



COVID-19 Vaccine Scheduling Support for Phase 1B and the Federal Retail Pharmacy Program, Virginia, 2021

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Objectives

- Compare the advantages and disadvantages of using REDCap scheduling for mass vaccination events.
- Explain the role of both VDH and Deloitte to meet the needs of scheduling vaccinations.
- List the processes of using REDCap and R-Studio to generate reports for the projects.







Background

- February 23 - March 22, 2021
- VDH worked with the Division of Pharmacy Services, Deloitte and retail pharmacies to implement the Federal Retail Pharmacy Program
 - Provided free COVID-19 vaccines to residents who met the phase 1B criteria of Virginia's vaccination strategy
- ~16,500 appointments scheduled in the REDCap Survey
 - **Research Electronic Data Capture (REDCap):** web-based application used to capture data for clinical research and create databases and projects.



Methods

- Deloitte shared a retail pharmacy vaccination site list
 - Included the amount of appointments per event, per day
- VDH designed a temporary REDCap System where call center agents were able to mass schedule individuals that met phase 1B criteria

Record ID	16317
Date of the event	  Friday, 03/12/2021
Select time slot	  10:05AM ▾
Form Status	
Complete?	  Complete ▾

Methods

- VDH developed and ran an R-script that generated hourly reports of appointments made by event and removed time slots in real time as they were scheduled.
 - **R Studio** - Programming language and software environment for statistical analysis, graphics representation and reporting

```
#High level summary for email body
Walmart_high_level<-Walmart %>%
  mutate(count=1) %>%
  filter(scheduled_date >= Sys.Date()) %>%
  distinct(first_name,last_name,email,phonenumber,event_location,scheduled_date, .keep_all = TRUE) %>%
  group_by(location,scheduled_date) %>%
  summarise(num_scheduled = sum(count,na.rm=T))%>%
  filter(!is.na(scheduled_date))
```

Methods

- Reports were sent to each retail pharmacy (hourly) to track anticipated incoming volume, and this process was maintained Monday-Friday 9AM-8PM

location	scheduled_date	num_scheduled
1106 Campostella Rd (STEM Academy); Norfolk, VA	2021-02-26	376
1106 Campostella Rd (STEM Academy); Norfolk, VA	2021-02-27	367
13101 Jefferson Davis Hwy (John Tyler Community College - Nicholas Turner Center Building); Chester, VA	2021-02-26	393
13101 Jefferson Davis Hwy (John Tyler Community College - Nicholas Turner Center Building); Chester, VA	2021-02-27	447
13101 Jefferson Davis Hwy (John Tyler Community College - Nicholas Turner Center Building); Chester, VA	2021-02-28	353
4100 Virginia Beach Blvd (Central Library); Virginia Beach, VA	2021-02-26	349
4100 Virginia Beach Blvd (Central Library); Virginia Beach, VA	2021-02-27	67

Results

- Using the temporary system created in REDCap, Deloitte was able to schedule over 16,500 Virginia Residents for their 1st dose of the COVID-19 vaccine
- Scheduled over 25 mass vaccination events in the early stages of the COVID-19 vaccination rollout
- Number of appointments varied by event and capacity
 - Scheduled up to 86 (5 minute) time slots a day with up to 7 appointments per time slot
 - The second dose was scheduled in person during the first dose appointment

Conclusion

- High priority, low turnaround time scheduling system was designed and implemented using REDCap to schedule VA residents for their first dose of COVID-19 vaccine
- This project demonstrated the flexibility of REDCap to act as a stopgap measure for vaccine scheduling during a rapid rollout event

Successes

- REDCap allowed us to schedule many people using the alerts and notifications tools, in which then sent follow-up emails after the initial schedule that confirmed time, date, and location of the vaccine.
 - Served as a temporary solution during the development of VASE+
- Although a time consuming processing, the efficiency of using R programming with REDCap helped Deloitte manage the process in near real-time.
 - Communication could've been a challenge due to VDH team only having access to the REDCap project.
 - Hourly and 'end of day' reports kept all partners informed in a timely manner

Challenges

- Ensuring proper data quality at scale within the survey and patient information
 - Invalid email addresses and phone numbers served as a challenge throughout the project
- Had no point of contact for individuals to contact regarding their appointment.
 - I.e. individuals could not cancel or reschedule appointments if necessary

Recommendations

- A more automatic scheduling process (VASE+) would be beneficial due to the high volume of individuals being scheduled each day, given that there are only a certain amount of doses for each day
- Long-term, fast-paced projects such as this one should not be used in REDCap but REDCap can work as an interim solution while longer term solutions are developed.

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