

Research Letter

Patient Engagement With Open Notes Following the 21st Century Cures Act

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Introduction

The 21st Century Cures Act mandated that patients have immediate access to clinical notes and other health information (ie, open notes). Prior studies suggest open notes can help patients report documentation errors,¹ facilitate treatment adherence,² and increase satisfaction through better communication and collaborative decision-making.³ However, such benefits may not be equitably realized due to the digital divide (ie, persistent gaps in technology access, affordability, and literacy), and existing research has largely focused on emergency and inpatient surgical settings.^{4,5} On October 1, 2020, a health system in New England implemented open notes, creating an opportunity to evaluate this policy and potential disparities in open notes engagement across ambulatory settings.

+ Supplemental content

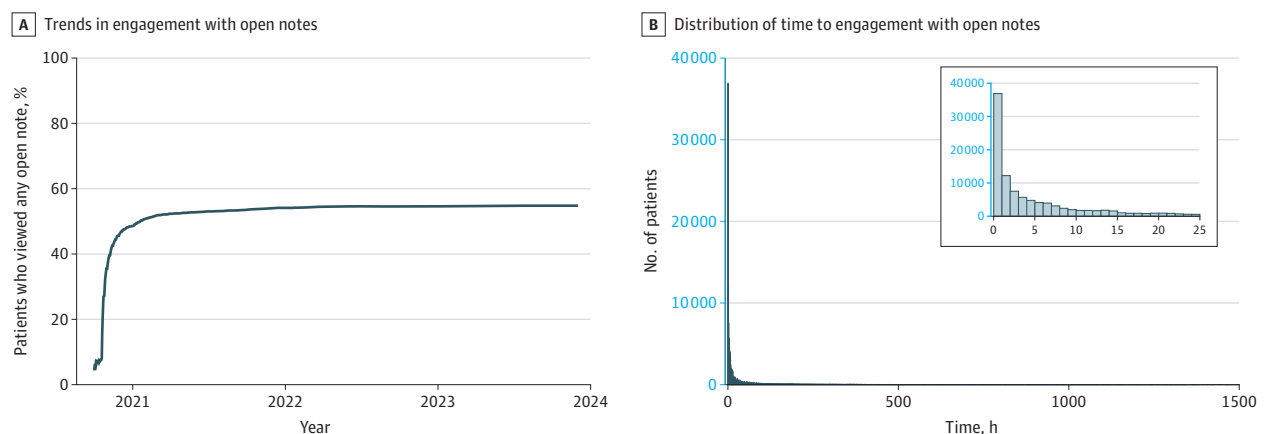
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Methods

For this cohort study, we extracted electronic health record data including patient demographic, clinical, and billing information from the Mass General Brigham (MGB) Enterprise Data Warehouse. The study population included adults 18 years or older with an assigned MGB primary care clinician, activated patient portal, and 1 or more primary care visit between January 2019 and June 2020. The main outcome was engagement with open notes (eg, viewing any shared note) for all ambulatory visits between October 1, 2020, and December 1, 2023.

We calculated the cumulative proportion of patients with a shared note who engaged with any note. We used multivariable logistic regression to identify patient characteristics associated with engagement: age, sex, preferred language, race and ethnicity, area-level income, education, and internet access (determined by linking zip codes to the 2019-2023 American Community Survey).

Figure. Line Graphs Showing Engagement With Open Notes After the 21st Century Cures Act



A, The daily cumulative percentage of patients who engaged with any open note is shown. B, The distribution of time to first engagement with a note after it was made available to the patient is shown. The inset shows the first 25 hours.

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We examined differences in patient engagement with open notes across specialties using generalized estimating equations adjusting for patient characteristics and accounting for patient-level clustering.

This study followed the [STROBE](#) reporting guideline and was approved by the MGB institutional review board with waiver of patient consent. Analyses were conducted using R, version 4.5.2, and statistical significance was defined as a 95% CI that did not include 1. Data were analyzed from May 2025 to April 2026.

Results

We studied 546 173 visits involving 85 433 patients (52 095 female [61.0%]; mean age [SD], 51.7 [16.6] years) (eFigure in [Supplement 1](#)). Engagement with open notes increased in the first 2 months and then plateaued (**Figure, A**). Across the study period, 54.8% viewed at least 1 note. Among all viewed notes, median time to first engagement was 5.9 (IQR, 0.94-36.6) hours after the note was made available (**Figure, B**).

In multivariable analyses, open notes engagement was lower among those aged 18 to 39 years (unadjusted, 53.6%; adjusted average marginal effect [AME], -3.9 [95% CI, -4.9 to -2.9] percentage

Table. Engagement With Open Notes by Patient Characteristics After the 21st Century Cures Act

Characteristic	No. (%)		Difference, percentage points (95% CI) ^a	
	All patients	Patients who viewed any open notes	Unadjusted	Adjusted ^b
Age group, y				
18-39	23 690 (27.7)	12 691 (53.6)	-3.2 (-4.1 to -2.3)	-3.9 (-4.9 to -2.9)
40-64	41 213 (48.2)	22 474 (54.5)	-2.2 (-3.1 to -1.4)	-2.2 (-3.0 to -1.3)
≥65	20 530 (24.0)	11 652 (56.8)	0 [Reference]	0 [Reference]
Sex				
Female	52 095 (61.0)	30 007 (57.6)	0 [Reference]	0 [Reference]
Male	33 335 (39.0)	16 808 (50.4)	-7.2 (-7.9 to -6.5)	-7.6 (-8.3 to -6.9)
Preferred language				
English	81 961 (95.9)	45 371 (55.4)	0 [Reference]	0 [Reference]
Spanish	2250 (2.6)	920 (40.9)	-14.5 (-16.5 to -12.4)	-15.7 (-18.0 to -13.3)
Other	1222 (1.4)	526 (43.0)	-12.3 (-15.1 to -9.5)	-12.6 (-15.5 to -9.8)
Race and ethnicity				
White	68 442 (80.1)	38 181 (55.8)	0 [Reference]	0 [Reference]
Asian	2647 (3.1)	1345 (50.8)	-5.0 (-6.9 to -3.0)	-3.3 (-5.3 to -1.3)
Black	2951 (3.5)	1372 (46.5)	-9.3 (-11.1 to -7.5)	-9.8 (-11.8 to -8.0)
Hispanic	8866 (10.4)	4583 (51.7)	-4.1 (-5.2 to -3.0)	-0.90 (-2.3 to 0.46)
Other	2527 (3.0)	1336 (52.9)	-2.9 (-4.9 to -0.94)	-1.5 (-3.6 to 0.50)
Area-level income, quartile ^c				
First (lowest income)	11 431 (14.0)	6220 (54.4)	-1.1 (-2.2 to 0.06)	-2.0 (-3.3 to -0.68)
Second	31 695 (38.9)	17 296 (54.6)	-0.92 (-1.8 to -0.05)	-1.5 (-2.6 to -0.50)
Third	17 139 (21.0)	9427 (55.0)	-0.48 (-1.5 to 0.52)	0.12 (-0.92 to -1.2)
Fourth (highest income)	21 303 (26.1)	11 820 (55.5)	0 [Reference]	0 [Reference]
Area-level education, quartile ^d				
First (least educated)	32 768 (40.2)	17 580 (53.6)	-0.01 (-1.1 to 1.1)	-4.1 (-5.4 to -2.9)
Second	21 978 (26.9)	12 318 (56.0)	2.4 (1.2 to 3.5)	-0.81 (-2.0 to 0.42)
Third	16 331 (20.0)	9236 (56.6)	2.9 (1.7 to 4.1)	1.3 (0.04 to 2.6)
Fourth (most educated)	10 475 (12.8)	5621 (53.7)	0 [Reference]	0 [Reference]
Area-level internet access, quartile ^e				
First (least access)	18 547 (22.7)	9997 (53.9)	-1.8 (-2.8 to -0.72)	-2.6 (-3.8 to -1.5)
Second	21 783 (26.7)	12 253 (56.3)	0.60 (-0.39 to 1.6)	-0.18 (-1.2 to 0.90)
Third	24 029 (29.5)	12 936 (53.8)	-1.8 (-2.8 to -0.84)	-2.5 (-3.6 to -1.5)
Fourth (most access)	17 209 (21.1)	9577 (55.7)	0 [Reference]	0 [Reference]

^a Represents the average difference in the adjusted probability of engaging with any open note compared with the respective reference group.

^b Complete case analyses were conducted. There were no missing data for patient age or race and ethnicity. Patient sex was missing for 3 patients. Area-level income, education, and internet access were missing for 3865 (4.5%), 3881 (4.5%), and 3865 (4.5%) patients, respectively.

^c Defined based on median household income in the past 12 months.

^d Defined based on percentage of population with less than a high school level of education.

^e Defined based on percentage of population with no internet access.

points [pp]) and those aged 40 to 64 years (54.5%; AME, -2.2 [95% CI, -3.0 to -1.3] pp) compared with those 65 years or older (56.8%) (**Table**) and was lower among men (50.4%; AME, -7.6 pp [95% CI, -8.3 to -6.9] pp) compared with women (57.6%). Patients preferring Spanish (40.9%; AME, -15.7 [95% CI, -18.0 to -13.3] pp) or other languages (43.0%; AME, -12.6 [95% CI, -15.5 to -9.8] pp) had lower engagement than English-preferring patients (55.4%). Engagement was also lower among Asian (50.8%; AME, -3.3 [95% CI, -5.3 to -1.3] pp) and Black (46.5%; AME, -9.8 [95% CI, -11.8 to -8.0] pp) patients compared with White patients (55.8%). Differences in engagement were also observed among patients living in communities with varying levels of income, education, and internet access.

Compared with primary care notes (unadjusted, 25.3%), patients were more likely to engage with medical subspecialty (27.0%; AME, 3.5 [95% CI, 2.9-4.2] pp) and psychiatry notes (23.0%; AME, 5.4 [95% CI, 2.7-8.1] pp) and were less likely to engage with surgical subspecialty notes (28.2%; AME, -1.3 [95% CI, -2.1 to 0.5] pp).

Discussion

At a large, integrated health system, open notes engagement increased rapidly following implementation and plateaued at 55% within 2 months, with substantial sociodemographic disparities in engagement. These disparities may be attributed to the digital divide.⁶ Language may be another barrier, as notes are not routinely translated despite multilingual portal interfaces. Other reasons include mistrust among minoritized patients due to historical or personal experiences in health care settings, as well as differing preferences for accessing health information and communicating with clinicians.⁷ Prior studies have documented lower use of patient portals among minoritized patients even with access to requisite technology.⁸ Older patients engaged more than younger patients, perhaps because greater medical complexity increases the perceived value of notes for care plan recall and medication management.

One limitation is the single health system setting. We also could not capture dimensions of note engagement beyond viewing (eg, depth of use, comprehension). Although our study focuses on patients with activated portals, we acknowledge greater sociodemographic divides in the broader population.

Results suggest ongoing barriers to sustained engagement and missed opportunities to expand access to open notes, especially among socioeconomically disadvantaged and minoritized patients. Health systems could implement strategies to support wider, more equitable engagement with open notes, such as email or text message reminders, staff encouragement during patient visits, streamlined portal access, and AI-enabled summarization or translation of notes to align with patients' health literacy level or preferred language.^{5,9,10} Supports tailored to individual health systems and the needs of their populations are essential to realizing the promise of open notes.

ARTICLE INFORMATION

Accepted for Publication: May 8, 2026.

Published: July 10, 2026. doi:[10.1001/jamahealthforum.2026.2097](https://doi.org/10.1001/jamahealthforum.2026.2097)

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Author Contributions: Drs Liu and Rodriguez had full access to all of the data in the study and take responsibility for the integrity of the data and the accuracy of the data analysis. Drs Sandhu and Liu contributed equally as first authors. Drs Rodriguez and Ganguli contributed equally as senior authors.

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Critical review of the manuscript for important intellectual content: Sandhu, Liu, Daley, Rodriguez, Ganguli.

Statistical analysis: Liu, Rodriguez.

Obtained funding: Ganguli.

Administrative, technical, or material support: Sandhu, Liu, Daley.

Supervision: Rodriguez, Ganguli.

Conflict of Interest Disclosures: Mr Daley reported receiving grants from National Institute on Aging during the conduct of the study and grants from Arnold Ventures and the Commonwealth Fund outside the submitted work. Dr Rodriguez reported receiving grants from the National Institutes of Health during the conduct of the study. Dr Ganguli reported receiving personal fees from *JAMA Internal Medicine* as Associate Editor outside the submitted work. No other disclosures were reported.

Funding/Support: Dr Sandhu was supported by grant P30HS029762 from the Agency for Healthcare Research and Quality. Dr Rodriguez was supported by grant K23MD016439 from the National Institute on Minority Health and Health Disparities. Dr Ganguli and Mr Daley's work were supported by grant K23AG068240 from the National Institute on Aging.

Role of the Funder/Sponsor: The funders had no role in the design and conduct of the study; collection, management, analysis, and interpretation of the data; preparation, review, or approval of the manuscript; and decision to submit the manuscript for publication.

Data Sharing Statement: See [Supplement 2](#).

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SUPPLEMENT 1.

eFigure. Study Cohort Flow Diagram

SUPPLEMENT 2.

Data Sharing Statement