

Evaluation of a Novel Supervision Model of Intern Pharmacists at a COVID-19 Vaccination Clinic

Whitney Y Fakolade, PharmD, Richard Dang, PharmD, APh, BCACP, FCPPhA

INTRODUCTION

- The COVID-19 pandemic resulted in the largest vaccination campaign in modern history. Despite these efforts, there was a significant staffing shortage of eligible vaccinators and other critical vaccine resources. Pharmacists and other healthcare providers, including pharmacy technicians and student or intern pharmacists, became essential vaccine providers
- In the state of California, intern pharmacists were already authorized to perform all functions of a pharmacist, except final verification, under the direct and general supervision of a pharmacist in the state of California¹. However, these supervision and ratio requirements were a barrier to fully integrating the over 6,400 intern pharmacists in the state
- As a result, the California State Board of Pharmacy extended a temporary waiver to authorize intern pharmacists to perform COVID-19 vaccination-related tasks, including administration at the direction and supervision of not only a pharmacist, but other healthcare professionals, such as licensed physicians, surgeons, nurse practitioners, or physician assistants, who are also authorized to order and administer vaccines and can supervise the performance of vaccinations within their own scope of practice²
- In this novel supervision model, intern pharmacists were deployed to mass vaccination sites and were under the direct supervision of licensed non-pharmacist, healthcare professionals while under the general or indirect supervision of a licensed pharmacist. Currently, there is limited to no data on the effectiveness of indirect supervision of intern pharmacists at these vaccination sites

OBJECTIVES

- Evaluate the effectiveness and performance of intern pharmacists in a novel supervision model at a vaccination clinic
- Identify and evaluate the differences in preparedness, confidence level, and perception in competence in intern pharmacists based on the number of shifts that were completed during the novel supervision model

METHODS

- Cross sectional study of eligible vaccine personnel at LA City COVID-19 vaccination clinics
- Individuals were invited to participate through clinic vaccine roster created by organization representatives from USC School of pharmacy
- Participants were recruited via email, confirming that they completed at least 1 shift at the vaccination clinics as a "pharmacy lead" or "lead intern" and were in good standing with the California board of Pharmacy when they completed the shift(s)
- All screening tools were distributed via email and completed on the Qualtrics survey platform
- The survey questionnaire gauged the preparedness and confidence level of participants using a 5-point Likert scale prior to their first shift and after completing subsequent shifts at the vaccination clinics
- Participants were asked to provide brief commentary about their experiences working shifts as an intern pharmacist in the form of a short answer.
- Paired t-test performed to evaluate changes in preparedness and confidence level prior to and after working shift(s) at LA City COVID-19 vaccination clinics
- A survey text analysis was conducted to categorize commentary into three categories—positive, negative, or neutral

METHODS

INCLUSION CRITERIA

Participated in at least one shift at the LA City COVID-19 vaccination clinics from January 2021 to September 2021

Held position of "pharmacy lead" or "lead intern" during shifts

Licensed as an intern pharmacist by California Board of Pharmacy, and in good standing

EXCLUSION CRITERIA

Participated as volunteer staff during shifts

Prior to participating

How PREPARED did you feel you were PRIOR TO your FIRST shift, under the emergency waiver conditions, at the USC/LA City COVID-19 vaccination clinic?

How CONFIDENT did you feel about COVID-19 vaccine preparation PRIOR TO your FIRST shift, under the emergency waiver conditions, at the USC/LA City COVID-19 vaccination clinic?

How CONFIDENT did you feel about COVID-19 vaccine administration PRIOR TO your FIRST shift, under the emergency waiver conditions, at the USC/LA City COVID-19 vaccination clinic?

How CONFIDENT did you feel about COVID-19 vaccine assessments and decision making PRIOR TO your FIRST shift, under the emergency waiver conditions, at the USC/LA City COVID-19 vaccination clinic?

After participating

How PREPARED did you feel you were AFTER completing your shifts, under the emergency waiver conditions, at the USC/LA City COVID-19 vaccination clinic?

How CONFIDENT did you feel about COVID-19 vaccine preparation AFTER completing your shifts, under the emergency waiver conditions, at the USC/LA City COVID-19 vaccination clinic?

How CONFIDENT did you feel about COVID-19 vaccine administration AFTER completing your shifts, under the emergency waiver conditions, at the USC/LA City COVID-19 vaccination clinic?

How CONFIDENT did you feel about COVID-19 vaccine assessments and decision making AFTER completing your shifts, under the emergency waiver conditions, at the USC/LA City COVID-19 vaccination clinic?

1-Completely unprepared
2-Somewhat unprepared
3-Neutral
4-Somewhat prepared
5-Completely prepared

1- Not confident at all
2- Slightly confident
3- Somewhat confident
4- Fairly confident
5- Completely confident

"Please provide brief commentary about your experience as an intern pharmacist working under the emergency waiver conditions."

RESULTS

Table 1. Characteristics of participants in survey

Characteristics	n=11
Male	3 (27.28%)
Female	8 (72.72%)
Age, years	
18-24	2 (18.18%)
25-34	8 (72.72%)
35-44	1 (9.09%)
45 and older	0 (0.00%)
Role Title	
IPPE student	1 (9.09%)
APPE student	1 (9.09%)
Intern Pharmacist (paid)	9 (81.81%)
Worked at least one shift as intern	
Yes	11 (100.00%)
No	0 (0.00%)
No. of shifts worked	
1 to 5	1 (9.09%)
6 to 10	2 (18.18%)
11 to 20	3 (27.27%)
21 +	5 (45.45%)
Year of pharmacy school	
First year (P1)	3 (27.27%)
Second year (P2)	1 (9.09%)
Third year (P3)	1 (9.09%)
Fourth year (P4)	4 (36.36%)
Grad Intern	2 (18.18%)
Work experience prior to participating in vaccine clinic	
Yes	9 (81.81%)
No	2 (18.18%)
Location of prior work	n=9
Community Pharmacy	8 (88.88%)
Hospital Pharmacy	1 (11.11%)

Table 2. Summary of means of responses from Participants, with p-values																						
	All participants n=11	Participants who completed ≤ 5 shifts n=1	Participants who completed >5 shifts n=10	Participants who completed ≤ 6 shifts n=2	Participants who completed >6 shifts n=9	Participants who completed ≤ 10 shifts n=3	Participants who completed >10 shifts n=8	Participants who completed ≤ 15 shifts n=5	Participants who completed >15 shifts n=6	Participants who completed ≤ 20 shifts n=6	Participants who completed >20 shifts n=5											
How PREPARED did you feel you were PRIOR to your FIRST shift, under the emergency waiver conditions, at the US/CA City COVID-19 vaccination clinic?	Mean p value	Mean p value	Mean p value	Mean p value	Mean p value	Mean p value	Mean p value	Mean p value	Mean p value	Mean p value	Mean p value											
	4.45	4.00	4.50	4.50	4.44	4.33	4.50	4.40	4.40	4.50	4.40											
How PREPARED did you feel you were AFTER completing your shifts, under the emergency waiver conditions, at the US/CA City COVID-19 vaccination clinic?	4.91 0.016*	4.00	N/A	5.00 0.015*	4.50	N/A	5.00 0.013*	4.67 0.423	5.00 0.033*	4.80 0.178	5.00 0.076	4.83 0.175	5.00 0.070									
How CONFIDENT did you feel about COVID-19 vaccine preparation PRIOR to your FIRST shift, under the emergency waiver conditions, at the US/CA City COVID-19 vaccination clinic?	3.64	4.00	3.60	3.50	3.67	3.67	3.63	3.60	3.67	3.67	3.67	3.60										
How CONFIDENT did you feel about COVID-19 vaccine preparation AFTER completing your shifts, under the emergency waiver conditions, at the US/CA City COVID-19 vaccination clinic?	4.91 0.002*	4.00	N/A	5.00 0.001*	4.50 0.500	5.00 0.004*	4.67 0.225	5.00 0.008*	4.80 0.033*	5.00 0.043*	4.83 0.013*	5.00 0.080										
How CONFIDENT did you feel about COVID-19 vaccine administration PRIOR to your FIRST shift, under the emergency waiver conditions, at the US/CA City COVID-19 vaccination clinic?	4.36	4.00	4.40	4.50	4.33	4.67	4.25	4.40	4.33	4.50	4.20											
How CONFIDENT did you feel about COVID-19 vaccine administration AFTER completing your shifts, under the emergency waiver conditions, at the US/CA City COVID-19 vaccination clinic?	5.00 0.046*	5.00	N/A	5.00 0.081	5.00 0.500	5.00 0.080	5.00 0.423	5.00 0.080	5.00 0.021	5.00 0.175	5.00 0.203	5.00 0.178										
How CONFIDENT did you feel about COVID-19 vaccine assessments and decision making PRIOR to your FIRST shift, under the emergency waiver conditions, at the US/CA City COVID-19 vaccination clinic?	3.55	3.00	3.60	4.00	3.44	4.00	3.38	3.60	3.50	3.67	3.40											
How CONFIDENT did you feel about COVID-19 vaccine assessments and decision making AFTER completing your shifts, under the emergency waiver conditions, at the US/CA City COVID-19 vaccination clinic?	4.64 0.006*	3.00	N/A	4.80 0.005*	4.00	N/A	4.78 0.004*	4.33 0.423	4.75 0.008*	4.40 0.099	4.83 0.043*	4.50 0.042*	4.80 0.080									
*denotes statistical significance, n-value <0.05																						

*denotes statistical significance, p-value <0.05.

"... it gave me the hands-on experience I needed to grow both personally and professionally."

"The proper orientation and training was key to my confidence conducting my job responsibilities..."

"I loved working here because I got to become more confident in administering vaccinations, counseling patients, and communicating with pharmacists..."

"... It was a great way to showcase what pharmacists do and if there is another mass vaccination project in the future, I would be more than likely to participate."

DISCUSSION

- Evidence suggests that intern pharmacists can express positive increases in their overall preparedness, confidence about COVID-19 vaccine preparation, administration, and decision making when they have completed **more than 5 shifts** under the novel supervision model
- Intern pharmacists are also able to independently complete tasks related to COVID-19 vaccines and clinical decision making under the indirect supervision of licensed pharmacists, and other licensed non-pharmacist healthcare professionals
- No subgroup noted a statistically significant increase in confidence about COVID-19 vaccination administration

CONCLUSIONS & LIMITATIONS

- Low population size
- Low completion rate
- Non- responder bias
- Recall bias
- The results of this study can help to promote the novel supervision model of intern pharmacists working under the direct supervision of licensed non-pharmacist, healthcare professionals while under the general or indirect supervision of a licensed pharmacist as a permanent law
- Assist other organizations involved in providing experiences for intern pharmacists

REFERENCES

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CONTACT INFO

- Whitney Y Fakolade, PharmD. fakolade@usc.edu
- Richard Dang, PharmD, APh, BCACP, FCPPhA. rdang@usc.edu