

Shorter Hospital Stays Associated with Patient Portal Use

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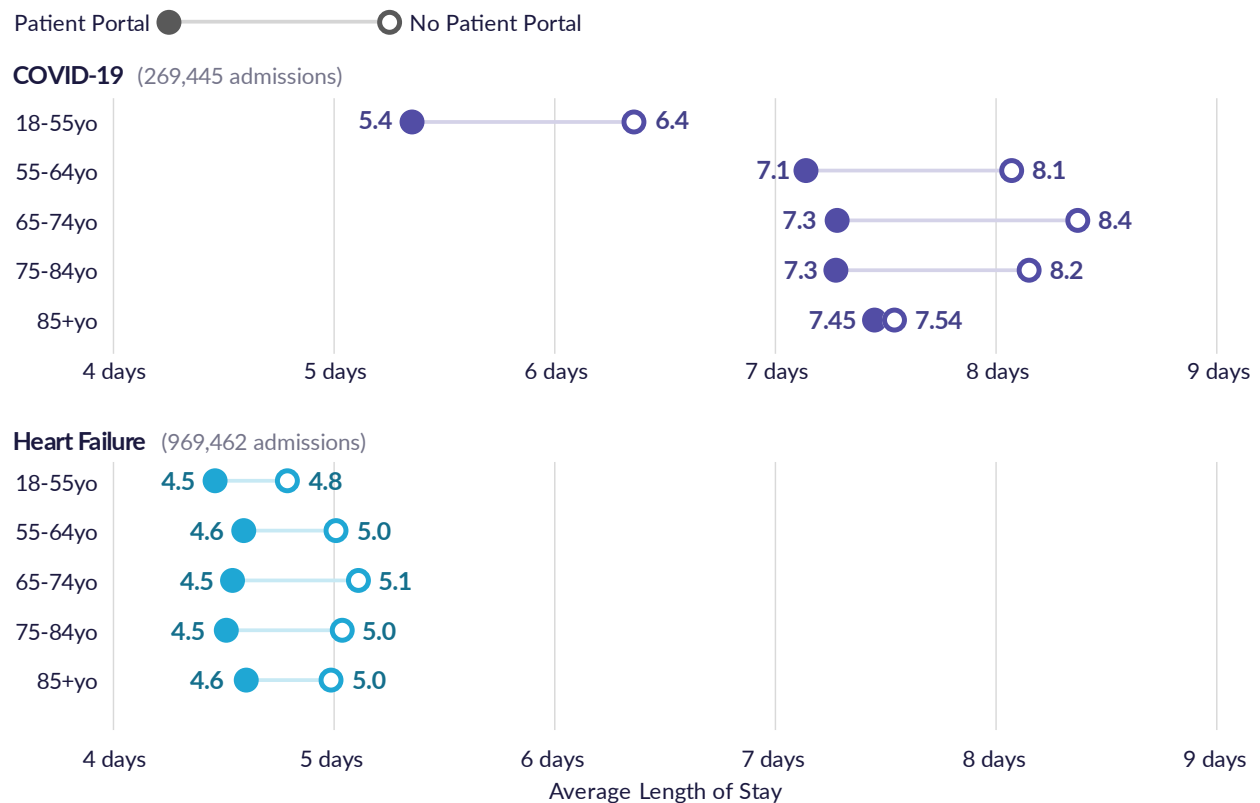
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Last updated 18 November 2021 • Check for updates at EHRN.org

Abstract: Patients with active patient portal accounts had hospital stays an average of one half to one full day shorter than patients without.

Patients who are more engaged in their healthcare often have better outcomes.¹ Because patient portal use is one marker of engagement, we wondered whether access to a patient portal correlated with hospital length of stay for certain conditions. To test this, we looked at two different types of admissions: admissions for new illness (COVID-19) and admissions for chronic illness (heart failure). Patients who were hospitalized for either COVID-19 or heart failure were more likely to have shorter hospital stays if they had an active patient portal account.

FIGURE 1: Length of Hospital Stays in Patients Who Do and Do Not Use Patient Portals by Age



"Length of Hospital Stays in Patients Who Do and Do Not Use Patient Portals by Age," 2021. Epic Health Research Network (EHRN.org)
Figure 1: The average length of stay for COVID-19 and heart failure admissions by age group and patient portal status. The solid circles on the left of each bar show the average length of stay for patients with active patient portal accounts, while the hollow circles on the right of each bar show the average length of stay for patients without an active patient portal account.

As shown in Figure 1, having an active patient portal account was associated with a shorter average length of stay in the hospital. The difference was larger for COVID-19 patients than for heart failure patients. In COVID patients, having an active patient portal account was associated with an average length of stay shorter by 0.09 to 1.1 days, while in heart failure patients, using a patient portal was associated with an average length of stay shorter by 0.3 to 0.6 days.

The difference in length of stay was present for all age groups included in the study, though it was smaller for patients 85 years and older. The percentage of patients with an active patient portal account was also smaller in the 85-and-older group than in the other age groups included in the study, as shown in Figure 2 below.

FIGURE 2: Percentage of Patients with Active Patient Portal Account by Age Group and Reason for Admission

	COVID-19 Admissions		Heart Failure Admissions	
18-55yo	43.3%		32.2%	
55-64yo	36.9%		28.9%	
65-74yo	34.9%		31.2%	
75-84yo	29.2%		26.6%	
85+yo	22.4%		18.5%	

“Percentage of Patients with Active Patient Portal Account by Age Group and Reason for Admission,” 2021. Epic Health Research Network (EHRN.org)

Figure 2: The percentage of COVID-19 and heart failure admitted patients with an active patient portal account during the study period by age group.

While there is a complex interaction of factors that contribute to a patient’s length of stay, such as the patient’s diagnoses, acuity, and social determinants², our data show that a more engaged patient, as defined by an active patient portal account, may contribute to a decreased length of stay.

These data come from Cosmos, a HIPAA-defined Limited Data Set of more than 120 million patients from 141 Epic organizations including 832 hospitals and 13,421 clinics, serving patients in all 50 states. This study was completed by two teams, composed of clinicians and data scientists, that independently acquired and analyzed data. Both teams were involved in the interpretation of results and drafting of this brief. Overall, the two teams came to similar conclusions.

References

1. James, J. “Patient Engagement” Health Affairs, February 14, 2013. <https://www.healthaffairs.org/doi/10.1377/hpb20130214.898775/full/>. Accessed September 17, 2021.
2. Baek H, Cho M, Kim S, Hwang H, Song M, Yoo S. “Analysis of length of hospital stay using electronic health records: a statistical and data mining approach.” PLoS One. 2018;13(4): e0195901.

Data Definitions

Term	Definition
Patient Portal Active	Patients are considered to have an active patient portal if their account was activated at least 2 weeks prior to the instant of their admission and was not solely accessed by a proxy user. Epic's MyChart is the patient portal used in this study.
Length of Stay	Duration in days between the instant of admission and the instant of discharge.
Heart Failure (CHF) Admissions	Admissions with a billing diagnosis in one of the following categories: <ul style="list-style-type: none">• Associated with SNOMED code 84114077 and not SNOMED code 56675007• ICD-10-CM I11.0 or I13.0 or I13.2 ICD-10-CM code with first three characters "I50," but not I50.21, I50.31, I50.41, I50.811
COVID-19 Admissions	Admissions with either a documented COVID-19 diagnosis (ICD-10-CM U07.01 or SNOMED 840539006) or a respiratory diagnosis involving a patient who tested positive for COVID-19 or received a COVID-19 diagnosis within 14 days of admission