Efficacy of a Digital Intervention to Increase Annual Wellness Visit Scheduling Amid COVID-19 Backlog

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ABSTRACT

Background: The Medicare Annual Wellness Visit is a preventive visit that is largely underutilized, a problem further compounded by the COVID-19 pandemic.

Methods: We implemented a digital outreach intervention to improve Annual Wellness Visit scheduling in our health system. Using a bulk outreach functionality in the electronic medical record, we sent a message to patients due for an Annual Wellness Visit and analyzed the efficacy of this message on scheduling rates while also assessing its impact by race.

Results: Patients who read the message were 40% more likely to schedule an Annual Wellness Visit (OR 1.42; 95% CI, 1.34 – 1.50) compared to those who did not read the message.

Discussion: After this intervention, Annual Wellness Visit scheduling rates increased by 50% for White patients and 325% for Black patients versus prepandemic rates in 2019.

BACKGROUND

The Medicare Annual Wellness Visit (AWV) was created in 2011 as part of the Patient Protection and Affordable Care Act.[1] It provides an opportunity for primary care clinicians to create personalized care plans, assess risk factors for illness, update problem and medication lists, and accurately document chronic health conditions. AWVs are associated with better clinical quality outcomes and lower health care spending,[2] making it an important part of closing gaps in care. Medicare beneficiaries incur no out-of-pocket expense for AWVs.

In 2011, the national AWV completion rate was 7.5%[3] and has climbed slowly: in 2017, it was 24%.[4] In 2019, the AWV comple-

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tion rate in our health system was 30%. In 2020, the health system halted nonessential care due to COVID-19; patients could not be seen for AWVs, creating a backlog. As clinics reopened, we needed to mitigate this backlog. Using a digital bulk outreach (DBO) tool, we sent batches of electronic messages to thousands of patients and evaluated the impact of this tool on the AWV scheduling rate.

METHODS

Prior to implementing DBO, standard-of-care outreach at our organization included calling or sending letters to patients reminding them to schedule AWVs. From August 30 through September 27, 2020, we sent messages to the electronic medical record (EMR) inbox of approximately 3000 patients per week – a 4-fold increase over phone outreach, historically, during the same time frame. The message included an explanation of the AWV, its benefits, and directions on how to schedule an appointment. Messages were sent to Medicare Advantage and Fee-for-Service patients with a primary care clinician in our health system, an activated MyChart account (Epic Systems Corporation, Verona, Wisconsin), and who were due for an AWV. Patients without an activated MyChart account continued to receive standard-of-care outreach.

Our analysis of the effectiveness of DBO was limited to those patients who received it: as our immediate and primary concern was addressing the backlog of AWVs due to clinical disruptions caused by COVID-19, we messaged all eligible patients via DBO. As a result, we had no control group of patients who did not receive it. We instead compared AWV scheduling rates (dependent variable) in patients who read the message vs those who did not (independent variable). We chose this comparison

for these reasons: (1) we felt that those who received DBO but who did not open it were conceptually similar to a control group who did not receive the DBO, (2) it was not possible to use a historical control from the months immediately preceding the DBO as they were affected by COVID-19.

To balance our cohort and maximize sample size for matching, we used inverse probability of treatment weighting and evaluated the treatment effect of DBO using a multivariate logistic regression. Our model controlled for age, sex, race, comorbidities (Charlson Comorbidity Index), socioeconomic status (Area Deprivation Index[5,6]), and median income. As we used DBO to overcome the backlog of AWVs, we wanted to examine its effect by race given the evidence of disparities in AWV utilization.[7] To compare the relative increase in AWV scheduling by race, we calculated the unadjusted scheduling rates from September through December, 2020, to the same months in 2019 – the best available baseline. Rates were calculated by dividing the total number of eligible patients, per month, by the number of patients scheduling an AWV.

RESULTS

Our analysis included 18 106 patients; 75% read the message (Table). People who read the message had fewer comorbidities and a higher median income. Of Black patients who received the message, 51% (n = 663) read it compared to 77% (n = 12 523) of White patients. After adjustment, we found that people who read the message were 40% more likely to schedule an AWV (OR 1.42; 95% CI, 1.34 – 1.50) compared to those who did not read the message. We found a 50% increase in scheduling in 2020 for White patients and a 325% increase for Black patients (Figure).

DISCUSSION

DBO is an efficient way to contact patients compared to our usual labor-intensive process of mailing letters and making phone calls. After controlling for baseline differences, we noted that those who read the DBO message were 40% more likely to schedule their AWV versus those who did not read the message. DBO has wide-ranging applicability beyond AWVs. We have used it for other prevention-oriented care, such as vaccinations, colonoscopy, and mammography. While read rates of the message were higher than expected, improved strategies are needed to increase the probability of acting on the message. We incorporated several behavioral economics nudges,[8] such as positive framing, into our message but were not able to study the effects of these concepts individually.

Figure. Percent Change in Annual Wellness Visit Scheduling Rate for Eligible Patients by Race in 2020 vs Same Months in 2019
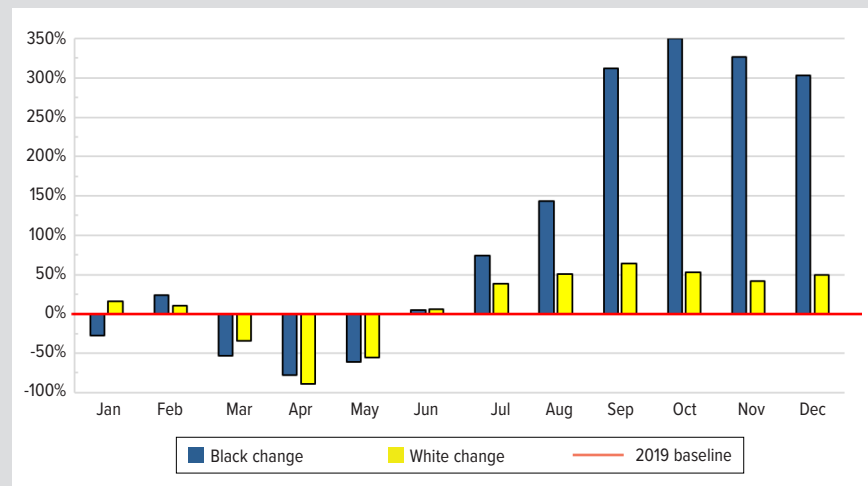
Table. Summary Statistics

	Total n = 18 106	Read n = 13 616	Unread n = 4490	P value
Annual Wellness Visit, n (%)				
Not scheduled	11 400 (63)	8135 (60)	3265 (73)	<0.001
Scheduled	6706 (37)	5481 (40)	1225 (27)	
Age, median (IQR)	71 (67 – 77)	71 (67 – 77)	72 (66 – 79)	<0.001
Sex, n (%)				
Female	10 364 (57)	7711 (57)	2653 (59)	0.004
Male	7742 (43)	5905 (43)	1837 (41)	
Race, n (%)				
Asian	202 (1.1)	135 (1.0)	67 (1.5)	<0.001
Black	1292 (7.1)	663 (4.9)	629 (14)	
Hispanic	259 (1.4)	170 (1.2)	89 (2.0)	
Other	186 (1.0)	125 (0.9)	61 (1.4)	
White	16 167 (89)	12 523 (92)	3644 (81)	
Charlson Comorbidity Index, n (%)				
Mild	15 104 (83)	11 632 (85)	3472 (77)	<0.001
Moderate	2458 (14)	1636 (12)	822 (18)	
Severe	544 (3.0)	348 (2.6)	196 (4.4)	
Deprivation Index, median (IQR)	0.25 (0.21 – 0.30)	0.24 (0.20 – 0.30)	0.26 (0.22 – 0.33)	<0.001
Median income quartile,[a] n (%)				
Poorest quartile	4222 (23)	2932 (22)	1290 (29)	<0.001
Second quartile	4278 (24)	3172 (23)	1106 (25)	
Third quartile	4429 (24)	3406 (25)	1023 (23)	
Wealthiest quartile	5169 (29)	4102 (30)	1067 (24)	

[a]Does not add to column total due to missing data.

Other desired improvements include enabling patients to self-schedule directly from the message – a feature added to a subsequent iteration of this intervention in 2021.

Our study must be viewed with several limitations in mind. It is not a true experiment; thus, there is the possibility that our results are affected by unmeasured confounders and selection bias. We do believe that the results of this analysis provide preliminary,

yet compelling, evidence to prompt further rigorous studies incorporating randomization and a true control group to further understand this important topic.

Digital tools may help or further exacerbate structural racial disparities in society, which worsened during the COVID-19 pandemic.[9] We noted a large racial disparity in the rates of reading DBO messages. On the other hand, we also noted that rates of scheduling for Black patients increased far more than for White patients, suggesting that ultimately DBO did not worsen existing disparities. With increasing reliance on technology, we must further understand how to engage with nondigitally enabled patients to ensure that quality improvement efforts do not contribute to existing inequality. Our report shows that DBO is an efficient and effective tool for AWV scheduling that does not worsen disparities of care.

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