A Descriptive Analysis of COVID-19 Vaccine Uptake in Long-Term Care Facilities, Virginia - 2021

Executive Summary

VDH distributed two vaccine uptake surveys to all 850 skilled nursing facilities and assisted living facilities in the Commonwealth. The results highlight the need to address vaccine hesitancy among staff of long-term care facilities (LTCFs) to increase overall vaccination rates in the health care systems.

Based on the survey data, 90.6% residents and 65.9% staff members received ≥1 vaccine dose, in Virginia. According to the data published in a CDC's MMWR article[1], in February 2021, a median of 77.8% of residents and 37.5% of staff members received ≥1 vaccine dose through the federal pharmacy partnership program nationwide. A direct comparison can not be drawn between the CDC data and Virginia's survey data due to the differences in the way data are collected and denominators are calculated. However, Virginia's LTCF staff vaccination rates are higher than the national average. Due to the nature of work and the close proximity to the vulnerable populations they serve, staff members of LTCFs should receive the COVID-19 vaccine as they pose the risk of contracting the virus in the community and bringing it into the facility.[2]

Studies have shown that continued education, acknowledging fears without judgement, being transparent etc., are effective in addressing vaccine hesitancy and increasing confidence.[3] Fear of long term side-effects, concerns about expedited vaccine development, general mistrust in government etc., should be addressed by maintaining transparency of information. It is also crucial to understand that there is deep rooted mistrust in government, especially in minority populations, due to long-standing systemic racism, oppression and discrimination.[4] There should be a statewide approach to addressing the issue with policy changes, equitable health care and culturally sensitive approaches.[5]

Introduction

Residents and staff of long-term care facilities (LTCFs) are at increased risk of higher morbidity and mortality from COVID-19, and have been prioritized for vaccinations in the United States.

In Virginia, there are 286 skilled nursing facilities (SNFs) and 564 assisted living facilities (ALFs). Over the course of the COVID-19 pandemic, the number of cases in LTCFs have accounted for at least 4% of total cases in Virginia statewide; the number of deaths in LTCFs have accounted for approximately 36% of total deaths statewide.

In December 2020, Virginia activated the federal LTCF pharmacy partnership led by CDC and carried out by CVS and Walgreens. The COVID-19 vaccine was administered to residents and staff in the majority of SNFs, ALFs and other types of LTCFs in Virginia under this partnership

from the end of December 2020 through March 2021. Each LTCF had three scheduled turnkey clinics in which the federal pharmacy partner would come onsite and vaccinate all willing residents and staff. Overall, more than 300,000 doses were administered to staff and residents of Virginia LTCFs via the federal pharmacy partnership program.

The Virginia Department of Health (VDH) has collected data from COVID-19 outbreaks in LTCFs occurring from March 1, 2021 forward. Among the 15 outbreaks reported from March 1 - May 6, 2021 for which data were available, a majority of cases were among partially vaccinated/unvaccinated staff (85%) and residents (71%). No fully vaccinated staff or residents who tested positive for COVID-19 were hospitalized or died; of the 28 potential vaccine breakthrough cases, over 60% were asymptomatic. The low rate and severity of COVID-19 cases among fully vaccinated individuals observed highlights the importance of vaccination in LTCFs.

Purpose

The objective of this analysis was to calculate vaccine uptake rates in residents and staff in LTCFs. In addition, both surveys examined potential reasons for low vaccination rates and potential steps VDH could take to help address vaccine hesitancy.

Methods

Facilities were asked to provide information on facility demographics;, summary vaccination data for employees, non-employee staff, and residents;, and vaccine hesitancy. A detailed list of variables used in both surveys can be found in Appendix I. Data from both surveys were analyzed and summarized in this report.

SNFs and ALFs were surveyed electronically (using REDCap) to collect accurate census and vaccine uptake data. Responses were collected for the first survey from February 26 to March 18, 2021.

After all vaccine clinics by CVS and Walgreens were completed and vaccine access points increased across the state, VDH sent a follow-up survey to SNFs and ALFs to collect more accurate data on vaccine uptake and ask additional questions. Responses for the second survey were collected from April 20 to May 11, 2021.

Results

Initial Survey:
Out of 850 skilled nursing and assisted living facilities in Virginia, 485 (57%) responded to the first survey. The response rate for SNFs was slightly higher than that of ALFs, as 178 out of 286 (62%) SNFs responded and 307 out of 564 (54%) ALFs responded.

Among the 178 SNFs that responded, 78.4% of residents, 58.1% employees, and 75.8% non-employee staff (NES) were fully vaccinated (Table 1). Among the 307 ALFs that responded, 86.5% of residents, 59.1% of employees, and 76.2% of NES were fully vaccinated. The results indicated low vaccination rates among staff members compared to NES. Among SNFs, 9.8% of residents, 33.8% of employees, and 13.2% of NES did not intend to take the vaccine. Among ALFs, 5.6% residents, 36.4% of employees, and 7.4% NES did not intend to take the vaccine.

The initial survey identified that non-employee staff were most frequently vaccine hesitant. When asked for reasons of vaccine hesitancy among staff (Table 2), fear of unknowns about the vaccine (n=179), fear of side effects (n=127), expedited vaccine development (n=96), and misinformation and conspiracies (n=80) were indicated as the top four reasons.

In response to the question “How can VDH help address the hesitancy?”, a majority of the facilities (n=277) indicated that nothing more can be done to increase vaccine confidence among staff members (Table 3). When asked about ‘’How can VDH help address hesitancy?’’, Continued education (n=175), additional data on vaccine efficacy and long-term side effects (n=22), transparency about vaccine related injuries and deaths (n=10), will come around when they see their peers healthy (n=9), and mandating the vaccine (n=8) were the top responses.

Follow-up Survey:
Out of 850 skilled nursing and assisted living facilities in Virginia, 232 (27%) completed the follow-up survey. The response rate was again slightly higher for SNFs (n=93; 33%) compared to ALFs (n=139; 25%).

The responses from the second survey indicated high vaccine coverage among both SNF and ALF residents (Table 4). ALFs continued to have higher uptake rates among all three populations (residents, employees, non-employee staff) compared to SNFs. When asked about types of staff who were vaccine hesitant, nearly 60% of the respondents said Certified Nursing Assistants (CNAs) were vaccine hesitant, followed by resident care aides, dietary staff and LPNs. The most frequent answer when asked about reasons for vaccine hesitancy was **fearful of side effects (Figure 1)**; almost 74% of respondents indicated this was a major reason for vaccine hesitancy among staff and residents. About 40% of respondents said **misinformation/conspiracies, expedited vaccine development, and underlying health conditions** were major contributing factors to vaccine hesitancy (Figure 2).

Other reasons for vaccine hesitancy that were provided included: i) “Do not see enough of a reduction in restrictions after seeing so many people vaccinated”; ii) “Prior adverse reactions attributed to vaccines”; and iii) “Not interested in vaccination at all.”

More data on vaccine long-term side effects was the most commonly indicated way that VDH could help the facilities (51%), followed by providing more educational resources (%). Types of education that were requested included success stories, webinars, one-on-ones with health experts, and providing materials in different languages such as Spanish, Tagalog, French Creole, Arabic, and languages spoken in other parts of Africa.

Facilities indicated other ways that VDH can help, including: i) “Communicate the variety of agencies, clubs, churches, professional licensing boards who are advocating vaccination”; ii) “Fully vaccinated people that are positive - information as to why”; iii) “Healthcare mandate for the vaccine”; and iv) “These aides need to be met with individually and discuss with them how they should do this for the 'greater good' of man-kind. Many are young kids who feel invisible and lack awareness that their decisions may have a disastrous effect on others”.

Discussion

This was the first analysis conducted to understand vaccine completion, census, reasons for hesitancy, and necessary resources for addressing hesitancy among long-term care facilities in Virginia. A majority of facilities responded to the initial survey. A follow-up survey collected updated vaccination rates and more details on vaccine hesitancy reasons though the response rate was low. Findings may help inform what actions could be taken to improve vaccine uptake among SNFs and ALFs.

In Virginia, based on the survey data, 90.6% residents and 65.9% staff members received ≥1 vaccine dose. According to an MMWR article published in February[1], a median of 77.8% of residents and 37.5% of staff members received ≥1 vaccine dose through the federal pharmacy partnership program nationwide. There should not be direct comparisons between data in this survey and the national data, as there were differences in the way denominators were counted. The CDC analysis included SNF and staff censuses collected from CMS payroll data, whereas VDH collected self-reported data both from SNFs and ALFs. The high turnover rates of staff in LTCFs can also contribute to the differences in denominators. However, the vaccine uptake rates observed in Virginia are higher than the national average. The higher uptake rates in Virginia could be attributed to the survey being open through mid-March whereas the CDC data went through only January 2021.

According to the NHSN data published on the CDC dashboard, among the facilities that reported, 61% of LTCF staff members in Virginia are fully vaccinated.[2]

There are high rates of LTCF employees who do not intend to be vaccinated in both SNFs and ALFs. As frontline caregivers, unvaccinated staff pose the risk of contracting the virus in the community and bringing it into the facility.[3] There is an opportunity for introducing vaccine confidence campaigns and encouraging staff to get vaccinated.

The fear of unknowns about the vaccine, side effects and the expedited development were reported as reasons for hesitancy in the majority of responses. It is important to share new and updated data with stakeholders in a timely manner to ease their minds about vaccine side effects and long-term complications.

Reported reasons for vaccine hesitancy demonstrates the frustration of facility administrators and leadership who are working to address the issue. A majority of respondents indicated that there is nothing that can be done to address vaccine hesitancy in their staff and residents.

Studies have shown that continued education, acknowledging the fears, and additional strategies have helped in addressing the hesitancy.[4] Individuals are most likely to change their minds about vaccines when they see their peers receiving the vaccine and not show any long-term side effects. Identifying some peers as vaccine champions and offering one-on-one sessions with them may be effective. Research suggests that individuals prefer to see their peers and community members, not celebrities, receive the vaccine in order to gain confidence about the vaccine.[3]

Limitations of this project include the voluntary and cross-sectional nature of the surveys. Survey responses were strongly encouraged but not required from facilities. Vaccination and census data were self-reported by facilities and data were not verified by VDH. The rates reflect data from only one point in time. Data from the original survey represented over half of all SNFs and ALFs in Virginia, and can not be considered representative of all facilities in Virginia. Similarly, only 27% of facilities responded to the follow-up survey and those data should not be considered representative. The facilities with higher vaccination rates may have been more likely to have responded to the voluntary survey compared to the facilities with lower vaccination rates.

Between the distribution of the initial survey and the follow-up survey, the percentage of staff, residents and non-employee staff who completed the vaccine series increased. The percentage of staff, residents and non-employee staff who are awaiting the second dose decreased. The reason for these both trends moving in the right direction can be attributed to increased vaccine access and the elapsed time. People who recently received their first dose of vaccine when the initial survey was distributed received their second dose by the time the follow-up survey was distributed.

The discrepancies in results between the initial and follow-up surveys could be attributed to increased vaccine availability in the state, and as time progressed, some individuals became vaccine confident and received the vaccine. CMS has mandated the reporting of cumulative vaccine administration data of nursing home residents and staff from June 14, 2021 forward into the National Healthcare Safety Network. The routine collection of data will result in more accurate and consistent information from nursing homes. These data can be used to launch targeted campaigns in facilities with lower vaccination rates among staff members.

Even with increased vaccine availability and easier access, the percentage of staff and non-employee staff who said they intend to take the vaccine but haven’t during the initial survey remained the same during the follow-up survey. This indicates that although some want to receive the vaccine, there is still some skepticism. It is imperative to understand the hesitancy in this group and address their concerns. Most of them could be waiting for their peers to get the vaccine and see if they develop any long-term complications. The expedited vaccine development is a major concern in this group who might have received other recommended vaccines and are not considered anti-vaccine or vaccine hesitant.

There were higher vaccine uptake rates in staff and residents of ALFs compared to staff and residents in SNFs. This may be attributed to lower turnover rates of staff and residents in ALFs. Additionally, residents in SNFs who have pre-existing health conditions may be hesitant to receive the vaccine although there are no contraindications indicated for any authorized vaccines.

Many facilities do not have non-employee staff (NES), but only employees. For facilities that do have NES, results should be viewed through the lens that uptake will be reported from facilities that take a more active role in ensuring NES are vaccinated, so these rates may be higher than the rates that actually exist for NES in all LTCFs.

Overall, the vaccine uptake rates among staff and non-employee staff are very low compared to residents. This will hinder efforts to get the pandemic under control as these front line workers interact very closely with our most vulnerable populations. It is imperative that any concerns that staff have regarding the vaccine be addressed without judgement, and they are provided timely and accurate information. Social media should be used by public health to combat the misinformation circulating regarding the safety of the vaccine.[5] Our survey results suggest that staff may prefer having one-on-one conversations with experts where they can have their questions answered without feeling judged. It is also crucial to understand that there is deep rooted mistrust in government, especially in minority populations, due to long-standing systemic racism, oppression and discrimination.[5] There should be a statewide approach to addressing the issue with policy changes, equitable health care and culturally sensitive approaches.[6] VDH will be working with stakeholders to develop several vaccine confidence materials and other campaigns to increase vaccination rates among long-term care staff members.

References

1. Gharpure R, Guo A, Bishnoi CK, et al. Early COVID-19 First-Dose Vaccination Coverage Among Residents and Staff Members of Skilled Nursing Facilities Participating in the Pharmacy Partnership for Long-Term Care Program — United States, December 2020–January 2021. MMWR Morb Mortal Wkly Rep 2021;70:178–182. DOI: http://dx.doi.org/10.15585/mmwr.mm7005e2
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2. https://www.cdc.gov/nhsn/covid19/ltc-vaccination-dashboard.html#anchor_1594393307
3. Harrison J, Berry S, Mor V, Gifford D. "Somebody Like Me": Understanding COVID-19 Vaccine Hesitancy among Staff in Skilled Nursing Facilities. *J Am Med Dir Assoc*. 2021;22(6):1133-1137. doi:10.1016/j.jamda.2021.03.012
4. Finney Rutten LJ, Zhu X, Leppin AL, et al. Evidence-Based Strategies for Clinical Organizations to Address COVID-19 Vaccine Hesitancy. *Mayo Clin Proc*. 2021;96(3):699-707. doi:10.1016/j.mayocp.2020.12.024
5. Neha Puri, Eric A. Coomes, Hourmazd Haghbayan & Keith Gunaratne (2020) Social media and vaccine hesitancy: new updates for the era of COVID-19 and globalized infectious diseases, *Human Vaccines & Immunotherapeutics*, 16:11, 2586-2593, DOI: 10.1080/21645515.2020.1780846
6. Hildreth JEK, Alcendor DJ. Targeting COVID-19 Vaccine Hesitancy in Minority Populations in the US: Implications for Herd Immunity. *Vaccines (Basel)*. 2021;9(5):489. Published 2021 May 11. doi:10.3390/vaccines9050489

Table 1. Vaccine uptake rates among residents and staff in long-term care facilities, Virginia, March 2021 (n=485)

		Total (n=485)	Skilled Nursing Facilities (n=178)	Assisted Living Facilities (n=307)
Completed series	**Residents* (%)**	83.5	78.4	86.5
	Employees* (%)	58.7	58.1	59.1
	Non-employee staff[†] (%)	75.9	75.8	76.2
Received first dose, awaiting second	**Residents[*^] (%)**	7.1	5.9	7.9
	Employees* (%)	7.2	4.2	9.0
	Non-employee staff[†] (%)	12.1	6.1	17.2
Not started series, but intend to	**Residents* (%)**	3.5	6.4	1.7
	Employees* (%)	3.4	2.9	3.8
	Non-employee staff[†] (%)	4.0	2.3	5.5
Not started series, do not intend to	**Residents* (%)**	7.1	9.8	5.6
	Employees* (%)	35.4	33.8	36.4
	Non-employee staff[†] (%)	10.2	13.2	7.4

*Missing values <10% of sample

^Some missing data due to 100% completed series and field skipped instead of 0 value

[†]Missing values 45-50% of sample; some non-employee staff (NES) who were vaccinated outside of the facility are not captured in these rates. Results should be viewed through the lens that uptake will be reported from facilities that take a more active role in ensuring NES are vaccinated, so these rates may be higher than the rates that actually exist for NES in all LTCFs.

Table 2. Free Text Coding Summary of Reasons for Vaccine Hesitancy in Staff and Residents, Virginia, March 2021

Code Definition	Count (n*)	Examples
Fearful of vaccine	179	Not enough data out there about the vaccine
		The unknowns of a newly developed vaccine
		Staff fear
Side effects	127	Staff still concerned about side effects
		Unknown long-term side effects
		Uneasy about side effects and long-term effects from vaccine
Expedited vaccine development	96	Not fully FDA approved
		Many feel the vaccine was rushed into production and not thoroughly tested
		They state it's too "new"
Misinformation and conspiracies	80	Chip in vaccine
		Unsure what is in the vaccine (e.g., harmful ingredients)
		Social media rumors
Underlying health condition	59	Some of them are ineligible due to allergies or reactions
		Medical exemption
		A couple have medical issues that cause them concern about getting the vaccine
Fertility concerns	36	Pregnant or breastfeeding and do not feel safe taking the vaccine because there are not enough studies on pregnant and nursing mothers
		Fertilization and pregnancy
		Unknown risk to young women who are having or planning to have a child
Religious and moral beliefs	32	Faith based decision
		Religious beliefs
		Cultural issues
Distrust in government	30	Distrust of government and corporations
		Suspicion of government
		Fear of the government

Think they don't need vaccine	27	Because they already had COVID
		Because they think they are not at risk for severe disease
		Not likely to receive any vaccine if not mandatory
Waiting until more peers receive Vaccine	25	Staff want to see how it affects people first
		Residents afraid of reaction and want to wait and see
		Waiting to see if negative outcomes happen in people who have taken vaccine

*Number of reports that included the free text code

Table 3. Free Text Coding Summary of Ways VDH Can Help Address Vaccine Hesitancy, Virginia, March 2021

Code Definition	Count (n*)	Examples
None	277	Nothing will change their mind
		We did everything that can be done
		Time will change their minds
Continued education	175	Allow to ask questions and answer one-on-one
		Continue outreach on success of vaccine with decreased positivity rates
		More webinars with experts
More data on vaccine efficacy and long-term side effects	22	Education when studies are available about pregnancy and vaccine
		Provide clear and concise data on long-term side effects of other mRNA vaccines
		Keep us informed with new data on vaccine progress
Transparency about vaccine related injuries and deaths	10	Publish data about vaccine related injuries and deaths
		Be transparent about vaccine side effects
		Address specifics of negative vaccine reactions that have been in the news and social media
Will come around when they see their peers healthy	9	As more people get vaccinated without ill effects, that would encourage vaccine uptake
		When they see their peers doing well
		Waiting to see what happens
Mandate vaccine	8	Make it mandatory for healthcare providers
		State mandate for healthcare workers unless contraindicated
		Make it mandatory to work in LTC

*Number of reports that included the free text code

Table 4. Vaccine uptake rates among residents and staff in long-term care facilities, Virginia, May 2021 (n=232)

		Total (n=232)	Skilled Nursing Facilities (n=93)	Assisted Living Facilities (n=139)
Completed series	**Residents (%)**	88.9	84.9	91.6
	Employees (%)	61.5	59.5	62.8
	Non-employee staff† (%)	80.8	74.6	88.8
Received first dose, awaiting second	**Residents (%)**	2.3	3.5	1.5
	Employees (%)	2.3	2.3	2.3
	Non-employee staff† (%)	4.8	5.7	3.5
Not started series, but intend to	**Residents (%)**	2.7	4.8	1.2
	Employees (%)	3.6	4.3	3.2
	Non-employee staff† (%)	3.9	3.6	4.3
Not started series, do not intend to	**Residents (%)**	6.9	9.9	4.9
	Employees (%)	38.4	43.3	35.1
	Non-employee staff† (%)	11.6	18.8	2.3

†Of the sample, 47.4% indicated that they did not have non-employee staff (NES).

Figure 1. Reasons for Vaccine Hesitancy among Staff and Residents, Virginia, May 2021

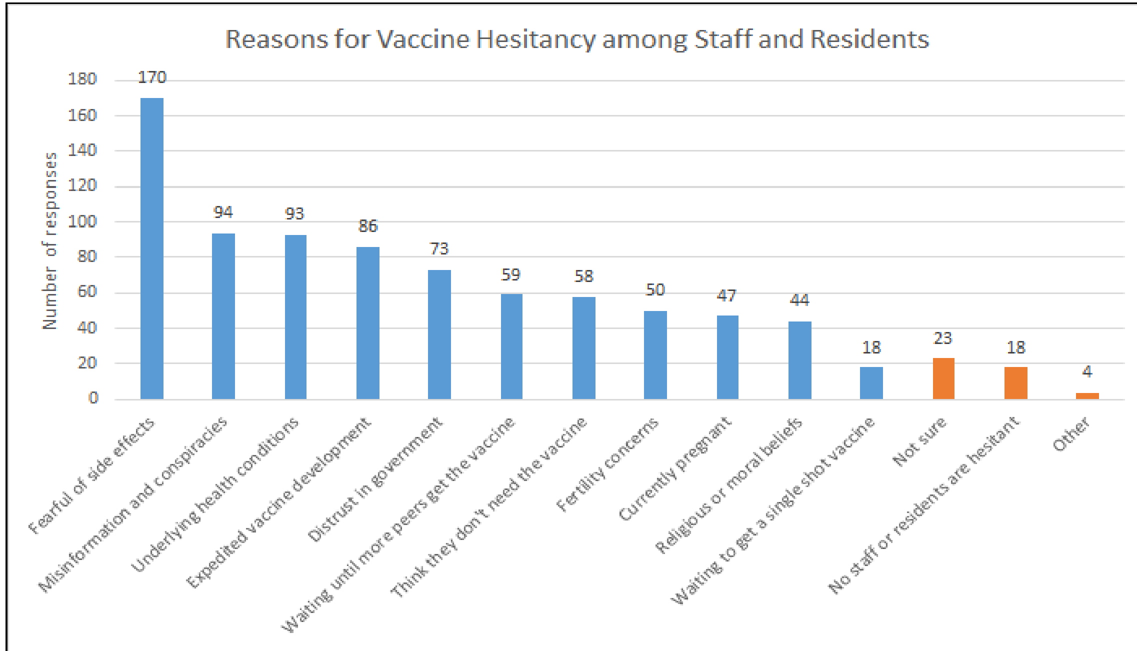
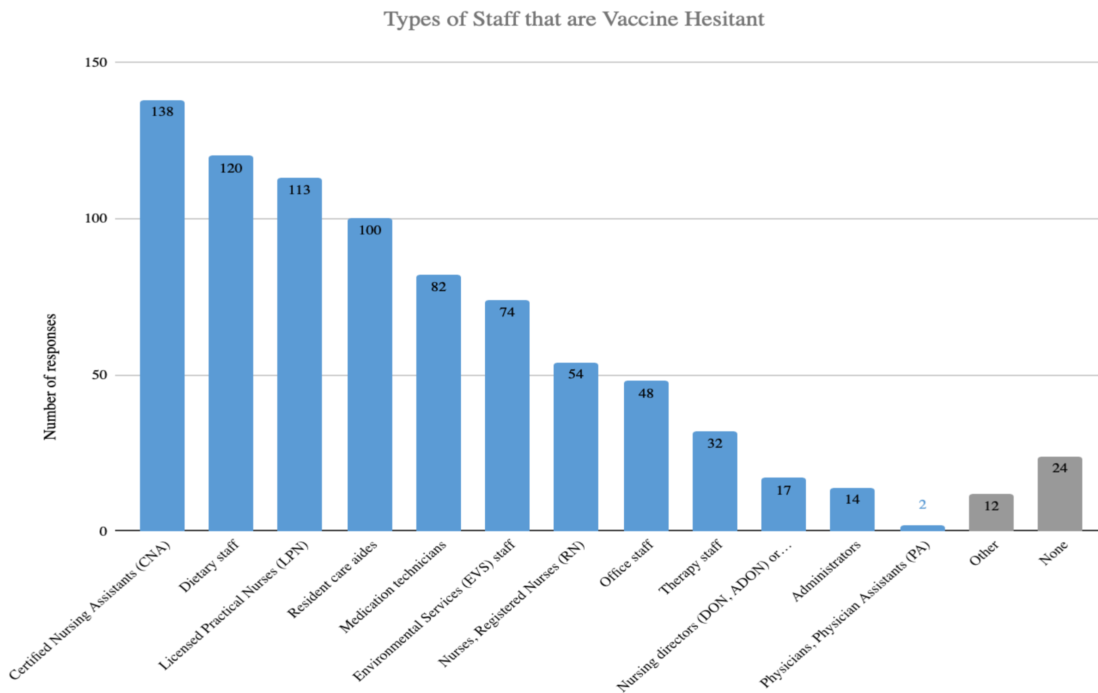


Figure 2. Types of Staff that are Vaccine Hesitant, Virginia, May 2021



Appendix I

Questions asked in the initial survey

- Name of the facility
- Address of the facility
- City/county in which the facility exists
- Type of facility
- Total number of employees
- Number of employees fully vaccinated
- Number of employees waiting for second dose
- Number of employees not vaccinated but want vaccinated
- Number of employees not consenting
- Total number of non-employee staff
- Number of non-employee staff fully vaccinated
- Number of non-employee staff waiting for second dose
- Number of non-employee staff not vaccinated but want vaccinated
- Number of non-employee staff not consenting
- Total number of residents
- Number of residents fully vaccinated
- Number of residents waiting for second dose
- Number of residents not vaccinated but want vaccinated
- Number of residents not consenting
- What do you think are the reasons for vaccine hesitancy in your staff and residents?
- How can VDH help you address vaccine hesitancy in your staff and residents?

Questions asked in the follow-up survey

- Name of the facility
- Address of the facility
- City/county in which the facility exists
- VDH Health District
- Type of facility
- Total number of employees
- Number of employees fully vaccinated
- Number of employees waiting for second dose
- Number of employees not vaccinated but want the vaccine
- Number of employees not consenting
- Total number of non-employee staff
- Number of non-employee staff fully vaccinated
- Number of non-employee staff waiting for second dose
- Number of non-employee staff not vaccinated but want the vaccine
- Number of non-employee staff not consenting
- Total number of residents
- Number of residents fully vaccinated

- Number of residents waiting for second dose
- Number of residents not vaccinated but want the vaccine
- Number of residents not consenting
- What do you think are the reasons for vaccine hesitancy in your staff and residents? (check all that apply):
    - Fearful of side effects
    - Expedited vaccine development
    - Misinformation and conspiracies
    - Underlying health conditions
    - Fertility concerns
    - Religious or moral beliefs
    - Distrust in government
    - Think they don't need the vaccine
    - Waiting until more peers get the vaccine
    - Waiting to get a single shot vaccine
    - Other (please specify):
- Type of facility employees who are vaccine hesitant (check all that apply):
    - Resident care aides
    - Medication technicians
    - Certified Nursing Assistants (CNA)
    - Licensed Practical Nurses (LPN)
    - Nurses, Registered Nurses (RN)
    - Nursing directors (DON, ADON) or Nurse Practitioners (NP)
    - Physicians, Physician Assistants (PA)
    - Environmental Services (EVS) staff
    - Administrators
    - Office staff
    - Dietary staff
    - Therapy staff
    - Other (please specify):
- How can public health help you address vaccine hesitancy in your staff and residents? (check all that apply):
    - Continued education
        - If yes, select which type of education:
            - Webinars
            - One-on-ones with health department or facility leadership
            - More educational material (in different languages)
                - If yes, specify the language(s) other than spanish
            - Success stories
    - More data on long-term side effects
    - Transparency about vaccine related injuries and deaths
    - None
    - Other (please specify):