

Title. The role of psychiatric hospitals in the equitable distribution of COVID-19 vaccines

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Highlights

- Inpatient psychiatric facilities could potentially leverage their experience distributing influenza immunizations to offer COVID-19 vaccines.
- Successful distribution of COVID-19 vaccines by inpatient psychiatric facilities would require developing new processes within facilities and improving follow-up after discharge to ensure that patients receive the second vaccine dose.

Previous presentation: None

Abstract

Objective: This study examined the feasibility of positioning COVID-19 vaccinations in inpatient psychiatric facilities (IPFs).

Methods: Descriptive analyses were conducted of three measures (influenza immunization, transmission of transition records, and follow-up care) reported by 1,600 IPFs in 2018 merged with COVID-19 Community Vulnerability Index data.

Results: One-quarter of IPFs are in counties with high or very high COVID-19 vulnerability. On average, 84% of IPF patients were screened for influenza immunization status and received an immunization before discharge if indicated. Only 57% of discharges had their records transmitted to another provider within 24 hours and 50% had a follow-up visit with a mental health provider within 30 days. Follow-up care was worse in counties with high COVID-19 vulnerability.

Conclusions: Based on their success with influenza immunizations, IPFs may be well-positioned to offer COVID-19 vaccinations but they will need to develop new processes and improve follow-up care to ensure that patients receive the second vaccination dose.

Introduction

People with chronic and disabling behavioral health conditions, particularly serious mental illnesses, have high rates of comorbid physical health conditions, placing them at higher risk for complications related to COVID-19 (1). Historical disparities in the receipt of preventive care and vaccinations for people with behavioral health conditions (2) may foreshadow inequitable access to COVID-19 vaccines for this population (3). But where and how to distribute COVID-19 vaccines to reach individuals with behavioral health conditions is unclear. A successful vaccination strategy will likely have to take every opportunity to engage this population outside general medical care.

Psychiatric hospitals could play a critical role in distributing COVID-19 vaccines. People typically enter these hospitals in crisis, but after they're stabilized, they could be offered a vaccine before discharge. The Centers for Medicare & Medicaid Services already requires inpatient psychiatric facilities (IPFs) that receive prospective Medicare payment (which include freestanding facilities and psychiatric units of hospitals) to screen patients for influenza vaccination status and offer an immunization if indicated before discharge (4). As a result, these facilities could already have some infrastructure to offer other vaccines. The feasibility and potential impact of distributing COVID-19 vaccines in IPFs, however, could be better informed by understanding whether these facilities are in communities vulnerable to COVID-19, the extent to which they have been successful in distributing influenza vaccinations, and whether

they can ensure that patients receive the full dose of a COVID-19 vaccine. The extent to which IPFs communicate with providers in the community and ensure that patients receive follow-up care is critical in the context of distributing COVID-19 vaccines because, right now, all but one of the vaccines in phase 3 trials in the United States require a second dose within about three to eight weeks of the initial dose. This brief report aims to provide insight into these questions.

Methods

We analyzed publicly available data from the Inpatient Psychiatric Facility Quality Reporting (IPFQR) program covering federal fiscal year 2018, which includes nearly all IPFs in the country (4). We analyzed three measures relevant to the research questions.

Influenza immunization (IMM-2) reports the proportion of patients that are screened for seasonal influenza immunization status and vaccinated before discharge if indicated among all inpatients discharged from October 1 to March 31 of the measurement year (corresponding to influenza season). The numerator captures two activities: screening and vaccine administration when indicated. As a result, the IPF receives credit for the numerator if the patient had documented contraindications, declined, or already received the vaccine during the current year's influenza season (5).

The Timely Transmission of Transition Record (TTR) reports the proportion of patients discharged from an IPF for whom the IPF transmitted a transition record to another facility, primary care provider, or other health care professional designated for follow-up care within 24 hours (6). The transition record must contain a core set of elements related to patient's diagnosis, treatment, and care plan.

Transmission can take place by fax, secure email, or mutual accessible electronic health records.

Follow-up after Hospitalization for Mental Illness (FUH-30) reports the proportion of Medicare beneficiaries discharged from IPFs who received follow-up care from a mental health provider within 30 days (7).

Each IPF receives a single score for each measure, representing the proportion of patients or discharges who met the numerator requirements. Higher scores indicate better performance. In addition to examining IMM-2 measure performance, we analyzed TTR and FUH-30 measure performance because these measures provide insights into the extent to which providers in the community would have the information required to ensure that patients discharged from IPFs receive their second COVID-19 vaccine dose, and the extent to which these patients remain engaged with the health care system immediately following discharge. IPFs report the IMM-2 and TTR measures using information from health records or other administrative data, and CMS calculates FUH-30 measure scores using Medicare data. Detailed information about the measure specifications and populations included in each measure is available on the IPFQR website (4). IPFQR includes IPFs in every state and Washington, DC (we excluded eight IPFs in Puerto Rico).

Using IPFs' addresses, we merged IPFQR data with county-level COVID-19 Community Vulnerability Index (CCVI) data from the Surgo Foundation (8). The CCVI draws on data from multiple sources to rank the COVID-19 vulnerability of geographic areas (state, county, or census tract) relative to others across quintiles using a scale of very low, low, moderate, high, and very high vulnerability. Each geographic area receives a score from 0 to 1, with a higher score indicating higher vulnerability. The CCVI accounts for 34 factors that reflect community socioeconomic status, household composition, disability, minority status, language, house type, availability of transportation, epidemiologic factors (including high-risk COVID-19 populations), and health system strength and capacity.

We conducted descriptive analyses to examine the distribution of IPFQR measure scores and the relationship between those scores and county-level CCVI scores.

Findings

Among the 1602 IPFs included in our analytic file, nearly all had scores for the IPFQR measures included in this study (Table 1). On average, 84% of IPF patients were screened for influenza vaccination status and vaccinated if indicated. Based on the TTR measure, IPFs reported 961,730 discharges over a one-year period. On average, 57% of IPF patients had their records transmitted to another provider within 24 hours, and half of patients had a follow-up visit with a mental health provider within 30 days. Across all measures, the lowest-performing IPFs (defined as scoring below the first quartile) were concentrated in the south.

Twenty-three percent of IPFs are in counties with high or very high CCVI scores. Average IMM-2 scores were similar across counties with different levels of COVID-19 vulnerability, but counties with higher COVID-19 vulnerability had better average TTR scores and worse average FUH-30 scores. For example, among counties with very high COVID-19 vulnerability, 32% of IPFs had a low FUH-30 score compared with only 10% of IPFs in counties with very low COVID-19 vulnerability. Consistent with these findings, CCVI scores were correlated with TTR and FUH-30 measure performance ($r = 0.1$ and -0.27 , respectively, both $p < 0.001$) but not IMM-2 measure performance ($r = -0.003$).

Discussion

Overall, IPFs have been successful at screening patients for influenza immunization status and vaccinating patients when indicated, suggesting that these facilities could be well positioned to offer COVID-19 vaccines to many patients. Roughly one-quarter of IPFs, however, failed to screen patients for influenza immunization status and provide a vaccination when indicated to at least 80% of their patients.

IPFs would need to develop protocols for administering COVID-19 vaccines. Unlike influenza vaccinations, most COVID-19 vaccinations in the development pipeline require a second dose, which would require that IPFs communicate immunization information to the next provider and ensure that patients receive follow-up care after discharge.

Follow-up care appeared particularly problematic in communities with high COVID-19 vulnerability, whereas transmission of records appeared more problematic in communities with lower COVID-19 vulnerability. We cannot explain the sources of these relationships from the data, but the findings could help to inform quality improvement efforts. Those IPFs in counties with low COVID-19 vulnerability might have the largest impact on follow-through with the second vaccination by focusing on improving information sharing with the next provider. IPFs in counties with high COVID-19 vulnerability might have to focus more on addressing underlying issues that present barriers to receiving follow-up care (such as transportation).

To successfully vaccinate the populations they serve, IPFs will likely need to develop stronger relationships with pharmacies and other medical providers. For example, IPFs could refer patients to specific pharmacies or community mental health centers that would take responsibility for administering the second vaccination working in partnership with the IPF to maintain contact with the patient after discharge. This would require developing protocols to guide information sharing between providers and track patients in the community facilitated by accessible immunization registries. As federal programs and states prioritize COVID-19 vaccinations for long-term care facilities and congregate care settings (10), IPFs may also be in the position of administering the second vaccine dose for patients admitted from these settings. There would be value in closely monitoring the processes that IPFs and their community partners put into place to support this coordination to identify best practices to replicate.

Limitations

These analyses have several limitations related to the measures. Because of the IMM-2 numerator specification, we cannot separately report the proportion of patients that received an influenza vaccination and those that declined or already received it before hospitalization. But, like an influenza immunization, patients would be able to decline a COVID-19 vaccine or could have received it before their hospital stay. As such, IMM-2 is likely the best publicly available indicator for what might happen if these facilities were equipped with the resources to administer COVID-19 vaccines. FUH-30 only captures follow-up with mental health providers, not primary care providers or pharmacists, both of which might be more likely than outpatient mental health providers to administer a COVID-19 vaccine. Mental health providers, however, could play a role in reminding patients to obtain their second vaccine dose, and, for many patients exiting psychiatric facilities, these providers might be the main—or only—point of continuous engagement with the health care system. Community mental health centers have successfully delivered immunizations (2) and some mental health providers offer integrated primary care or have co-located nursing staff qualified to administer vaccines. Finally, IPFs know they are being assessed for these metrics, which could influence performance. IPFs' apparent ability to offer and administer influenza immunizations may not translate into success administering COVID-19 vaccines without a similar level of accountability and investment in the clinical and data system infrastructure.

Another limitation is that the CCVI corresponding to the address of the IPF might not completely represent the CCVI of the communities in which patients live. IPFs that serve large or diverse geographic areas could be in a position to distribute vaccines to people who would otherwise not have access (for example, an IPF located in a moderately sized city or town that also serves patients who live in rural areas).

Conclusion

Consistent with the recommendations of the National Academy of Medicine’s framework for the equitable distribution of COVID-19 vaccinations (9), IPFs could leverage their experience with influenza immunizations to offer patients COVID-19 vaccinations. About a quarter of these facilities are in communities with high COVID-19 vulnerability. Successfully distributing COVID-19 vaccines in IPFs would require not only focusing efforts on establishing new vaccine distribution processes within IPFs but also improving transmitting discharge information to other providers and ensuring that patients receive timely follow-up care. As states develop their COVID-19 vaccination plans, they should engage IPFs and the populations they serve to fully assess the factors that could facilitate or impede the successful deployment of vaccines in IPFs.

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Table 1: Inpatient psychiatric facility measure performance and COVID-19 vulnerability

	IMM-2 ^a		TTR ^b		FUH-30 ^c	
	N	%	N	%	N	%
Number of facilities with measure score ^{d, e}	1532	96	1554	97	1407	88
Range in measure performance	0 to 100	NA	0 to 100	NA	5 to 96	NA
Average measure performance	84	NA	57	NA	50	NA
Median measure performance	94	NA	67	NA	50	NA
Geographic distribution of lowest-performing facilities ^f						
South	161	44	146	38	189	58
Midwest	79	21	103	27	53	16
West	62	17	63	16	67	20
Northeast	67	18	73	19	19	6
	IPFs with low IMM-2 measure score ^f		IPFs with low TTR measure score ^f		IPFs with low FUH-30 measure score ^f	

County CCVI ^g	N	%	N	%	N	%
Very low vulnerability	90	25	99	28	35	10
Low vulnerability	106	23	117	25	77	17
Moderate vulnerability	87	22	90	23	92	23
High vulnerability	51	22	50	22	78	34
Very high vulnerability	33	24	27	19	44	32

^a We adopted the IMM-2 abbreviation used by the measure steward. Performance on the IMM-2 measures reflects the period October 1, 2018, to March 31, 2019.

^b Performance on TTR reflects the period January 1, 2018, to December 31, 2018.

^c Performance on FUH-30 reflects the period July 1, 2017, to June 30, 2018.

^d For context, the National Mental Health Services Survey reported 692 freestanding psychiatric hospitals and 1,066 general hospitals with psychiatric units in 2018. Thus, the IPFQR program includes most inpatient psychiatric facilities across the country. The same survey reported 83,425 clients in freestanding psychiatric facilities and 40,052 clients in general hospital psychiatric units on April 30, 2018. See Substance Abuse and Mental Health Services Administration, *National Mental Health Services Survey (N-MHSS): 2018. Data on Mental Health Treatment Facilities*. Rockville, MD: Substance Abuse and Mental Health Services Administration, 2019. Available at: <https://www.dasis.samhsa.gov/dasis2/nmhss/NMHSS-2018-R.pdf>

^e Denominator sizes vary across the measures because the populations included in the denominator and the time period covered by each measure differs across the measures. The IMM-2 facility denominator ranged from 11-3930 (average = 294, median = 294); TTR denominator ranged from 13-8170 (average = 610, median = 608); and FUH-30 denominator ranged from 11-890 (average = 114, median = 84).

^f We defined the lowest performing facilities as those that scored below the first quartile for each measure (less than 80 for IMM-2 [369 IPFs], less than 22 for TTR [385 IPFs], and less than 40 for FUH-30 [328 IPFs]). Higher scores on IMM-2, TTR, and FUH-30 indicate better performance. A higher CCVI score indicates higher vulnerability.

^g IPFs were distributed across counties with different CCVI scores (356 IPFs were in counties with very low vulnerability, 466 in counties with low vulnerability, 398 in counties with moderate vulnerability, 231 in counties with high vulnerability, and 139 in counties with very high vulnerability). The number of IPFs in each CCVI group are the denominators for the percentages reported in each row.