434	<.0001	27.6434	<.0001
C post-trend change	7.0607	<.0001	7.0607	<.0001	7.0607	<.0001	14.1910	<.0001	14.1910	<.0001	14.1910	<.0001
T vs. C pre-level diff	-8.4850	0.1999	-18.2476	0.0727	-1.6065	0.7051	-15.1656	0.2654	2.4820	0.7939	-5.9718	0.5953
T vs. C pre-trend diff	1.2611	0.0060	4.4183	<.0001	-0.1590	0.6094	2.4194	0.0084	0.4597	0.4902	0.6532	0.4107
T vs. C post-level diff	-5.5624	0.4740	-27.1987	0.0135	-1.6682	0.7420	16.1776	0.244	1.8332	0.8614	11.4663	0.3619
T vs. C slope diff-in-diff	16.8938	<.0001	11.2822	<.0001	-2.0169	0.0007	10.8642	<.0001	6.1858	<.0001	19.0679	<.0001

Supplemental Table B. Interrupted Time Series Model Coefficients for Models Stratifying Rural/Urban Status and Race/Ethnicity Differences

