

# The effect of patient portal use on diabetes health metrics during the COVID-19 pandemic

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## Introduction

- Over the past few years there has been a substantial increase in the use of patient portals that are tied to complete electronic health records
- These portals allow patients to access their medical records (view laboratory/imaging records), request prescription refills, and directly communicate with their healthcare team
- These benefits of patient portal use can be particularly useful for improving the quality of care of patients with chronic diseases that require ongoing self-management, such as diabetes.

## Purpose

- To examine the association with use of patient portals and diabetic quality metrics during the COVID-19 pandemic

## Methods

Study Design: Cross-sectional

Setting: Network of 23 primary care offices

Participants: Patients age  $\geq 21$  with a known diagnosis of diabetes mellitus from 3/15/2020-3/14/2021

Outcome Measures: % of patients meeting the following metrics: A1c <8.0%, BP < 140/90, Nephropathy Screening and Treatment, Diabetic Eye Exam, and Statin use.

Data Collection: from Epic using Slicer/Dicer

Chi-square was used to compare proportions. Odds ratios determined by binary logistic regression. Analysis performed using STATA 13.1

## Results

Table 1. Demographics, medical history, and PCP office use

	Patient Portal User (n=10,961)	No Patient Portal Use (n=8,227)	p-value
Mean (SE) Age	63.2 (0.12)	67.6 (0.14)	<0.001
Females	48	49	0.17
White	67.8%	56.7%	<0.001
Hispanic	6.4%	8.7%	<0.001
Black	18.8%	27.2%	<0.001
Other race	13.5%	16.1%	<0.001
Medicare	45.8%	57.9%	<0.001
Medicaid	8.9%	11.9%	<0.001
Obesity (BMI $\geq 30$ )	65.9%	59.3%	<0.001
Insulin Use	23.1%	24.3%	0.07
ACEI/ARB Use	72.0%	71.0%	0.16
Statin allergy/intolerance	7.4%	7.0%	0.32
PCP visit, in person	77.7%	78.9%	0.04
Video visit	47.1%	19.8%	<0.001
Telephone visit	37.5%	38.2%	0.3

Table 2. Diabetes Health Metrics Met

	Patient Portal	No Portal	p-value
A1c <8%	61.2%	51.8%	<0.001
BP <140/90	72.0%	67.7%	<0.001
Eye Exam within 1 year	33.8%	20.5%	<0.001
On statin	82.9%	80.7%	<0.001
Nephropathy Managed	82.5%	74.8%	<0.001

Table 4. Logistic Regression for odds of a patient using the portal

	Odds Ratio (95% CI)	p-value
Age	0.97 (0.96-0.97)	< 0.001
Sex		
Male	-	-
Female	1.10 (1.04-1.17)	0.002
Race		
White	-	-
Black	0.52 (0.48-0.56)	< 0.001
Other	0.67 (0.62-0.74)	< 0.001
Hispanic		
No	-	-
Yes	0.65 (0.58-0.73)	< 0.001
Medicaid		
No	-	-
Yes	0.51 (0.46-0.56)	< 0.001
Medicare		
No	-	-
Yes	0.86 (0.80-0.93)	< 0.001

Table 3. Proportion of Patients with total number of metrics met

	Patient Portal	No Portal	p-value
0	1.0%	2.2%	<0.001
1	5.4%	9.6%	<0.001
2	16.0%	22.0%	<0.001
3	29.5%	30.4%	<0.001
4	34.0%	28.4%	<0.001
5	14.1%	7.5%	<0.001

Table 5. Odds of having a metric met when using the portal, compared to no portal use

	Odds Ratio (95% CI)	p-value
A1c < 8.0%	1.66 (1.56-1.77)	< 0.001
BP < 140/90	1.23 (1.16-1.32)	< 0.001
Diabetic Eye Exam	2.05 (1.9-2.19)	< 0.001
Statin Use	1.37 (1.26-1.48)	< 0.001
Nephropathy Managed	1.79 (1.65-1.93)	< 0.001

## Conclusion

- Our results show that there was a positive correlation with use of patient portals and diabetic quality metrics met
- Patients using the portal were more likely to have their A1c and blood pressure at goal, have completed an annual eye exam, were on a statin, and also have their nephropathy managed (either were already on an ACEI/ARB or had screening for urine microalbuminuria completed)
- There was also a positive correlation with patient portal use and the number of health metrics met
- There was an inverse association with age and portal use. Patients who were non-white were also less likely to be using the portal, along with patients insured by Medicare or Medicaid.
- Patients were more likely to have met their diabetic health metrics with portal use even when controlling for demographics and medications used to treat each condition.
- Given our findings, we can reasonably conclude that diabetic patients should be encouraged to use patient portals as they may help to improve disease management.