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Patient Transfers to and from Critical Access Hospitals During the COVID-19 Pandemic

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KEY FINDINGS

- Data from a survey of Critical Access Hospital (CAH) CEOs show that respondents from system-owned facilities had a higher volume of both outbound and inbound transfers than did independent hospitals during their peak week of patient transfers from January 2020 to May 2022.
- Respondents overwhelmingly indicated that the largest barrier for outbound transfers was finding a hospital to take a transfer or general issues with bed availability (92%, n=127).
- The most common facilitators for transfers among participants were hospital relationships and care coordination.
- A majority (n=113, 78%) of CAHs reported their furthest outbound transfer traveled more than 100 miles, emphasizing the need for innovative strategies to minimize long transfers and ameliorate the health complications that can arise during long transfers.

PURPOSE

Rural hospitals, especially Critical Access Hospitals (CAHs), have long relied on transferring patients to other facilities for acute and specialized care. Since the onset of the COVID-19 pandemic, CAHs and non-CAHs alike have struggled to transfer some patients when needed due to limited ICU bed availability amidst case surges. The resulting delayed transfers can lead to increased patient safety risks and the use of valuable hospital resources. The purpose of this brief is to describe both inbound and outbound transfer patient volumes among system-owned and independent CAHs and the barriers and facilitators to transferring patients that these CAHs have experienced during the COVID-19 pandemic.

BACKGROUND

While rural hospitals were initially less affected than urban facilities during the first waves of the COVID-19 pandemic, increasing caseloads in rural areas later in the pandemic put a particular strain on CAHs.^{1,2} Rural health care facilities have had fewer resources for managing the public health emergency when compared to more urban facilities, with reduced access to personal protective equipment, ICU beds, COVID-19 tests, and ventilators to treat those with severe COVID-19 illness.² Without these supplies and infrastructure, CAHs may rely on their ability to transfer patients to larger, urban hospitals in cases where intensive or specialty care is required.³ Historically, CAHs generally transfer out a higher percentage of patients than non-CAHs (including both urban and rural hospitals),^{4,5} likely due to limited infrastructure as well as the average length of stay rule for CAHs to maintain their status.⁶



The demands on health care facilities caused by COVID-19 have resulted in scenarios such as patients waiting for a transfer 24 hours or longer in emergency rooms^{3,7} and CAHs searching for hospitals beyond normal transfer areas for availability.⁸ However, during surges, non-CAHs have been similarly overwhelmed, and have declined incoming transfers due to their own capacity and staffing limitations.^{2,7,8} The resulting increased wait times for transfers can lead to patient safety risks and poorer outcomes.⁹ One study of patients in rural Appalachia showed that 54% of COVID-19 patients treated in rural hospitals died within 30 days of ICU admission compared to 30% of patients treated only in urban facilities. This difference is attributed to delayed access to a tertiary care facility and the limited critical care infrastructure (e.g. ICU beds and ventilators) that exists at most rural facilities.¹⁰ In addition to patient care and safety concerns, finding available beds and coordinating patient transfers often takes up hospital staff time that is already limited due to workforce shortages in many rural hospitals.¹¹

Overall, information specific to the challenges CAHs have faced when transferring patients, particularly during the COVID-19 pandemic, is limited. This project offers specific transfer-related data from CAHs, including differences in transfers by system ownership and insight into the barriers and facilitators for transfers.

APPROACH

This brief uses data from an online survey distributed to a random sample of 404 CAHs (roughly 30% of the CAHs in each of the four U.S. Census Regions) from March to May 2022. A total of 155 responses were collected by the end of the survey period, for a response rate of 38%. The survey was sent electronically to the hospital CEO or administrator, though they were able to delegate another member of their staff to complete the survey and/or elect to provide survey responses via phone.

To define system ownership, respondents were asked “As of today, is your hospital owned by a central organization, such as another hospital or health system?” at the beginning of the survey. Respondents who selected “yes” were considered system-owned, and those who selected “no” were considered independent. In this brief, we use this classification to refer to facilities as either system-owned or independent, but it is important to acknowledge that there are other definitions and relationships outside of complete ownership.

Independent and system-owned CAHs were asked similar but slightly different multiple choice and open-ended questions. Quantitative data were analyzed using Stata 17; qualitative data were inductively coded by two members of the research team via Dedoose.

Many of the survey questions asked about a specific week from January 1, 2020, to the response date that the respondent’s hospital had the highest volume of transfers (of any kind, not specific to COVID-19 patients). Transfer-specific questions included the highest number of patient transfers in and out of the hospital in a single week, the furthest distance a patient was transferred to, the biggest facilitators for and barriers to transfers, and the types of support that would be useful for managing patient transfers.

RESULTS

Most respondents (n=111, 72%) were CAH CEOs or administrators. Others included nursing leadership, operations, and quality staff. While the majority (n=116, 75%) of surveyed CAHs were operated independently, a quarter (n=39) were owned by a hospital system. Because some survey questions were not answered by all participants, the figures below include denominator values (N) for the number of participants that responded to a given question.



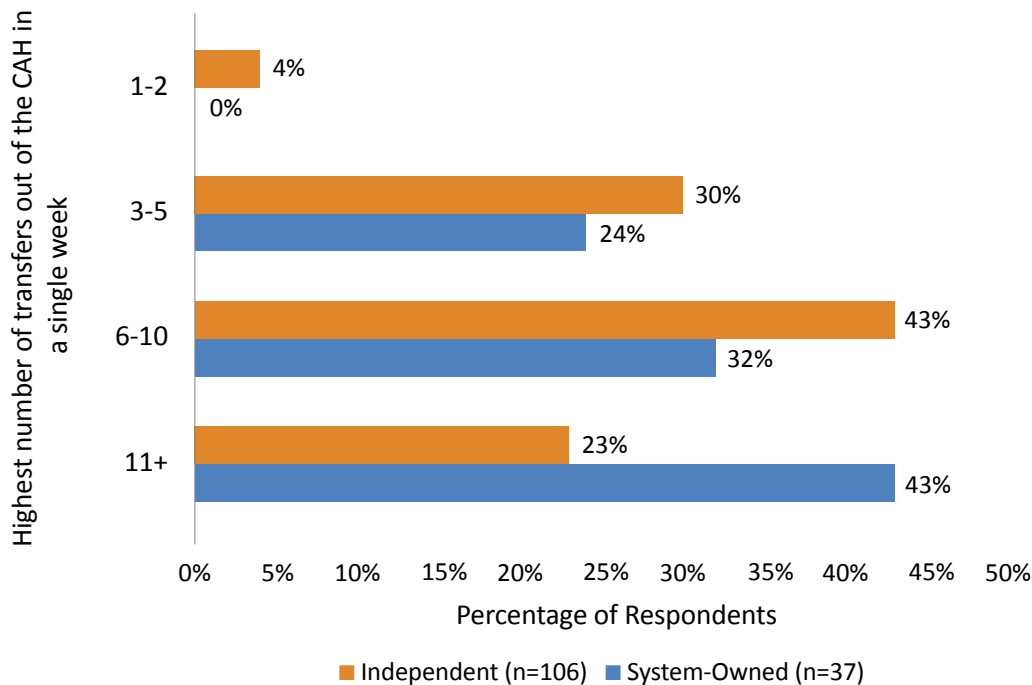
OUTBOUND TRANSFERS

Responding hospitals were asked about their outbound and inbound transfer volume, common reasons for transfers, and facilitators and barriers of transfers. A higher proportion of system-owned hospitals reported 11 or more transfers out of their hospital during their highest volume week during the pandemic when compared to independent CAHs (43% and 23% respectively, as demonstrated in Figure 1). No respondents reported having zero transfers out of their hospital. The most common reasons patients were transferred out of a CAH were patient acuity (n=126), bed availability (n=23), and lack of staffing (n=9), and many CAHs mentioned more than one of these reasons. More than three-quarters of CAHs (n=113, 78%) reported their furthest outbound transfer traveled more than 100 miles, a figure that was slightly greater for independent CAHs than those that are system-owned. Most CAHs transferred patients out to large urban hospitals (59%), followed by large rural hospitals (31%) and lastly, small local hospitals (7%).

When asked to select the single largest barrier for outbound transfers, the vast majority (92%, n=127) of respondents reported issues with finding a hospital to receive a transfer. Eight respondents (6%) selected transportation as the biggest barrier, and others selected distance, patient preference, and difficulty contacting receiving hospital (n=1 for each, <1%). In other parts of the survey, patient transfers were mentioned frequently as an issue for CAHs in different ways, including limited EMS support to help with transfers and holding patients in the emergency department for long periods of time awaiting a transfer bed.

As shown in Figure 2, CAHs selected hospital relationships and care coordination as the most common facilitators. However, responses differed based on hospital ownership, with 27% of independent CAHs (n=27) selecting their relationship with other hospitals and 26% of system-owned CAHs (n=9) selecting care coordination. For this question, response options were not identical for system-owned and independent CAH respondents; the option for “hospital relationship”

FIGURE 1: Outbound Transfer Volume by System Ownership (N=143)





specified “hospitals outside of your system” for system-owned respondents, and independent CAHs were not asked about system policies. Other commonly selected facilitators for both independent and system-owned CAHs included having a specific protocol for transferring patients out of their hospital (n=25, 19%) and having established contact with the receiving hospital (n=21, 16%). Figure 2 shows all options respondents were given to choose from. In addition to this specific survey question, respondents mentioned other ways their CAHs have alleviated transfer challenges, including inter-state transfers, developing relationships with organizations outside of their typical transfer networks, and having access to a centralized transfer center to identify available beds and facilitate patient transfers between facilities.

INBOUND TRANSFERS

Similar to outbound transfers, a higher volume of inbound transfers occurred among system-owned hospitals, with 32% of system-owned CAHs (n=12) reporting a peak of 6 or more transfers into their facility in a single week, as seen in Figure 3. The vast majority of independent hospitals (90%, n=96) reported a peak of 5 or fewer transfers into their facility in a

single week, with over a quarter (26%, n=28) of independent CAHs reporting that they did not receive any inbound transfers since January 1, 2020 (at the time of completing the survey). The most cited reasons for transfers into a CAH were bed availability (n=70) and patient acuity (n=55), with many CAHs referencing attempts to balance patient loads across multiple hospitals or utilizing a “reverse transfer” strategy in which CAHs would transfer out higher acuity patients to larger hospitals and receive lower acuity patients in exchange. As described by one CAH, “I also made it a priority to work with the larger hospitals in our service area to minimize the difficulties associated with medical transfers. We also reminded them we had skilled nursing beds and we had the capacity to take on some of their lower acuity patients when they reached bed capacity. Kind of a reverse transfer strategy.”

Though respondents were not asked about barriers and facilitators specific to inbound transfers, some participants mentioned these topics in response to other survey questions. For example, one system-owned CAH noted that a challenge for them was “receiving overflow patients from a larger facility, without an additional workforce to use.”

FIGURE 2: Facilitators for Outbound Transfers by System Ownership (N=135)

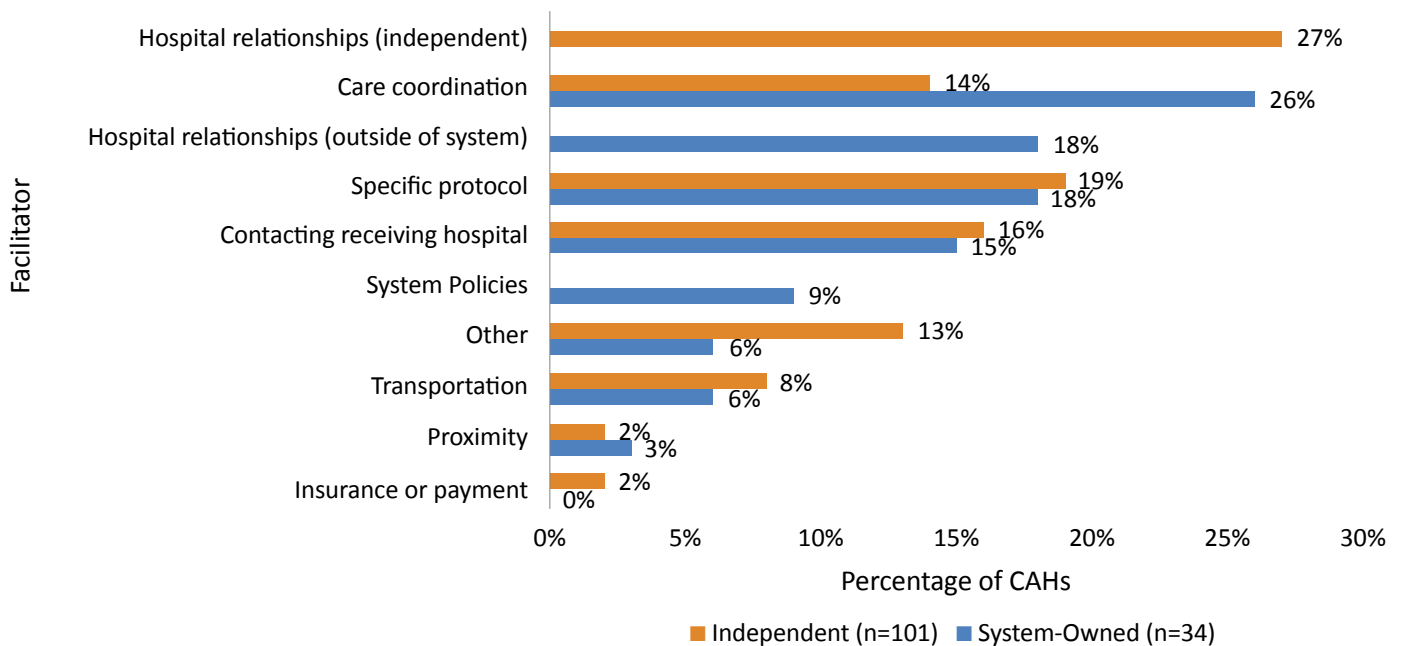
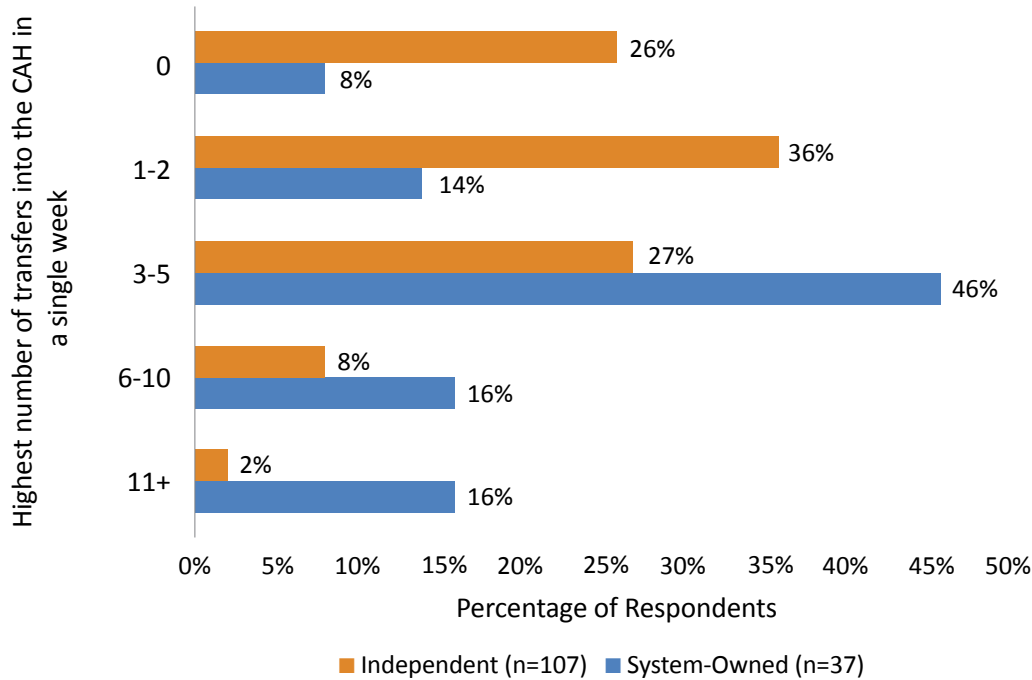




FIGURE 3: Inbound Transfer Volume by System Ownership (N=144)



DISCUSSION

Our data suggest that overall, system-owned CAHs in our study had higher transfer volumes (both outbound and inbound) in their busiest transfer week compared to independent CAHs surveyed. This is likely due to their system’s network of other hospitals to transfer patients to and from and may also be related to system-level policies and procedures around transfers, especially during the COVID-19 pandemic.

While the majority of CAHs reported that finding a hospital to accept a transfer was the largest barrier to outbound transfers, other barriers mentioned included transportation (including by EMS) and inadequate staffing at other hospitals (i.e., a bed may be available but there are not enough staff to care for an additional patient). These issues are all very closely related and impact each other, particularly for CAHs where there are already fewer beds and staff.¹² Extended wait times can worsen inpatient mortality, increase a patient’s length of stay, and contribute to higher hospitalization costs.^{9,13} As described by one CAH, “Being critical

access, we lack advanced services and had to transfer out many patients for higher acuity services. Many other facilities were at capacity so a lot of times we were holding patients in our ED who needed a higher level of care for several days awaiting a transfer bed or transportation to get to another facility. EMS had to travel sometimes states away to transfer patients, so they were not always readily available.” In our study, more than three-quarters of CAHs reported their furthest outbound transfer traveled more than 100 miles, emphasizing the need for innovative strategies to ameliorate the health complications that can arise from transferring acutely ill patients long distances.

Though inbound transfers were not as common among our CAH respondents, particularly among independent CAHs, the majority of CAHs had received at least one inpatient transfer since January 1, 2020. These CAHs noted that the most common reason for these transfers was bed availability and patient acuity. Some CAHs described “reverse transfer” strategies, in which they accept lower acuity patients and transfer out higher acuity patients, and some also mentioned



using their swing beds for this purpose. Data on the effectiveness of these strategies, however, are limited, and more research may illuminate promising patient transfer strategies for future public health emergencies.

Despite the challenges noted above, CAHs also acknowledged many different facilitators that helped ease transfer issues, and some gave additional details on specific transfer strategies. The most commonly selected facilitators included care coordination, hospital relationships, specific protocols, and contact with the receiving hospital. Some CAHs mentioned exploring out-of-state transfers or working with other hospitals outside of their usual transfers to get patients to a higher level of care, which have been strategies found in other work and media about rural hospital transfers during COVID-19.⁸ One CAH said “There were significant benefits of our hospitals working together to navigate where there were available patient beds. We were transferring within hospitals to help patients/families keep care local.”

There are many opportunities to improve transfer strategies for CAHs and other hospitals, including several suggestions from the participants in this study. Participants were asked what support would be useful to address the operational challenges presented by COVID-19, and 46 of the 113 participants who answered the question (41%) gave suggestions related to transfers. These responses included help transporting transfer patients and using a centralized transfer center or phone line to identify hospitals with available beds and facilitate transfers. There are several examples of hospital systems that have patient transfer centers and have seen positive outcomes including decreased mortality rates, increased ability to accept transfer patients, and faster ambulance pickup times.^{14,15} Statewide coordination centers have also emerged since the onset of the COVID-19 pandemic, using bed availability platforms to assess the balance of beds across the state and coordinate inter-hospital transfers regardless of system affiliation.¹⁶ These statewide efforts may be better equipped to address

the needs of rural hospitals and CAHs and could help alleviate the strain on hospital staff by outsourcing the work of finding an available bed.¹⁶

One limitation of this study is that although we used a stratified random sample to get CAH representation from different geographic regions, the survey response rate was relatively low and thus, these findings are not generalizable to all CAHs. Independent CAHs were overrepresented in our responses, making up 75% of returned surveys, while independent CAHs make up only about 60% of all CAHs nationally. While independent CAHs were not intentionally oversampled, this is a unique feature of our survey which may be a strength, as system-owned hospitals tend to be more represented in the literature. Recall bias may have played a role in these findings as well, as we asked respondents to select an estimated range of inbound and outbound transfers.

CONCLUSION

Patient transfers to and from CAHs have played a vital role in many hospitals’ strategies to care for patients during the COVID-19 pandemic. Further, whether a CAH is owned by a hospital system or operated independently may also impact their ability to smoothly transfer patients. The findings discussed in this brief can help inform State Flex Programs (SFPs) about barriers to patient transfers for CAHs and potential solutions that they can help implement along with EMS and other agencies. These emergency preparedness activities, such as working with states to establish transfer coordination centers, could be integrated into the EMS and Operational Improvement Flex Program Areas. The ongoing efforts from SFPs to encourage collaboration among the CAHs in their states and fostering relationships between states may also help address these widespread transfer challenges. Many CAHs reported that relationships with other hospitals were the biggest facilitator to transferring patients. SFPs can help their CAHs navigate the challenges of patient transfers by encouraging such inter-hospital relationships and creating opportunities for CAHs to collaborate and share best practices.



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