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Electronic Health Information Exchange At Discharge From Inpatient Psychiatric Care In Acute Care Hospitals

Morgan C. Shields [PhD candidate and NIAAA fellow, research assistant],

Institute for Behavioral Health, Heller School for Social Policy and Management, Brandeis University, in Waltham, Massachusetts,

Department of Health Care Policy, Harvard Medical School, in Boston, Massachusetts.

Grant Ritter [associate research professor],

Institute for Behavioral Health, Heller School for Social Policy and Management, Brandeis University.

Alisa B. Busch [associate professor of psychiatry and health care policy at McLean Hospital, chief medical information officer]

Department of Health Care Policy, Harvard Medical School.

McLean Hospital.

Abstract

To address the complex health care needs of patients with mental illness—who commonly have co-occurring medical conditions and substance use disorders—it is critically important for providers to use electronic health records (EHRs) for health information exchange (HIE) when patients are transferred from inpatient psychiatric units in acute care hospitals. Efficient and timely HIE is necessary to ensure that patients receive adequate and informed follow-up care. This study examined the percentage of inpatient psychiatric units that reported using EHRs for HIE at transfers of care and hospital characteristics associated with that use. We linked national data from the Inpatient Psychiatric Facility Quality Reporting Program of the Centers for Medicare and Medicaid Services, the American Hospital Association Annual Survey, and state mental health privacy laws. In 2016 the use of electronic HIE upon transfer from psychiatric units lagged behind the corresponding overall use rates from acute care hospitals (56.3 percent versus 88 percent), with wide variation across states. Hospital size and accountable care organization participation were associated with electronic HIE, but a state's having mental health privacy laws more stringent than the Health Insurance Portability and Accountability Act did not. Given these results, policy efforts to incentivize the use of electronic HIE in psychiatric settings should be strengthened.

Transforming the US health care system to provide higher-value and well-coordinated care requires robust and timely health information exchange (HIE) across providers. In recognition of this, federal efforts aim to increase electronic HIE. These efforts include the 21st Century Cures Act of 2016, which requires the Office of the National Coordinator for Health Information Technology (ONC) to advance interoperability and support access to and

exchange of health information. As part of this requirement, in March 2020 the ONC and the Centers for Medicare and Medicaid Services (CMS) finalized a rule to support electronic HIE.¹

Using data from 2016 national surveys, this study measured the use of electronic HIE at acute care hospital inpatient psychiatric units at the time of transition to a subsequent level of care and examined the characteristics of the psychiatric units associated with that use. Efficient and timely HIE following inpatient discharge is necessary to ensure that patients who were acutely ill receive adequate and informed follow-up care. At a minimum, providers at the next level of care need to know the reason for hospitalization, medication changes, pertinent laboratory or medical findings, the patient's hospital course, and the postdischarge care plan. In fact, CMS requires hospitals to exchange all "necessary health information" (including course of illness, treatment, and patients' discharge goals) with providers at the next level of care as a condition of participation in Medicare.

Electronic HIE, which is more efficient than HIE using paper or fax, is particularly important for patients with psychiatric illness. These patients have high rates of co-occurring medical conditions² and lower life expectancy,³ compared to the general population. Moreover, 43.2 percent of people who have a mental illness also have a co-occurring substance use disorder.⁴ New forms of treatment and payment—such as accountable care organizations (ACOs)—and new efforts to improve care coordination and integrate primary and mental health care aim to better serve people with psychiatric illnesses.^{5,6} These new models require robust and timely health information sharing to better manage transitions,⁷ and electronic HIE is acknowledged as an important method for bringing about this sharing.

According to the most recent ONC estimates, made in 2016 and 2017, 88 percent of acute care hospitals electronically provided information to providers at the next level of care outside of the hospital's health system. This proportion was up from 78 percent in 2014.⁸ However, little is known about electronic HIE from psychiatric units in acute care hospitals. These units are important providers for patients with severe psychiatric illnesses: In 2016 acute care hospitals provided the greatest share of inpatient psychiatric beds.⁹ Also, because the units are located in acute care hospitals and therefore have access to providers in the relevant medical subspecialties, they are well equipped to manage patients who are complex both medically and psychiatrically. Yet electronically sending health information from inpatient psychiatric units to providers at the next level of care might not match the practice from other units in acute care hospitals. Providers in psychiatric units may be more acutely aware of the privacy and stigma concerns with respect to mental health information, and they also are subject to federal and state privacy laws and regulations for psychiatric illnesses—which are often more stringent than those for other illnesses.¹⁰

These privacy concerns, laws, and regulations may influence how or whether health information is shared electronically among providers.¹¹ Therefore, we also examined whether characteristics of the state in which a hospital was located—that is, whether or not the state's mental health privacy laws were more stringent than the Health Insurance Portability and Accountability Act (HIPAA) of 1996, by requiring patients' authorization of the sharing of their mental health treatment information, and the overall rates of electronic

HIE in a state—were associated with electronic HIE from hospital psychiatric units. We excluded freestanding psychiatric hospitals because the rate of adoption of electronic health record (EHR) systems in them is low (15 percent in 2015) and—unlike EHR adoption in other hospital settings—has not increased sharply in recent years.¹² Additionally, since at least 96 percent of acute care hospitals have adopted an EHR,¹² it is possible that such hospitals' inpatient psychiatric units have high rates of electronic HIE.

Study Data And Methods

Data Sources

We merged facility-level data for 2018 from CMS's Inpatient Psychiatric Facility Quality Reporting (IPFQR) Program with data from the 2016 American Hospital Association (AHA) Annual Survey. Information for 2018 in the IPFQR Program reflected attributes of inpatient psychiatric facilities in 2016, so data from the two surveys should cover the same year. The IPFQR Program is a pay-for-reporting program: While it is voluntary, hospitals are highly incentivized to participate since they receive a 2-percentage-point reduction in their annual federal reimbursement update if they do not.¹³

In the IPFQR Program, psychiatric units of acute care hospitals attested as to whether (as of December 31, 2016) at times of transitions in care they either “most commonly used paper documents or other forms of information exchange (for example, email) not involving the transfer of health information using EHR technology” or “exchanged health information using certified [or noncertified] EHR technology.”¹⁴ Of the 1,087 acute care hospitals with dedicated inpatient psychiatric units that responded to the 2018 IPFQR survey, we linked 1,085 (99.8 percent) with hospitals in the 2016 AHA Annual Survey, thus creating our analytic sample. The remaining two IPFQR respondents had to be excluded, since we did not have needed facility-level characteristics for them.

Outcome And Explanatory Variables

The outcome of interest was whether or not at transitions of care psychiatric units in acute care hospitals “most commonly exchanged health information using...EHR technology” (that is, used electronic HIE, either certified or noncertified).¹⁴ Hospital characteristics analyzed as potentially associated with electronic HIE were those in the AHA data previously found to be associated with either EHR adoption or HIE:^{15,16} overall hospital size (small is fewer than 100 beds, medium is 100–399 beds, and large is more than 399 beds), major teaching status (that is, membership in the Council of Teaching Hospitals and Health Systems), ownership (for-profit, nonprofit, or government), proportion of bed days reimbursed by Medicaid, being in a metropolitan area, and being part of a network. Other hospital characteristics included in the model were those we hypothesized may be associated with electronic HIE: psychiatric unit size (divided into tertiles: small is 3–18 beds, medium is 19–37 beds, and large is 38–333 beds) and participation in an accountable care organization (ACO). When the number of psychiatric beds was missing from the AHA Annual Survey database, we matched data from CMS's Provider of Services files to facilities in the AHA database using the Medicare National Provider Identifiers.¹⁷ Before using the Provider of Services data, we compared the number of psychiatric beds reported in

the AHA database (when present) with the Provider of Services data and found strong correlation ($r = 0.82$; $p < 0.001$).

We also included in the model two state-level variables. The first was the state's rate of electronic HIE between hospitals and outside providers (publicly available from the ONC, with 2015 as the most recent year for which data were available).¹⁸ The second was an indicator for the state's having mental health privacy laws or regulations that were more restrictive than HIPAA.¹⁹ States' overall HIE rates were included, since prior research has found wide variation across states in HIE.²⁰ State mental health privacy laws were examined because while HIPAA allows the sharing of health information (including mental health treatment information) without requiring patient authorization for the purposes of treatment, payment, and operations, some state mental health privacy laws or regulations are more restrictive than HIPAA and require patients to authorize the sharing of their mental health information. More stringent mental health privacy laws in a state could affect the uptake of electronic HIE in psychiatric care units. We therefore included in the model a dichotomous variable that indicated whether in 2016 the state's mental health laws or regulations were more restrictive than HIPAA—defined as requiring any mental health provider to receive patient authorization for the sharing of mental health treatment information, even for treatment, payment, or operations.¹⁹

Analyses

We first tested bivariate relationships between hospital characteristics and electronic HIE from psychiatric units of acute care hospitals and examined variation across states in the percentage of those units using electronic HIE. Following this, we fit logistic regression models to determine variables independently associated with electronic HIE from these psychiatric units. Multiple imputation was performed for item-level missingness on the following variables: electronic HIE (12 facilities had missing information), ACO status (235 missing), and network status (178 missing), with five iterations and assuming that missingness was random. For dichotomous hospital characteristics that were significant in the model, we calculated the corresponding change in predicted probability of electronic HIE upon a patient's discharge from the psychiatric unit, if the hospital had the characteristic. For continuous-value hospital characteristics that were significant in the model, we calculated the corresponding change in predicted probability of electronic HIE upon discharge from the psychiatric unit based on a unit change in the characteristic's value. To check for a possible selection effect, we conducted bivariate tests that compared hospitals that did and did not participate in the IPFQR Program in terms of organizational characteristics previously associated with hospital use of electronic HIE.⁵

Limitations

This study had several limitations. First, the language used to define electronic HIE by the ONC differs somewhat from that used in the IPFQR Program's questions about electronic HIE, which could raise some doubts about the consistency between IPFQR Program and ONC electronic HIE measures. One difference is that the ONC definitions, which are based on the AHA Annual Survey's Information Technology Supplement questions about HIE, are more detailed than the IPFQR Program questions are. Another is that the IPFQR Program

asks about HIE only at times of transitions of care but does not specify whether this sharing of information is to providers outside the hospital system, specifically, whereas the ONC definition specifies that the question applies to providers outside of the hospital system. Last, the ONC electronic HIE measure is defined as the exchange of a summary-of-care document. While the IPFQR Program does not specify what kind of health information is electronically exchanged, ONC estimates indicate that summary-of-care documents are among the most commonly exchanged.²¹ Both differences between the ONC and IPFQR Program electronic HIE measures (in terms of the definition of what constitutes electronic HIE and whether information was sent to outside providers) would bias our IPFQR estimate to be larger than if these differences did not exist. More details are in online appendix A.²²

Second, the IPFQR Program does not capture all psychiatric facilities in the country. Some facilities might not be eligible for the program or might not participate in it. However, the sample of psychiatric units observed in the 2016 IPFQR data comes close to 1,142—the number of acute care hospital psychiatric units in the US as estimated by the Substance Abuse and Mental Health Services Administration’s National Mental Health Services Survey.⁹ Thus, we estimated that 95 percent of acute care hospitals in the US that had an inpatient psychiatric unit participated in the IPFQR Program (1,085 of 1,142).

Third, our variable that described whether a state had mental health privacy laws more stringent than HIPAA might not be nuanced enough to reveal granular variation in regulatory language across states—details that may influence electronic HIE from psychiatric inpatient units. In addition, some states might have had recent changes in their mental health privacy laws or regulations that were not fully implemented by the time of the 2016 report from which we derived the variable. Despite these limitations, we felt that the variable provided sufficiently valuable information about a state’s mental health privacy legal environment in 2016 to test for the variable’s significance in our model.

Finally, a hospital’s market position (defined as its percentage of beds in the market) has been associated with electronic HIE in acute care hospitals in prior research.¹⁶ We were unable to include hospital market position in our model, and therefore we note that inability as a limitation. However, our primary questions were focused on understanding the overall rate of electronic HIE and the extent to which state privacy laws and ACO participation were associated with the use of electronic HIE at transitions of care. We expected that several of our hospital characteristic variables included in the model (for example, hospital size and major teaching status) were correlated with hospital market position, and, therefore, market position was accounted for to some extent.

Study Results

Among the 1,073 acute care hospital inpatient psychiatric units that responded to the electronic HIE question in the IPFQR Program data, 56.3 percent ($n = 604$) reported that they sent health information to providers at the transition of care using their EHR (exhibit 1). Based on recently released IPFQR Program data,²³ the rate of electronic HIE from those units appears to have increased significantly, from 56.3 percent in 2016 to 61.3 percent in 2017 (authors’ estimate; data not shown).

Compared with facilities using electronic HIE, facilities not doing so were disproportionately less likely to be in a metropolitan area, nonprofit, major teaching hospitals, and large and to participate in an ACO (exhibit 1). Among states, rates of electronic HIE from inpatient psychiatric units at discharge ranged from 0 percent in Alaska and Vermont to 100 percent in Delaware, North Dakota, and Wyoming (exhibit 2, with a complete and precise list of state rates in appendix B).²²

In our multivariable models, two variables—large hospital size, or more than 399 beds versus fewer than 100 beds (odds ratio: 2.46; 95% confidence interval: 1.46, 4.15), and hospital participation in an ACO (OR: 1.37; 95% CI: 1.01, 1.86)—were significantly associated with electronic HIE from inpatient psychiatric units of acute care hospitals (exhibit 3). The predicted probability of electronic HIE among inpatient psychiatric units in hospitals that participated in an ACO was 60.7 percent, versus 53.2 percent for hospitals not participating (exhibit 4). The predicted probability was 68.3 percent for large hospitals versus 47.2 percent for small hospitals. We found no meaningful differences in estimates when we clustered standard errors on the state level or included a random effect for states.

Analyses that checked for selection bias found that hospitals that participated in the IPFQR Program had higher rates of organizational characteristics previously associated with electronic HIE, compared to nonparticipating hospitals. More details on these comparisons are in appendix C.²²

Discussion

In contrast to the 88 percent rate overall for acute care hospitals reporting that they electronically provided health information to outside providers in 2016,¹⁰ we found that these hospitals' inpatient psychiatric units had a much lower rate of only 56.3 percent, and there was considerable variation across states. While 2017 estimates from the IPFQR Program indicated that electronic HIE from these units had increased to 61.3 percent, the rate was still considerably lower than the overall estimates of electronic HIE from US acute care hospitals. It is important to keep in mind the limitation we noted above—that the IPFQR and ONC definitions of electronic HIE are not completely aligned. To the extent that electronic HIE may be misidentified in the IPFQR Program (according to the ONC definition), our findings would overestimate ONC-defined electronic HIE from inpatient psychiatric units.

Further analyses of data from the AHA Annual Survey demonstrated that hospitals that participated in the IPFQR Program were more likely than nonparticipating hospitals to have the organizational characteristics associated with electronic HIE. This supports the notion that there is something unique about electronic HIE from inpatient psychiatric units rather than the alternative notion that the units are disproportionately located in hospitals that are less likely to use electronic HIE.

The disparity in electronic HIE at transitions in care from psychiatric units in acute care hospitals represents an important missed opportunity to provide safer, higher-quality care. Adverse events are common among patients after discharge (mostly due to medication

communication errors), and many could be prevented or ameliorated with better communication.²⁴ Often, patients with psychiatric illness have additional safety vulnerabilities: For example, the risk of suicide is greatest in the first week following hospital discharge.²⁵ Visiting a mental health practitioner within seven days of discharge from a mental health hospitalization is a measure endorsed by the National Quality Forum²⁶ and is included in the Healthcare Effectiveness Data and Information Set and the IPFQR Program. If a provider at the next level of care is to see a patient within seven days of discharge and provide safe and effective care, timely postdischarge communication between the hospital and out-patient provider is critical.

Policy Implications

Our findings could have important implications for a variety of health policy efforts aimed at improving health care quality, safety, and efficiency. One implication is related to the current ONC efforts to encourage and support the electronic exchange of health information around care transitions. Our findings suggest that there could be additional challenges that need to be addressed if these federal efforts are to be successful. One challenge is the inconsistent definitions of HIE across federal surveys and reporting programs. Another is understanding why electronic HIE from inpatient psychiatric units in acute care hospitals lags behind that of acute care hospitals in general. Furthermore, these findings highlight the continued importance of monitoring electronic HIE from psychiatric units in acute care hospitals. A second implication is the additional challenge that new models of health care payment and delivery will face to improve health care coordination and implement integrated care models. These models rely on team-based care across health care providers and the timely transfer of information. Moreover, our findings contribute to prior descriptions of the disparities in efforts to monitor and improve the quality of inpatient psychiatric care, relative to other areas of hospital care.²⁷

Electronic HIE from psychiatric units might lag behind that in other hospital care units for a couple of reasons. One could be that the hospital EHR system might not adequately serve the workflow and documentation needs of the psychiatric unit (such as interdisciplinary treatment plans, group therapy, and seclusion or restraint), and this could dampen a psychiatric unit's enthusiasm for either implementing an EHR altogether or using an existing EHR to electronically capture the clinical documentation that is relevant for providers at the next level of care.²⁸

Another reason could be the heightened privacy concerns and more detailed and complex mental health privacy regulations of some states.²⁹ Hospitals may be less likely to adopt (or make fuller use of) EHRs in their inpatient psychiatric units because of concerns that EHRs, which are designed to share information, may have limited ability to address the privacy concerns of patients or providers or to comply with state mental health privacy laws. To our surprise, we did not find evidence that a state's having mental health privacy laws more stringent than HIPAA was associated with differences in electronic HIE from inpatient psychiatric units. This is despite earlier research that found that privacy concerns had led some psychiatric inpatient units not to adopt EHRs when many other hospital units did so.¹⁵

As mentioned above, it is possible that our dichotomous measure of state privacy laws did not adequately capture potentially meaningful differences in state mental health privacy regulatory environments. Also, it is possible that a more meaningful construct to use in our model would have been providers' interpretation of both state and federal privacy laws. For example, prior research has found that variation in the interpretation of Part 2 of Title 42 of the Code of Federal Regulations, which governs the sharing of information about substance use disorder treatment, has influenced information sharing in these settings.³⁰ Indeed, some hospitals might interpret inpatient psychiatric units as being subject to these regulations, as a result of the high prevalence and treatment of substance use disorder in these settings. Future research is needed to discern how (or whether) these regulations and state privacy laws—or variation in the interpretation of those laws—are influencing electronic HIE in inpatient psychiatric units.

Beyond privacy laws, another possible explanation for the lower use of electronic HIE by inpatient psychiatric units is that the behavioral health providers who take over patients' psychiatric care after a hospital discharge may often not use EHRs themselves. Estimated rates of EHR adoption by psychiatrists, ambulatory psychiatric centers, or other behavioral health providers are lower than those of adoption by health care providers more generally.^{12,31,32} This may be influenced by the exclusion of behavioral health settings and nonphysician providers from the Health Information Technology for Economic and Clinical Health (HITECH) Act of 2009, which provided financial incentives to adopt EHRs elsewhere in medicine. When psychiatric inpatient units do exchange discharge health information, they may find it more appropriate and convenient to select a method that is consistently accessible by the provider at the next level of care (that is, paper or fax).

An important finding of our study was that participation in an ACO is associated with a higher likelihood of electronic HIE from a psychiatric unit in an acute care hospital. ACO participation itself might not be the causal driver. Instead, this finding could be due to unmeasured characteristics of a hospital (including market position) that make it more likely both to participate in an ACO and to use electronic HIE in its psychiatric unit. With this qualification, the finding may suggest that alternative payment models are helping move the health care system toward more coordinated care for people with psychiatric illnesses. Previous research has found that while acute care hospitals that offer behavioral health services were more likely to participate in ACOs than those that do not,³³ evidence about the relationship between ACOs and behavioral health treatment use, quality, and spending has been mixed.^{5,34}

We found that overall hospital size was associated with electronic HIE, which is consistent with the results of prior research.^{16,35} Other hospital characteristics that previously have been associated with electronic HIE (nonprofit status, academic medical center status, network participation, and Medicaid share of hospital days)¹⁵ were not associated with HIE from acute care hospital inpatient psychiatric units in this study. Nor were the number of inpatient psychiatry beds in a hospital. Also in contrast to prior research,¹⁶ in adjusted models we found no evidence that states' overall hospital HIE rates were significantly associated with rates of electronic HIE from psychiatric units in acute care hospitals.

This study provides evidence of a gap in the use of electronic health information exchange from inpatient psychiatric units, compared to other acute care hospital units. It highlights the importance of federal policy to incentivize the use of health information technology for patients who receive inpatient psychiatric care.

Critical to developing sound policies that encourage the use of electronic HIE from psychiatric care units in hospitals is for the federal government to have a better understanding of whether and how EHRs are currently used in these units. This is difficult to accomplish, given that federal reporting efforts related to EHR use in psychiatric units of hospitals have definitions that differ from those adopted by the ONC. The difference we observed between the ONC measure of electronic HIE and the IPQFR Program measure is one example. Others are survey items about EHR use in the Substance Abuse and Mental Health Services Administration's National Mental Health Services Survey and the National Survey of Substance Abuse Treatment. Resolving these differences would lead to better information for policy makers.

Conclusion

Electronic HIE from inpatient psychiatric units in acute care hospitals lags far behind electronic HIE that occurs more generally from the hospitals that house these units, with great variation across states. Hospital bed size and ACO participation were associated with HIE at discharge from inpatient psychiatric units in acute care hospitals. However, a state's having mental health privacy laws more stringent than HIPAA was not. Patients with psychiatric illness experience numerous disparities in health care and are especially vulnerable during care transitions. While various factors contribute to these disparities, the use of electronic HIE comparable to that in other areas of health care should not be one of them. To address this disparity and enable hospitals to achieve the goal of robust EHR use to improve patient care and care coordination, additional federal efforts are needed to support and incentivize electronic HIE from psychiatric units. Alignment among federal agencies in their efforts to assess the use of health information technology in psychiatric care is also important.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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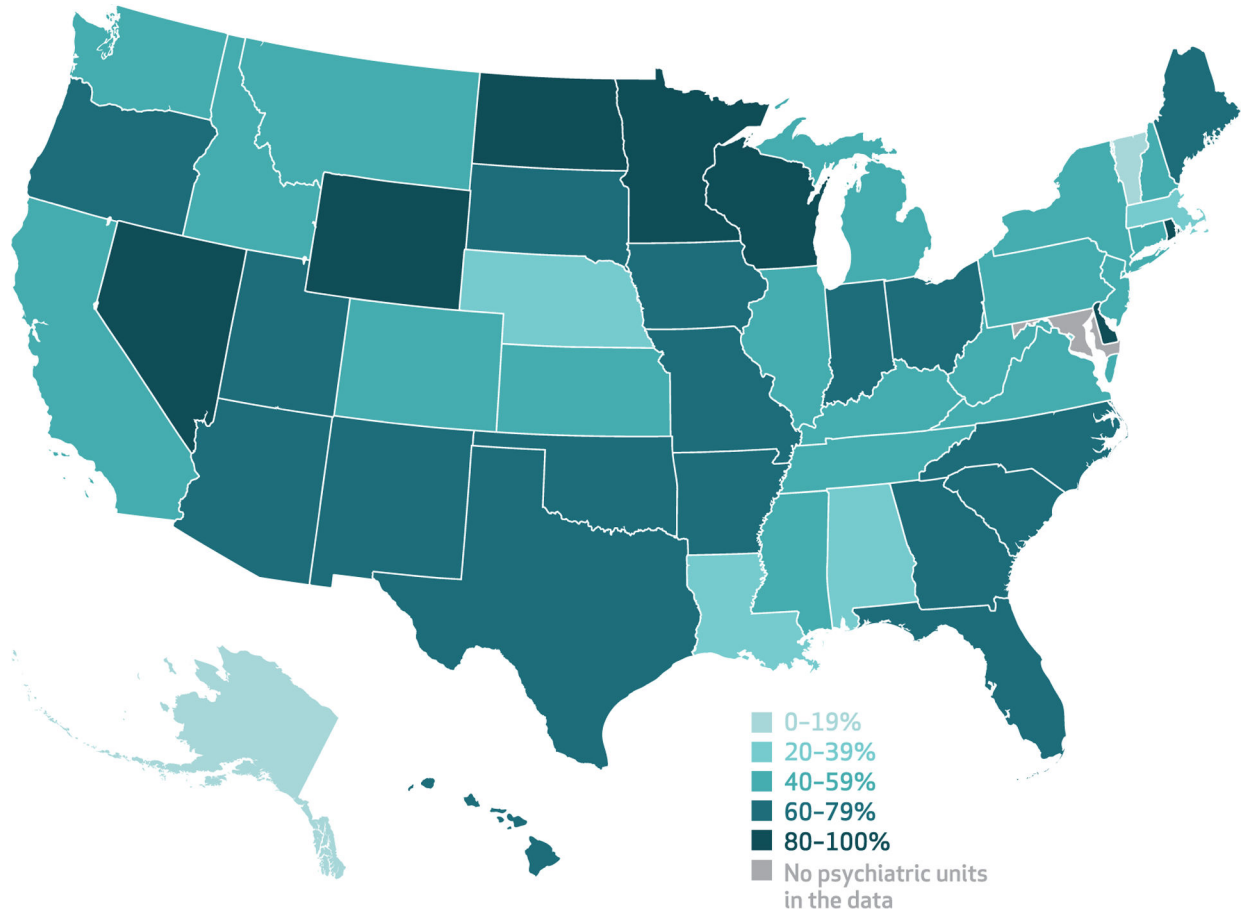


Exhibit 2. Percent of inpatient psychiatric units of acute care hospitals that use electronic health information exchange, 2016.

SOURCE Authors' analysis of data for 2016 from the Inpatient Psychiatric Facility Quality Reporting (IPFQR) Program of the Centers for Medicare and Medicaid Services.

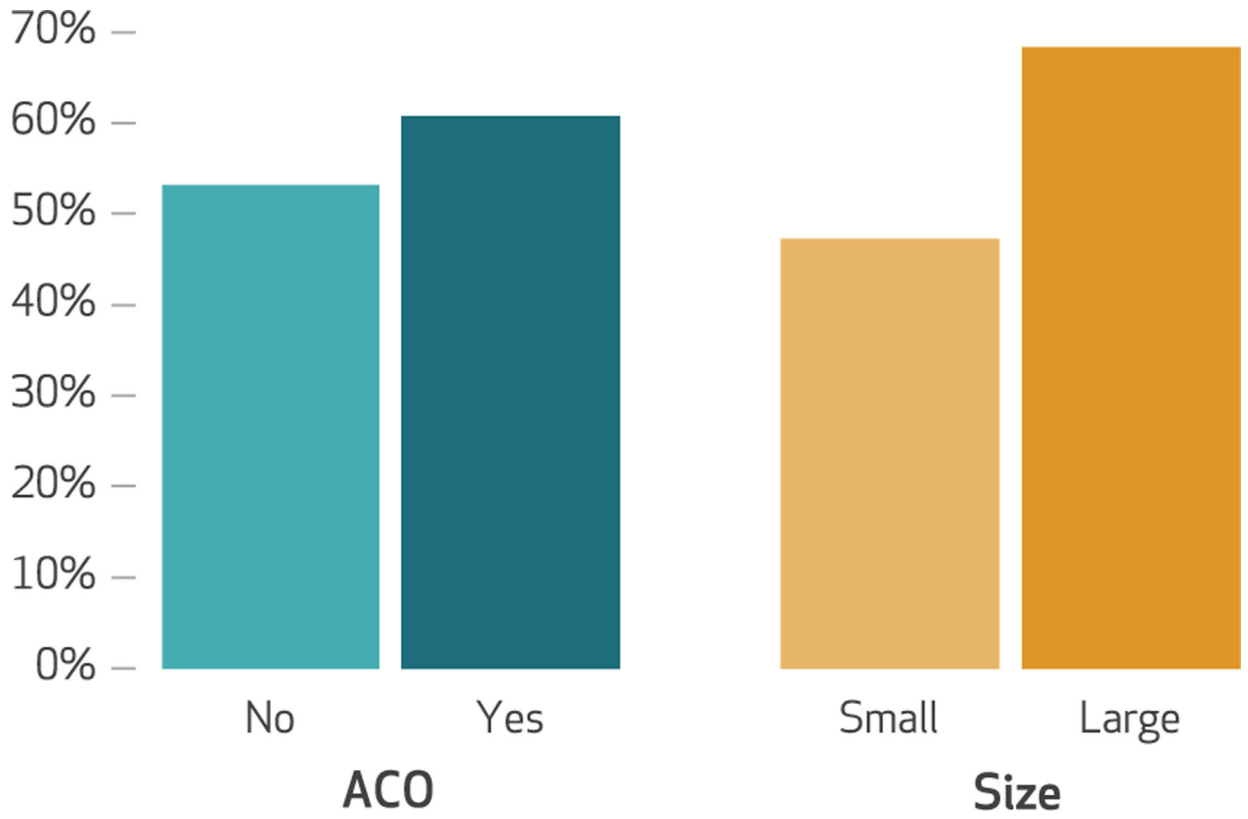


Exhibit 4. Predicted probability of using electronic health information exchange from inpatient psychiatric units of acute care hospitals, by accountable care organization (ACO) status and size, 2016

SOURCE Authors' analysis of data from the 2016 American Hospital Association Annual Survey and for reporting year 2016 from the Inpatient Psychiatric Facility Quality Reporting (IPFQR) Program of the Centers for Medicare and Medicaid Services. **NOTES** "Small" is fewer than 100 beds. "Large" is more than 399 beds.

Exhibit 1

Differences in acute care hospital characteristics, by whether their inpatient psychiatric units used electronic health information exchange (HIE), 2016

SOURCE Authors' analysis of data from the 2016 American Hospital Association Annual Survey and for reporting year 2016 from the Inpatient Psychiatric Facility Quality Reporting Program (IPFQR) of the Centers for Medicare and Medicaid Services. **NOTES** There were 1,073 hospitals for each characteristic, except where indicated. Twelve facilities with missing responses to the IPFQR HIE question were not included in this exhibit. Significance was assessed using a chi-square test, with the exception of significance for the payer-mix variables (which used *t*-tests). ACO is accountable care organization. SD is standard deviation.

Characteristics	Electronic HIE			
	No (<i>n</i> = 469; 43.71%)		Yes (<i>n</i> = 604; 56.29%)	
	Number	Percent	Number	Percent
Metropolitan area	325	69.3	479	79.3 ****
Profit status				
Nonprofit	268	57.1	397	65.7 ****
For profit	117	25.0	112	18.5 **
Government	84	17.9	95	15.7
Major teaching status	51	10.9	101	16.7 **
Hospital size (beds)				
Large (more than 399)	79	16.8	181	30.0 ****
Medium (100–399)	268	57.1	329	54.5
Small (fewer than 100)	122	26.0	94	15.6 ****
In a network ^a	156	40.8	276	53.6
Has alcohol or drug beds ^b	49	12.8	62	12.0
Participation in an ACO ^c	129	37.3	242	48.9 ****
Psychiatric unit size (beds)				
Large (38–333)	141	30.1	217	35.9 **
Medium (19–37)	143	30.5	216	35.8 *
Small (3–18)	185	39.5	171	28.3 ****
State law requires patient authorization to disclose mental health information for treatment, payment, or operations	178	38.0	217	35.9

Characteristics	Electronic HIE					
	No (<i>n</i> = 469; 43.71%)			Yes (<i>n</i> = 604; 56.29%)		
Payer mix	Number	Percent	Number	Percent	SD	SD
Proportion of bed days reimbursed by Medicaid	0.22	0.12	0.23	0.13	0.13	0.13
Proportion of overall state-level use of HIE at hospitals (not specific to inpatient psychiatric care)	0.79	0.11	0.78	0.11	0.11	0.11

^a *n* = 178.

^b *n* = 897.

^c *n* = 841.

* *p* < 0:10

** *p* < 0:05

*** *p* < 0:01

**** *p* < 0:001

Exhibit 3
**Acute care hospital characteristics associated with hospital inpatient psychiatric units’
 use of electronic health information exchange (HIE), 2016.**

SOURCE Authors’ analysis of data from the 2016 American Hospital Association Annual Survey and for reporting year 2016 from the Inpatient Psychiatric Facility Quality Reporting Program (IPFQR) of the Centers for Medicare and Medicaid Services.. **NOTES** Hospital and psychiatric unit sizes (numbers of beds) are shown in exhibit 1. ACO is accountable care organization.

Characteristics	Odds ratio
Hospital size (ref: small)	
Medium	1.34
Large	2.46 ^{****}
Psychiatric unit size (ref: small)	
Medium	1.27
Large	1.01
Metropolitan area	1.11
Ownership (ref: nonprofit)	
Government	0.88
For profit	0.84
Major teaching status	0.84
Proportion of bed days reimbursed by Medicaid	1.51
In a network	1.32
Participation in an ACO	1.37 ^{**}
State law requires patient authorization to disclose mental health information for treatment, payment, or operations	0.86
Overall state-level use of HIE at hospitals (not specific to inpatient psychiatric care)	0.34

^{**}
 $p < 0:05$

^{****}
 $p < 0:001$