



RESEARCH LETTER

Impact of COVID-19 on influenza and infection control practices in nursing homes

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INTRODUCTION

At the start of the pandemic, during the 2019–2020 influenza season, 72.1% of hospital health care personnel reported employer vaccination requirements, while only 29.0% of long-term care facility staff did.¹ Nursing homes (NHs) have been required to have infection prevention control programs since 2016.² Such revisions were aimed at aligning requirements with current clinical practice standards to improve resident safety with the quality and effectiveness of care and services delivered to residents. Additionally, these revisions were established to eliminate or significantly reduce those instances where the requirements were duplicative, unnecessary, and/or burdensome. While such programs were rigorously tested during the SARS-CoV-2 pandemic,³ it is unknown how policies and practices changed and which changes might persevere.

METHODS

We identified nursing homes using CMS's publicly available Certification and Survey Provider Enhanced Reporting (CASPER) file for 2018. We used the results of previous work^{4,5} to help select and ensure regional variation in participating facilities.

We conducted semi-structured, qualitative interviews with infection management staff (administrators, directors of nursing [DONs], assistant directors of nursing [ADONs], infection preventionists, and Minimum Data Set [MDS] coordinators) at NHs across the United States between June and September 2021. Interview topics included practices around infection control, and how COVID-19 impacted these practices, among others. We analyzed interview transcripts using content analysis. Brown University's Institutional Review Board determined that our study was not human subjects research.

RESULTS

Our sample included 26 staff members from 14 NHs: 13 administrators, seven DONs and ADONs, four infection control nurses, and two MDS coordinators (Table 1). We interviewed staff representing facilities from each of the four U.S. Census Bureau regions: four facilities from the South, four from the Midwest, three from the Northeast, and three from the West.

Participants described the infection control practices that were in place prior to the COVID-19 pandemic. For example, during previous influenza seasons, some of the NHs required staff to wear masks if they declined the influenza vaccine while others did not. In contrast, participants reported universal masking because of COVID-19. Other strategies implemented during the pandemic described were: improved training, awareness, and monitoring of infection control practices (e.g., use of infection precautions, hand hygiene, personal protective equipment, environmental cleaning); and new policies and practices to mitigate transmission risk (e.g., visitation restrictions, quarantining new admissions, isolation of symptomatic or infected residents). Most participants attributed decreases in influenza outbreaks during COVID-19 to improved infection precautions, including universal mask-wearing, and thought that mask-wearing would continue well into the future. However, some worried that continued masking and monitoring of infection precautions could adversely affect staff by contributing

to increasing burnout, decreasing staffing levels, and decreasing staff influenza vaccination (supporting quotes in Table 2).

Also since the pandemic, participants reported screening of staff, families, and any other visitors upon entry to the NH. Additionally, participants said family visits became more controlled and that in addition to screening, they scheduled visits, limited the number of visitors, allowed visitation only in designated areas, preferentially conducted visits outdoors, socially distanced visitors, and encouraged continued masking throughout the visit.

The written consent typically required for influenza vaccination also changed due to the pandemic so that in many facilities, verbal consent was acceptable at least temporarily. Due to COVID-19, more participants described requiring the influenza vaccination annually for staff than prior to COVID-19, partly due to a concern of having a potential “twindemic,” dealing with flu cases at the same time as COVID cases.

Most participants were unfamiliar with a vaccine champion, someone identified at a facility who is dedicated to helping promote vaccinations and reported that they did not have formal vaccine champions. However, there usually was a staff member at the facility who acted as a point person for vaccinations, typically the infection preventionist, and many agreed having a vaccine champion, formal or informal, was effective in increasing vaccination rates. See Table 2 for supporting quotes.

TABLE 1 Characteristics of the 14 nursing home facilities in which the 26 interviews were conducted

Facility ID	Region	CMS star-rating	Ownership	No. of certified beds	Occupancy, % of beds	Number of participants
A01	Midwest	4	Non-profit	100	60	2
A02	South	4	Non-profit	60	77	3
A03	West	5	For-profit	92	85	3
B01	Northeast	3	For-profit	154	92	3
B02	Northeast	5	Non-profit	62	79	1
B03	South	4	Non-profit	105	51	1
B04	Midwest	5	For-profit	50	84	1
C01	West	4	For-profit	99	81	2
C02	West	5	For-profit	162	59	1
C03	South	3	For-profit	125	80	2
C04	South	4	For-profit	45	61	2
D01	Northeast	5	For-profit	47	91	3
D02	Midwest	2	For-profit	64	52	1
D03	Midwest	5	Non-profit	50	77	1

Abbreviation: CMS, Centers for Medicare & Medicaid Services.

TABLE 2 Supporting quotes: infection control practices that changed due to COVID-19

General infection control knowledge and practices	
Increased focus	“I actually did an exercise with everybody where I wanted them to write on a piece of paper, the positives that we have learned from COVID. One of the responses was talking about how infection control was something that everybody knew what it was about, but there wasn’t a lot of focus on it. But now due to the COVID pandemic, how infection control practices have just blown up and how we’re always aware of everything that we’re doing, touching how often we’re washing our hands, I really think that we’re going to see an improvement in infection control across the board in our industry, just because of COVID.” (A01, Administrator, Midwest, Star rating 4, Non-profit, 100 beds)
Greater education	“Well, last year we did a lot more education in regards to handwashing and hand sanitizing” (B01, Director of Nursing, Northeast, Star rating 3, For-profit, 154 beds).
Increased monitoring	<p>“I think the only difference is, is that we monitor all of our staff and residents for symptoms every day.” (B03, Director of Nursing, South, Star rating 4, Non-profit, 105 beds).</p> <p>“I think everything there is monitored much more closely. It used to be, you’d know there’s flu in the community, educate your staff, monitor for symptoms, but where everybody is getting monitored, literally every shift, we have the nurses are in 12-hour shifts and every shift they monitor for COVID, signs and symptoms, fevers. All of the regular COVID monitoring, there’s a COVID assessment done about every 12 hours.” (D02, Administrator, Midwest, Star rating 2, For profit, 64 beds).</p>
Focus for more team members (rather than nursing team alone)	“The infection control practices in the building due to COVID have changed a great deal. It’s much more of a team approach when dealing with infection control now. I think the education level of our housekeeping, laundry, CNA nurses, all staff really has jumped significantly due to our experience with COVID.” (A02, Administrator, South, Star rating 4, Non-profit, 60 beds).
More cleaning	“Housekeeping cleaning has been changed. We had changed our cleaning solution to the quick response time, three minutes. I would say we are more thoroughly cleaning and disinfecting all the areas.” (A02, Director of Nursing, South, Star rating 4, Non-profit, 60 beds).
Common areas closed	“We do quarantine procedures, so we have all of our residents stay in their rooms and cancel activities and dining.” (B04, Administrator, Midwest, Star rating 5, For profit, 50 beds).
PPE usage and quarantining	
New PPE requirements	“As far as infection control practices with staff, everybody is required to wear masks and face shields the entire time they are working, whereas before, obviously, that was not a thing.” (C01, Assistant Director of Nursing, West, Star rating 4, For profit, 99 beds).
PPE more accessible	“And we got all this room full of PPE and we do get COVID, we dress down in the full PPE, and the N95 and we have tables in the hallways with all the supplies on it, when we have COVID.” (C04, Administrator, South, Star rating 4, For profit, 45 beds).
Refined ability to quarantine	“In case of any symptoms, let’s say someone is coughing, common cold, or feverish, the immediate isolation from other residents and staff would be implemented.” (A02, Director of Nursing, South, Star rating 4, Non-profit, 60 beds).
Quarantining new admissions	“The only difference I think right now is presuming that people are infectious and that residents are infectious when they come so they have to be on this observation...If we knew about it before, if they were symptomatic, I would put people on quarantine before I got the answers back. So we always did that kind of stuff but somebody looking and appearing healthy and presuming they’re infectious, we’ve never done that.” (A03, Director of Nursing, West, Star rating 5, For profit, 92 beds).
Lasting impacts	
Masking effects on influenza outbreaks	“Again knocking on wood, we haven’t had a major flu outbreak within the facility. With wearing masks for the last 18 months our flu positivity rates and whatnot has decreased significantly. I believe wearing masks help with that.” (A03, Administrator, West, Star rating 5, For profit, 92 beds)

(Continues)

TABLE 2 (Continued)

General infection control knowledge and practices	
	“The masks definitely helped throughout last winter with respiratory infections and virus. I think the justification for not wearing masks, although we would all love not to wear them, when you look at the numbers, I think that’s going to be a hard thing for them to justify giving up.” (B01, Administrator, Northeast, Star Rating 3, For profit, 154 beds)
Masking effects on staffing levels	I do worry about the longevity of team members because of getting burned out from nonstop wearing a mask and the hardship that it causes...Having to mandate and monitor every single visitation and everybody that walks in the door, it’s kind of taken its toll on the industry...Yeah, it worries me how much longer everybody’s going to be able to maintain the regulations...I worry that the industry is going to be something completely different because it won’t be staffed. (A01, Administrator, Midwest, Star rating 4, Non-profit, 100 beds).
Screening, testing, and visitation	
Stricter protocols when symptomatic	“We’ve kept people from coming into work that, we’re like, ‘oh yeah, I’ve had a little bit of a sore throat for the last couple of days, but it’s just allergies.’ Things like that. Or ‘I’ve been sneezing a lot.’ That’s been one that we caught that was a COVID case. So I feel like we’re just probably, we catch even like a minor cold, they’re still out of the building because we have to go through the process of testing and those things. So it keeps them kind of hands-off with the residents. So I believe, I guess having that training process prior to people giving one-on-one care to the residents, makes a big difference.” (A01, Director of Nursing, Midwest, Star rating 4, Non-profit, 100 beds).
Increased symptomatic testing	“What we do, if anybody doesn’t feel well, you’re Binaxed. I don’t care if you’re vaccinated or not, you go to the happy testing room and you Binaxed.” (B02, Administrator, Northeast, Star rating 5, Non-profit, 62 beds).
More controlled visits with families	“We are limiting visitors as much as possible and mostly focused on not having people in the same areas. So if they’re doing visits, we have them separate from the rest of the resident population.” (B04, Administrator, Midwest, Star rating 5, For profit, 50 beds).
Influenza vaccinations	
Vaccination administration changed to adhere to social distancing requirements	“Generally on an annual basis we do a Skills Fair and at the time of the Skills Fair we do [give flu vaccines to] all of the staff and do the residents around that same time as well. This year, we’re not going to have a Skills Fair because of the COVID so we’ll probably just have open times. People are coming to be tested for COVID anyway so we’ll probably just have her do it in her office and coming in for that.” (A03, Director of Nursing, West, Star rating 5, For profit, 92 beds). “I think with COVID we try to do one-on-one in their room, and we try to avoid a common space for things like that.” (D03, Administrator, Midwest, Star rating 5, Non-profit, 50 beds).
Verbal consent became more acceptable	“I guess in this last round, it [consent for influenza vaccinations] was mainly verbal because I think we had COVID-19 in the building at the time, so we weren’t allowing anybody here. But yeah, in normal circumstances have them sign consent.” (C01, Administrator, West, Star rating 4, For profit, 99 beds)
Staff vaccinations became a requirement	“It was during COVID. Yeah. They were really concerned with kind of having a twindemic and dealing with flu cases at the same time as COVID cases. They did require a hundred percent vaccination. I anticipate they’ll do the same this year.” (B01, Infection Control Preventionist, Northeast, Star Rating 3, For profit, 154 beds)
Having a point person for vaccines	“So I know that having a vaccine champion, it’s really beneficial. I don’t know if we’ve ever had one in this facility for the flu vaccine. If we do, I would think that... [DON], she fits that description to a T.” A01, Administrator, Midwest, Star rating 4, Non-profit, 100 beds)

DISCUSSION

NH staff from facilities across the U.S. reported that the COVID-19 pandemic enhanced infection control practices. Most participants attributed decreases in influenza and other infectious disease outbreaks to universal mask wearing, supporting the findings of other studies.^{6,7} While some participants worried about mask mandates leading to higher workplace resignation, many reported the practice contributed to decreases in influenza and other outbreaks. The results of our study imply the NH industry will continue its enhanced focus on infection control while simultaneously managing a struggling workforce. Notably, if masking, which is currently dictated by federal and state regulatory policies is no longer required, future research will be needed to determine if facilities continue masking for resident care because they have seen the value. Though few participants in our study were aware of the term “vaccine champion,” they understood the concept and described it as an effective strategy. And, use of a vaccine champion has been shown to improve vaccination among healthcare workers.⁸ A limitation of this study is our relatively small sample size, including a disproportionate number of highly-rated facilities. However, these results may inform NH leaders and other stakeholders seeking to understand the impact of the COVID-19 pandemic on infection control practices and assist with future policy and practice decisions.

AUTHOR CONTRIBUTIONS

BHB, RRB, SG, MML, and ARZ conceived the study design. EAG led the qualitative analysis; AM and RU conducted interviews. EAG, AM, RU, and BHB conducted analyses. AM led the writing of the manuscript and all authors contributed to editing and revisions of the manuscript.

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CONFLICT OF INTEREST

ARZ and BHB report conflicts with vaccine manufacturer, Sanofi, related to grants paid directly to Brown University for collaborative research. SG reports conflicts with vaccine manufacturers Sanofi, Seqirus, Pfizer,

related to grants, consulting, and speaking engagements. SG also consults with other pharmaceutical companies such as Langevoron, Genentec, Janssen, and Merck and has grants with Sunovion, and Essity. HK and MML are full-time employees of Sanofi and may hold shares and/or stock options in the company. No other financial disclosures were reported.

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