Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Journal of the American Pharmacists Association 62 (2022) 1885–1890

Contents lists available at ScienceDirect

Journal of the American Pharmacists Association

journal homepage: www.japha.org

BRIEF REPORT

Effect of text message communication on patient presentation for an influenza vaccination in a community-based pharmacy setting

Bernard C. Cabatit, Morgan Grant, Pramit Nadpara, Jean-Venable R. Goode*

ARTICLE INFO

Article history:
Received 23 May 2022
Accepted 8 July 2022
Available online 14 July 2022

ABSTRACT

Background: Community pharmacies use text message communications for information regarding approaching refills and fill status. Patients can also be notified regarding annual influenza vaccine availability and schedule an appointment for the vaccine.
Objectives: This study aimed to evaluate whether text message communications affected patient presentation and resulted in a percent increase of patients receiving an influenza vaccine compared with previous vaccine season and to determine whether additional vaccines are administered upon presentation.
Methods: Ambidirectional study retrospectively analyzed the impact, nationally, of a new text message communication on influenza vaccinations at a large community pharmacy chain and prospectively surveyed patients receiving an influenza vaccine at 2 geographically similar pharmacies of the chain in Southwest Virginia. Text message communications regarding vaccine and appointment availability were sent to patients at the age of 18 years and older who opted in to text message communications and received an influenza vaccine with the chain during the 2019-2020 influenza season. Vaccine data from consecutive seasons were compared. Eligible patients in Southwest Virginia were surveyed about how they were informed about availability, previous intent to receive an influenza vaccine, applicability to other vaccines, and effect of the coronavirus disease 2019 pandemic on vaccination. Results were analyzed using bivariate and multivariate analyses.
Results: Nationally, influenza vaccines administered increased by 17.45% in patients who permitted text message communication and overall by 13.22% after implementation. Decreases in co-administered pneumococcal vaccines and tetanus, diphtheria, and pertussis vaccines and an increase in co-administered zoster vaccines were observed. A total of 111 patients were surveyed; 4% presented owing to text message communication. A majority were intent on receiving the vaccine before being notified and reported that the pandemic did not affect presentation. Notably, 45.05% of patients were likely to receive routine vaccines if notified by text message.
Conclusion: Text message communications are another viable way to increase vaccinations, but further studies should be conducted outside of a pandemic setting.

Background

In 2019, influenza infection was the ninth leading cause of death in the United States and the only cause of death of the fifteen leading causes to have a preventable vaccine.[1] During the 2019-2020 influenza season, an estimated 38 million people presented with symptomatic influenza resulting in 18 million influenza related medical visits and an approximate 22,000 deaths.[2] Studies have shown that influenza vaccination

Disclosure: The authors declare no relevant conflicts of interest or financial relationships.
Previous presentations: This study has been presented as a virtual poster at the American Pharmacist Association Annual meeting, March 11, 2021, and as a virtual podium presentation at the University of North Carolina Research in Education and Practice Symposium in Chapel Hill, May 18, 2021.
* **Correspondence:** Jean-Venable R. Goode, PharmD, BCPS, FAPhA, FCCP, Professor and Director, PGY-1 Community-based Pharmacy Residency, Virginia Commonwealth University, 410 North 12th St., Richmond, VA 23298.
E-mail address: jrgoode@vcu.edu (J.-V.R. Goode).

https://doi.org/10.1016/j.japh.2022.07.005
1544-3191/

Key Points

Background:

- Previous studies have shown community pharmacies and pharmacists are useful for improving vaccination rates, including influenza.
- Text message communication has shown to be an effective way of providing information to patients, including appointments.

Findings:

- Patients were likely to receive future vaccinations if notified by text message communication- Receipt of a text message communication was a possible factor for patients presenting for vaccination, however further studies with focus a larger, more diverse population for feedback should occur.

within a current season reduced the risk of influenza-like illness, influenza, and pneumonia.[3] Compared with no vaccination, receipt of a current season influenza vaccine had greater protection against varying influenza strains.[3]

In the mid-1990s, the first vaccination training programs for pharmacist-administered vaccinations were developed after a request from the U.S. Department of Health and Human Services to improve vaccination rates.[4] In the United States, 93% of Americans live within 5 miles of a community pharmacy, leading to pharmacists being one of the most accessible health care professionals.[5] Early season data from the 2018-2019 influenza season found pharmacies as the second most visited location, after a doctor's office, to receive an influenza vaccine.[6] Owing to the coronavirus disease 2019 (COVID-19) pandemic, under the Public Readiness Emergency Preparedness Act, pharmacists across the United States are able to administer countermeasures, including vaccines, to combat the pandemic.[7] A 2014 study in Ontario surveyed administered 2498 vaccines and surveyed 1502 patients across 4 different sites the season after pharmacist scope of practice was expanded to improve vaccination rates.[2] The study found that 86% of participants were very comfortable with being vaccinated by a pharmacist and 99% of participants would recommend being vaccinated by a pharmacist.[8] The same study found that 25% of participants reported that they would not have been vaccinated if not for the availability of a pharmacy-based vaccination service.[8] Pharmacists are able to provide the vaccination service; however, patients must be notified and willingly present for a successful vaccination service.

In a previous study regarding text message communications between parents of pediatric patients and the provider, pediatric patients were shown to be more likely to have a scheduled 1-year appointment and timely measles-mumps-rubella vaccination should they receive text message communications about their appointment.[9] In a survey of 274 primary care patients who were of low income and mostly uninsured, more than a quarter of the surveyed patients had never received an influenza vaccine, but 80% of participants owned a cell phone and were comfortable with receiving a text message communication regarding the influenza vaccination.[10] A 2017 Australian concluded that text message communications were a modest, low-cost means of increasing influenza vaccination rates after finding 12% of the patients who received a text message were vaccinated during the study period compared with 9% who did not receive a text message communication.[11] The Centers for Disease Control and Prevention (CDC) piloted a text message-based vaccine reminder system to remind 59 volunteer patients at 4 U.S. universities to complete a 2-shot pandemic influenza vaccine.[12] Moreover, 92% of volunteers who pilot tested the system felt the system would be helpful during a pandemic.[12]

A large national community pharmacy chain uses text message communication to provide information and updates to patients. Pharmacy chain patients can choose to be enrolled in communication with the pharmacy via voicemail, text message communication, or e-mail to receive information regarding their prescriptions including the status of a prescription in process.[13] The pharmacy chain provides health services to patients that include vaccinations for most patient age groups.[14] In addition to same-day walk-in vaccination, patients are able to schedule an appointment time for vaccination once they are aware of what vaccine they are eligible to receive.[15] For the 2020–2021 influenza season, the pharmacy chain opted to use these notification methods to recruit patients for vaccination against influenza. Eligible and enrolled patients received text message communications informing them about the availability of influenza vaccine at their local national chain community pharmacy and would be provided, via subsequent communications, the information to schedule their vaccination appointment online. Patients were sent follow-up text message communications if they did not receive a vaccine before the next wave of text message communications were released.

Objectives

The primary objective of this study was to evaluate whether text message communications result in a percent increase of patients receiving an influenza vaccine compared with previous vaccine season, and a secondary objective to determine whether additional vaccines are administered upon presentation.

Methods

In this ambidirectional study, investigators retrospectively analyzed, on a national level, the impact of a new text message communication on influenza vaccinations at a large national community pharmacy chain and prospectively collected information from patients receiving an influenza vaccine at 2 geographically similar pharmacies of the chain in rural Southwest Virginia.

Retrospectively, patients across the chain at a national level were included if they were eligible to receive the text message communication from the pharmacy chain, were at the age of 18 years and older, had previously opted into receiving text message communication, and had previous received influenza vaccination from the community chain pharmacy. Vaccination data during a 4-month period (September-December) were

Table 1
Vaccine administration comparison 2019-2020 versus 2020-2021 season and eligible patients to receive text message and influenza vaccine

Types of vaccines administered and patient eligibility	% change from 2019 influenza season to 2020 influenza season		
Influenza vaccines administered	13.23		
Influenza vaccines administered (≥ 18 y with text message communication enabled)	17.45		
Total pneumococcal vaccines administered	−9.43		
Total zoster vaccines administered	10.17		
Total Tdap vaccines administered	−13.00		
	2019−2020 season	2020−2021 season	% change
Co-administered routine vaccines	10.09	8.57	−2.09
Eligible patients from 2019-2020 who could receive text message communication	100		
% eligible who received text message communication	64.14		
% eligible who received influenza vaccine[1]	7.97		

Abbreviation used: Tdap, tetanus, diphtheria, and pertussis.
Note: Influenza season considered September to December.

compared from 2 consecutive influenza seasons (2019-2020 and 2020-2021), before and after the text message communication was implemented. Vaccine data for administered influenza; tetanus, diphtheria, and pertussis (Tdap); pneumococcal; and zoster vaccines were extracted from the from the pharmacy chain's electronic health records including patient number and ID number for profile matching between technology vendor and the pharmacy chain system, patient age, influenza vaccine product ID code, pharmacy store ID and store name, pharmacy state and postal code, influenza and routine vaccine vaccination dates, short message service (SMS) phone number enrollment, return patient indicator (2020-2021 data), and whether the patient received a text message (2020-2021 data). Text message communication records were extracted from the pharmacy chain's technology vendor. The total number of eligible patients was considered as the basis for which percent vaccinated were calculated. The percent increase was determined as the number of influenza and routine vaccines administered during the 2020-2021 season compared with the data from the same period in the previous season. If a percent increase was not determined, the comparison in the number of vaccines administered was reported as a percent decrease.

Patients engaged for the prospective survey portion were 18 years and older, previously enrolled in text message communication, and presenting for an influenza vaccination. Pharmacy staff at the 2 pharmacies were trained before the start of the study on the purpose and procedures of the research project. Personnel were not offered any incentive to participate. The training included review of the standardized survey (Appendix 1) and a standardized script (Appendix 2) to be used to engage eligible patients in completing the survey. Copies of the survey and consent sheet were provided to both pharmacies. Patients were engaged to participate in the survey by pharmacy staff at both Southwest Virginia sites based on eligibility criteria. Confirmation of criteria was based upon review of patient electronic health record as the patient presented for an influenza vaccination appointment. Walk-in patients were excluded from survey participation. Patients completed the 7-item survey after receiving the vaccine. The survey questions, developed by the investigators, collected demographic information (age, gender identity, and ethnicity) and how the patient heard about vaccine availability and appointment scheduling. Survey questions regarding the likelihood of the patient receiving the influenza vaccine during the 2020-2021 influenza season before receiving any form of notification and the likelihood of receiving a routine vaccine in the future if notified via text message communication were based on a 5-point Likert rating scale. Patients were also asked whether the COVID-19 pandemic factored into the patient receiving an influenza vaccine. Univariate, bivariate, and multivariate analyses were conducted using SAS 9.4 (SAS Institute, Inc.). The study was approved by the Virginia Commonwealth University Institutional Review Board.

Results

For those patients who permitted text message communications from the pharmacy chain, there was a 17.45% increase in influenza vaccines administered. Overall, a 13.22% increase was observed with influenza vaccines administered during the 2020-2021 season to patients at the age of 18 years and older compared with influenza vaccines administered in the 2019-2020 season. During the 2020-2021 season, a 9.43% decrease in pneumococcal vaccines administered, a 10.17% increase in zoster vaccines administered, and a 13% decrease in Tdap vaccines administered at the same time as an influenza vaccine was observed compared with the 2019-2020 season. In the 2019-2020 season, 10.09% of influenza vaccines were co-administered with a routine vaccine at the same visit. In the 2020-2021 season, 8.57% of influenza vaccines were co-administered with a routine vaccine, a −2.02% decrease from the previous season (Table 1).

From the 2019-2020 vaccine data, eligible patients were identified for receipt of the new text message communication during the 2020-2021 influenza season. Of the eligible patients, 64.14% successfully received a text message notification, yet 12.37% of patients who received a text message communication received an influenza vaccine. Overall, 7.97% of eligible patients from the 2019-2020 influenza season presented for a prescheduled vaccination appointment in 2020-2021 (Table 1).

For the prospective arm, a total of 111 patients completed the survey. The total number of patients offered was not tracked. Most patients were 65 years and older (44.1%), female (55%), and white (85.6%) (Table 2). Notably, 56.8% of patients

Table 2
Survey questions and responses pertaining to patient demographics and patient experience with influenza vaccine notifications and effect of COVID-19 on presentation

Question and response (n = 111)	No. responses (%)	No. responses (n)
Please select your age range:		
18–24	2.70	3
25–34	6.30	7
35–44	11.71	13
45–54	9.01	10
55–64	26.13	29
≥ 65	44.14	49
Please select your preferred gender identity		
Male	45.05	50
Female	54.95	61
Please specify your ethnicity		
White	85.59	95
Hispanic or Latino	1.80	2
Black or African American	2.70	3
Asian/Pacific Islander	1.80	2
Other _____	1.80	2
Prefer not to specify	6.31	7
How did you hear about scheduling and receiving the influenza vaccine today?		
Television commercial	2.70	3
In-store announcements	10.81	12
Kroger text message	4.51	5
Pharmacist	5.41	6
Physician	18.92	21
Other health care provider	0.90	1
Other	56.76	63
How likely were you to receive an influenza vaccine before being informed about it? ($P < 0.330$)		
1 (least likely)	1.80	2
2	4.50	5
3 (no difference)	7.21	8
4	17.12	19
5 (most Likely)	69.37	77
What is the likelihood that you would receive additional vaccinations if informed about them via text message communication? ($P < 0.364$)		
1 (least likely)	19.82	22
2	9.01	10
3 (no difference)	26.13	29
4	16.22	18
5 (most likely)	28.83	32
Did the current COVID-19 global pandemic influence you in scheduling and presenting for your influenza vaccine?		
Yes	37.84	42
No	60.36	67
Prefer not to say	1.80	2

Abbreviation used: COVID-19, coronavirus disease 2019.

reported that they presented for the influenza vaccine owing to "other" notifications (i.e., their spouse or by routine); 4.5% of patients in total reported they presented for their influenza vaccine owing to receiving a text message communication (Table 2). When asked about the likelihood of receiving an influenza vaccine before being notified through any method, 69.4% of patients reported they were "most likely" to receive an influenza vaccine, with a median response of "most likely." A Wilcoxon Mann-Whitney test revealed there was no difference in responses to this question between males and females ($P < 0.330$). When asked about the likelihood of receiving future routine vaccines if notified via text message communication, 16.2% of patients reported "somewhat likely" and 28.8% of patients reported "most likely" to receive the vaccine and a median response of "no difference." Again, there was no difference in response between male and females ($P < 0.364$). When asked about whether the COVID-19 pandemic influenced the patient to present for an influenza vaccine, 60.4% of patients reported that it did not play a role in their presentation. A difference was found between males and females ($P = 0.029$) toward females, with regard to the influence of the COVID-19 pandemic on presenting for an influenza vaccine.

Discussion

Text message communications have been shown as a modestly effective means of increasing influenza vaccine coverage; however, there are limited data on promoting influenza vaccinations, especially in community pharmacy settings.[9,11] Hofstetter et al.[9] examined the impact of text message communications for scheduling and reminders for MMR vaccination at pediatric clinics and found an improvement in vaccination rates of patients who received scheduling

and reminder text messages communications compared with usual care (61.1% vs. 55.1%). Regan et al.[11] examined the impact of text message communication at 10 primary care practices in western Australia, showing an moderate increase in vaccination rates in people who received an SMS compared with population who did not (12% of the SMS receiving group vs. 9% of the control group). Similarly to the Australian study, after the implementation of a text message communication, there was a 17.45% increase in vaccination rates. In our study, there was also a 13.22% increase in influenza vaccines administered in the 2020-2021 influenza season, when the text message communication was implemented compared with the 2019-2020 influenza season. The small percentage of eligible text message communication recipients receiving an influenza vaccine after a majority were successfully notified about the availability is similar in findings from the previously mentioned studies.

In the CDC pilot study, survey results showed respondents expressed desire for actionable information and the customizability of text message communications.[12] In addition, Kumar et al.[10] assessed in a study whether patients would be receptive to vaccination text messages and found 80% of cell phone owning participants would be comfortable seeking an influenza vaccine after a vaccination text message communication. Both studies exhibit the possibility to further use text message communications in increasing other vaccinations. In our study, co-administered routine vaccines were evaluated with the influenza vaccines administered, and survey respondents were questioned on the likelihood of receiving a routine vaccine in the future if notified about their eligibility to receive a vaccine via text message communication. In our study, the median response of "no difference" indicates that the survey population would neither be more nor less inclined to receive a future routine vaccine if they were informed about the availability via text message. In addition, most survey responders were likely to present for an influenza vaccine without prompting from a text message communication. However, owing to the small sample size, it is difficult to generalize this response across the pharmacy enterprise. The decreases in Tdap and pneumococcal vaccinations in 2020-2021 could possibly be attributed to previous vaccination and completion of series of some patients in seasons past, whereas the increase in zoster vaccinations could possibly be attributed to patients reaching the age recommendation for the vaccine. Owing to time, further data analysis with respect to patient ages would be needed to confirm these possibilities. Although there was a decrease in 2 of the routine vaccines that were co-administered and a decrease in co-administered vaccines from the previous season, patients did receive a routine vaccine in the same visit in addition to the influenza vaccine after a text message communication.

Survey questions focusing on how patients were notified about the availability of the influenza vaccine and scheduling availability and the likelihood of receiving the influenza vaccine before the notification were used to validate the efficacy of the text message communications in conjunction with the vaccine data (Table 2). Responses indicating that the patient received a text message notification and was not likely to receive the influenza vaccine before being notified would have exhibited that the text message notification played a role in the patient's presentation. A small percentage of patients (4.51%) presenting for an influenza vaccine after receipt of a text message communication indicates that notification may be able to affect patient presentation for an influenza vaccine. However, most patients presenting because of other notification methods, such as routinely presenting or by their spouse, implied that the text message communication may not have an impact.

Limitations of this study include the inability to confirm the accuracy of patient contact information for the text messaging. Given that text message communication is reliant on using a patient's phone number and defunct phone numbers were possibly being used to reach out to patients, there may have been instances in which patients did not receive communications thus limiting the study results. In addition, the study was reliant on the patient from the 2019-2020 season returning directly to the pharmacy chain in 2020-2021. There is the possibility that a patient received a text message communication from the pharmacy chain but received the influenza vaccine elsewhere, either another pharmacy chain, through an external vaccine clinic, or through their primary care provider. Increases in influenza vaccine numbers compared with the previous season may also have been conflated with the text message communications owing to the ongoing COVID-19 pandemic during the 2020-2021 influenza season owing to concerns of a possible "twindemic," a severe influenza season running concurrently with the COVID-19 pandemic.[16]

In addition, the prospective survey was administered during a busy workflow at both local Virginia sites. Owing to this, the total number of patients who were offered the survey was not recorded; therefore, we were unable to determine a survey response rate. In addition, the exclusion of walk-in patients could have inadvertently excluded possible participants who received a text message communication about the influenza vaccine. The small population size of survey respondents in Southwest Virginia is not entirely generalizable to the patients of the pharmacy chain at the stores the vaccines where the surveys were conducted nor the pharmacy chain nationwide. The survey participants represent a portion of the vaccines administered at either survey site and included those who may not have been as technologically experienced and did not receive benefit from the text message communication service. Patient perception of the time to complete the survey may have also led to a smaller population size.

Conclusion

Receipt of a text message communication was a possible factor for patients presenting for an influenza vaccine and co-administered routine vaccines in the 2020-2021 season. In addition, patients were open to receiving future influenza or routine vaccines if notified in via text message communication. Text message communications are another viable way to increase vaccinations; however, future studies should be conducted with a larger more diverse population for feedback, with a greater focus on patient age groups to determine which demographic group may benefit the most from text message communications.

References

1. Centers for Disease Control and Prevention. Deaths and mortality. Available at: https://www.cdc.gov/nchs/fastats/deaths.htm. Accessed May 23, 2021.
2. Centers for Disease Control and Prevention. Disease burden of flu. Available at: https://www.cdc.gov/flu/about/burden/index.html. Accessed May 23, 2021.
3. Ramsay LC, Buchan SA, Stirling RG, et al. The impact of repeated vaccination on influenza vaccine effectiveness: a systematic review and meta-analysis. *BMC Med*. 2019;17(1):9.
4. Bach AT, Goad JA. The role of community pharmacy-based vaccination in the USA: current practice and future directions. *Integr Pharm Res Pract*. 2015;4:67–77.
5. Strand MA, Bratberg J, Eukel H, Hardy M, Williams C. Community pharmacists' contributions to disease management during the COVID-19 pandemic [published correction appears in *Prev Chronic Dis*. 2020;17:E98]. *Prev Chronic Dis*. 2020;17:E69.
6. Centers for Disease Control and Prevention. Influenza (flu) general population early season vaccination coverage. Available at: https://www.cdc.gov/flu/fluvaxview/nifs-estimates-nov2018.htm. Accessed June 29, 2022.
7. U.S. Department of Health and Human Services. PREP act immunity from liability for COVID-10 vaccinators. Available at: https://www.phe.gov/emergency/events/COVID19/COVIDvaccinators/Pages/PREP-Act-Immunity-from-Liability-for-COVID-19-Vaccinators.aspx. Accessed May 23, 2021.
8. Papastergiou J, Folkins C, Li W, Zervas J. Community pharmacist-administered influenza immunization improves patient access to vaccination. *Can Pharm J (Ott)*. 2014;147(6):359–365.
9. Hofstetter AM, DuRivage N, Vargas CY, et al. Text message reminders for timely routine MMR vaccination: a randomized controlled trial. *Vaccine*. 2015;33(43):5741–5746.
10. Kumar D, Hemmige V, Kallen MA, Street Jr RL, Giordano TP, Arya M. The role of text messages in patient-physician communication about the influenza vaccine. *J Mob Technol Med*. 2018;7(2):55–59.
11. Regan AK, Bloomfield L, Peters I, Effler PV. Randomized controlled trial of text message reminders for increasing influenza vaccination. *Ann Fam Med*. 2017;15(6):507–514.
12. Lehnert JD, Shevach A, Walker S, Wang R, Fitzgerald TJ, Graitcer SB. Development and pilot testing of a text message vaccine reminder system for use during an influenza pandemic. *Hum Vaccin Immunother*. 2018;14(7):1647–1653. Accessed May 2021.
13. Kroger. Refills FAQs. Available at: https://www.kroger.com/health/pharmacy/faqs/refills. Accessed October 7, 2020.
14. Kroger. Pharmacy. Available at: https://www.kroger.com/d/pharmacy services. Accessed October 7, 2020.
15. Kroger. Vaccinations and injections. Available at: https://www.kroger.com/health/clinic/vaccinations. Accessed October 7, 2020, 2020.
16. Hoffman J. Fearing a 'twindemic,' health experts push urgently for flu shots. *The New York Times*. Available at: https://www.nytimes.com/2020/08/16/health/coronavirus-flu-vaccine-twindemic.html. Accessed May 20, 2021.

Bernard C. Cabatit, PharmD, Pharmacist, Green Leaf Medical, Richmond, VA; and at time of study, PGY-1 Community-based Pharmacy Resident, Virginia Commonwealth University, Richmond, VA

Morgan Grant, PharmD, MBA, Pharmacist-in-Charge, Kroger Health, Madison, MS; and, at time of study, Pharmacist-In-Charge, Kroger Health Roanoke, VA

Pramit Nadpara, PhD, MS, BSPharm, Associate Professor, Department of Pharmacotherapy and Outcomes Science, Virginia Commonwealth University, Richmond, VA

Jean-Venable R. Goode, PharmD, BCPS, FAPhA, FCCP, Professor and Director, PGY-1 Community-based Pharmacy Residency, Virginia Commonwealth University, Richmond, VA

Appendix 1

Influenza vaccination questionnaire

Please take a few minutes to fill out this survey on the reason you are receiving the influenza vaccine today. Thank you for your participation

1. **Please select your age range:**
   a. 18 - 24
   b. 25 - 34
   c. 35 - 44
   d. 45 - 54
   e. 55 - 64
   f. 65 and older
2. **Please select your preferred gender identity:**
   a. Male
   b. Female
   c. Transgender
   d. Non-binary
   e. Other_____
   f. Prefer not to say
3. **Please specify your ethnicity**
   a. White
   b. Hispanic or Latino
   c. Black or African American
   d. Native American or American Indian
   e. Asian/ Pacific Islander
   f. Other _____
   g. Prefer not to specify
4. **How did you hear about scheduling and receiving the influenza vaccine today?**
   a. E-mail
   b. Television Commercial
   c. In-store announcements
   d. Kroger Text Message
   e. Pharmacist
   f. Physician
   g. Other health care provider
   h. Other
5. **How likely were you to receive an influenza vaccine before being informed about it?**
   1 (Least likely) 2 3 4 5 (Most Likely)
6. **What is the likelihood that you would receive additional vaccinations if informed about them via text message communication?**
   1 **(Least likely) 2 3 4 5 (Most Likely)**
7. **Did the current COVID-19 global pandemic influence you in scheduling and presenting for your influenza vaccine?**
   a. Yes
   b. No
   c. Prefer not to say

Appendix 2

Survey recruiting script

Script for Vaccination Encounter and Survey Enrollment (Technician)

"Hello, my name is [**INSERT NAME**] and I am a pharmacy technician here at Kroger. I see that you are scheduled to receive an influenza vaccine today, is that correct? [**PATIENT RESPONSE**] Would you be willing to participate in a survey about how you scheduled your appointment today? [**PATIENT RESPONSE**] *(If yes)* I will let the pharmacist know and they will have the survey ready for you to complete in the counseling room! (*If no)* I will let the pharmacist know and they will only administer your vaccine!"

Script for Vaccination Encounter and Survey Enrollment (Pharmacist)

"Hello, my name is [**INSERT NAME**] and I am a pharmacist here at Kroger. I see that you are scheduled to receive an influenza vaccine today, is that correct? [**PATIENT RESPONSE**]. Would you be willing to participate in a survey about how you scheduled your appointment today? The survey is completely optional and is meant to get feedback on how you heard about the vaccine availability and scheduling opportunities. You can complete the survey before or after I give you your vaccine in the privacy of the counseling room. [**PATIENT RESPONSE**] *(If yes)* I will finish up preparing your vaccine and will prepare the survey for you to complete. (*If no)* I will finish up preparing your vaccine and you can be on your way!"