

Industry Variation in Risk of Delaying Care During COVID-19



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BACKGROUND

The COVID-19 pandemic has disrupted access to health care services. To decrease the spread of disease, many providers and patients have shifted to telehealth to provide services traditionally performed through in-person office visit consultations.¹

OBJECTIVE

The effects of COVID-19, social distancing, and health care utilization likely vary across patient populations. Due to both workforce demands and disparities in access, not all workers are able to telecommute and households with essential workers may be particularly vulnerable to the economic consequences of the COVID-19 pandemic.^{2, 3}

METHODS AND FINDINGS

We examined industry differences in changes in the use of outpatient evaluation and management office visit services among a large population of individuals with employer-sponsored private insurance before and after the COVID-19 national pandemic declaration. We used 2020 US medical claims data for services received between January 1, 2020, and August 2, 2020, from approximately 200 self-insured employers and health plans that purchased access to Castlight Health's transparency tools and benefits platform. The study population included 6.8 million individuals in 25 separate industries and has been used to examine care utilization during the COVID-19 pandemic.⁴ We measured use of outpatient evaluation and management office visit services by calculating the number of persons who received either in-person office visits or telehealth services per 10,000 eligible persons each

week. We estimated multivariable regressions that test for the change in-office visit and telemedicine services following the national emergency declaration on March 13, 2020, controlling for patient age and patient sex, and including fixed effect controls for state and week, and applying robust standard errors. This study was approved by the RAND Institutional Review Board.

RESULTS

Figure 1 presents the share, relative to pre-COVID utilization rates, of in-person office visit services that shifted to telemedicine and the net change in primary care services. In every industry, the observed increases in telehealth utilization were not large enough to offset the decline in-office visits. Automotive workers and their dependent family members experienced the largest relative decline in in-person office visits. In-person visits declined by 68.8% and 25.3% of clinician visits shifted to telehealth, for a net reduction of 43.0% in use of clinician visits for automotive workers. The next four industries with the largest relative decline in total healthcare utilization from baseline were medical devices (−34.4%), chemicals (−25.8%), oil, energy, and utilities (−22.0%), and retail (−17.4%). The smallest changes in total clinician visits were observed for software and technology (0.05% net change), transportation (−2.1%), hospitals and health care (−5.9%), and non-profit industries (−6.6%). Regression results showed reductions in the number of in-person office visits for every industry (p -value<0.01 for all, Table 1). Separately, each of the 25 industries had an increase in telehealth utilization.

DISCUSSION

The COVID-19 pandemic and government responses to it have disrupted the employment status and healthcare utilization of individuals worldwide. Our findings suggest that these impacts have not been borne equally across employment sectors. These differences could be explained by differing impacts of the COVID-19 pandemic across industries on employment and earnings, differences in insurance benefit

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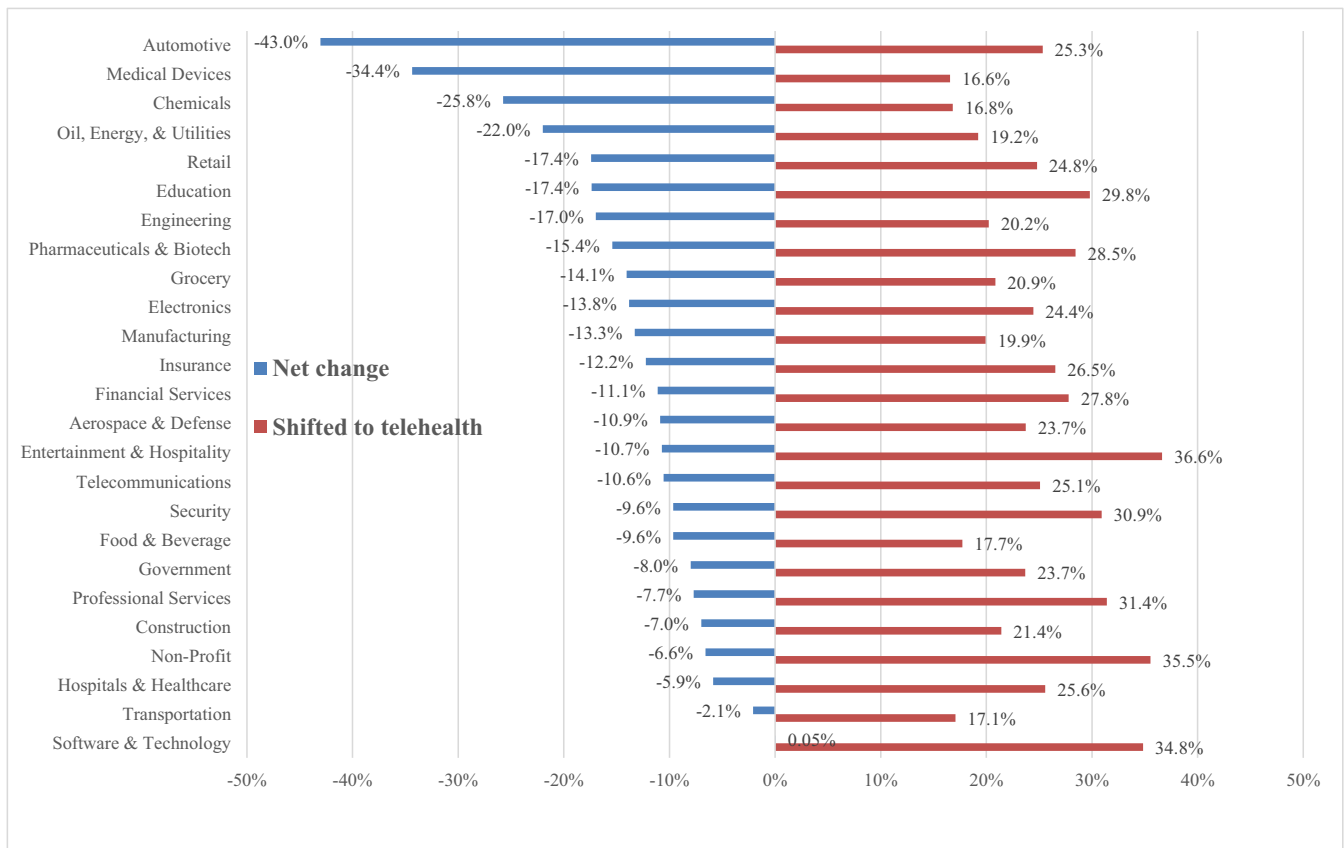


Figure 1 Changes in office-based care utilization by industry. This figure shows the regression-adjusted relative change in consultations, either in-person or telemedicine, that shifted to telemedicine and the net change.

design generosity, or ability to work from home or access to telehealth from home.^{5, 6} Future research should examine the specific forms of care that are being disproportionately deferred across industries and ascertain whether they are elective or non-elective procedures.

This study is not without limitations, including our focus on patients with private insurance provided by an employer and thus does not include patients who lost health insurance due to job loss during the COVID-19 pandemic. However, our results provide a critical snapshot

of the drastic shock to the health care delivery system created by the COVID-19 pandemic. In particular, the decline in healthcare utilization across industries suggests that policymakers and public health officials must do more to ensure that workers in these industries continue to receive needed care. Our data do not allow us to examine the health impacts of delayed care, but future work should test how delayed care due to COVID-19 and related-policies have impacted the health outcomes of all patients, but industry-specific disparities exist in care reductions.

Table 1 Regression-Adjusted Change in Office Visits and Telemedicine per 10,000 Persons Following COVID-19 Emergency Declaration by Industry

Industry	Office visits					Telemedicine				
	Coefficient	Standard error	R-squared	Pre-COVID mean per 10,000	Relative change	Coefficient	Standard error	R-squared	Pre-COVID mean per 10,000	Relative change
Aerospace and defense	-214.5***	6.250	0.739	615.1	-34.9%	146.7***	1.856	0.702	3.1	4792.8%
Automotive	-390.6***	11.66	0.655	566.5	-69.0%	144.5***	3.123	0.661	4.0	3636.9%
Chemicals	-284.8***	13.66	0.221	664.3	-42.9%	112.2***	2.524	0.230	2.6	4279.7%
Construction	-139.6***	8.603	0.324	484.2	-28.8%	104.8***	1.736	0.303	5.1	2070.5%
Education	-320.8***	9.733	0.650	674.9	-47.5%	202.1***	3.973	0.673	3.6	5577.2%
Electronics	-255.1***	6.964	0.501	660.7	-38.6%	162.9***	1.945	0.489	5.8	2816.6%
Engineering	-262.2***	11.55	0.301	700.0	-37.5%	142.5***	2.379	0.276	4.5	3184.1%
Entertainment and hospitality	-363.4***	9.086	0.429	760.7	-47.8%	280.8***	4.535	0.596	5.6	5024.8%
Financial services	-271.7***	6.180	0.700	689.9	-39.4%	193.6***	2.109	0.724	6.7	2902.2%
Food and beverage	-152.5***	4.742	0.651	551.7	-27.6%	98.46***	1.120	0.553	3.9	2504.5%
Government	-251.6***	15.44	0.761	788.3	-31.9%	187.6***	4.855	0.671	4.3	4395.2%
Grocery	-197.9***	4.652	0.576	562.0	-35.2%	117.7***	1.079	0.545	2.4	4981.8%
Hospitals and healthcare	-192.6***	9.171	0.663	606.1	-31.8%	156.2***	3.191	0.620	4.5	3451.9%
Insurance	-227.6***	5.834	0.669	576.7	-39.5%	155.3***	1.978	0.637	8.8	1771.6%
Manufacturing	-201.5***	4.026	0.721	601.8	-33.5%	120.6***	1.062	0.642	3.6	3387.1%
Medical devices	-289.8***	8.265	0.371	563.5	-51.4%	93.96***	1.715	0.284	4.2	2259.9%
Non-profit	-261.6***	9.930	0.300	613.8	-42.6%	220.2***	4.177	0.324	5.8	3771.1%
Oil, energy, and utilities	-307.5***	6.765	0.624	742.4	-41.4%	143.2***	1.711	0.570	2.8	5099.8%
Pharmaceuticals and biotech	-344.4***	8.537	0.491	779.5	-44.2%	223.1***	2.889	0.571	4.6	4829.3%
Professional services	-228.6***	9.264	0.413	571.9	-40.0%	183.1***	2.832	0.500	10.9	1672.5%
Retail	-83.67***	3.783	0.658	196.5	-42.6%	49.10***	0.686	0.534	1.5	3279.9%
Security	-281.0***	11.44	0.203	689.7	-40.7%	214.2***	3.066	0.309	3.4	6284.2%
Software and technology	-214.4***	8.249	0.353	609.9	-35.2%	214.3***	2.588	0.456	5.4	3975.6%
Telecommunications	-218.0***	5.183	0.732	606.2	-36.0%	153.4***	2.147	0.669	5.3	2908.3%
Transportation	-79.78***	6.806	0.401	409.7	-19.5%	71.06***	1.351	0.267	6.7	1061.7%

This table presents regression-adjusted changes in office visits and telemedicine following the COVID-19 Emergency Declaration. Office visits defined as procedure codes 99024, 99025, 99050, 99051, 99058, 99201, 99202, 99203, 99204, 99205, 99211, 99212, 99213, 99214, 99215, 99241, 99242, 99243, 99244, 9925, 99354, 99355, 99401, 99402, 99403, 99404, 99415, 99416, 99450, 99455, 99456, G0245, G0246, G0247, G0463, G0466, G0467, G0469, G0470, G0511, G0512, G2063, S0206, S0250, S0260, S0285, S0302, S0390, S0622, S9083, S9088, T1015, T1025, T1026, T1040, or T1041. Telemedicine codes defined as 9441, 99442, 99443, 99444, 99421, 99422, 99423, 98970, 98971, 98972, G2061, G2062, G2063. Regression models control for patient age and patient sex, and include fixed effect controls for state and week, and apply robust standard errors

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Declarations:

Disclaimer: The funding sources had no role in the design and conduct of the study; collection, management, analysis, and interpretation of the data; and preparation, review, or approval of the manuscript.

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