VDH Booster Outreach Programs:

Leveraging Data to Increase COVID-19 Vaccine Uptake

Dennis Kim

Virginia Department of Health

May 4th, 2023

VDH Covid-19 Vaccine Booster Outreach Programs

First Booster Outreach

- January 2022-April 2022
- Targeted Age 21+ eligible for First Booster
- 31 Local Health Districts

Bivalent Booster Outreach

- November 2022-December 2022
- Targeted Age 50+ eligible for Bivalent Booster
- 29 Local Health Districts

First Booster Outreach

January 2022-April 2022

First Booster Outreach Project: Process Summary

Build Database of Eligible Individuals and Contact Information

Generate lists of Eligible Individuals over 21 years old in participating districts

Use Twilio to text or call these individuals to schedule a first booster appointment

First Booster Outreach Project: Sample Message

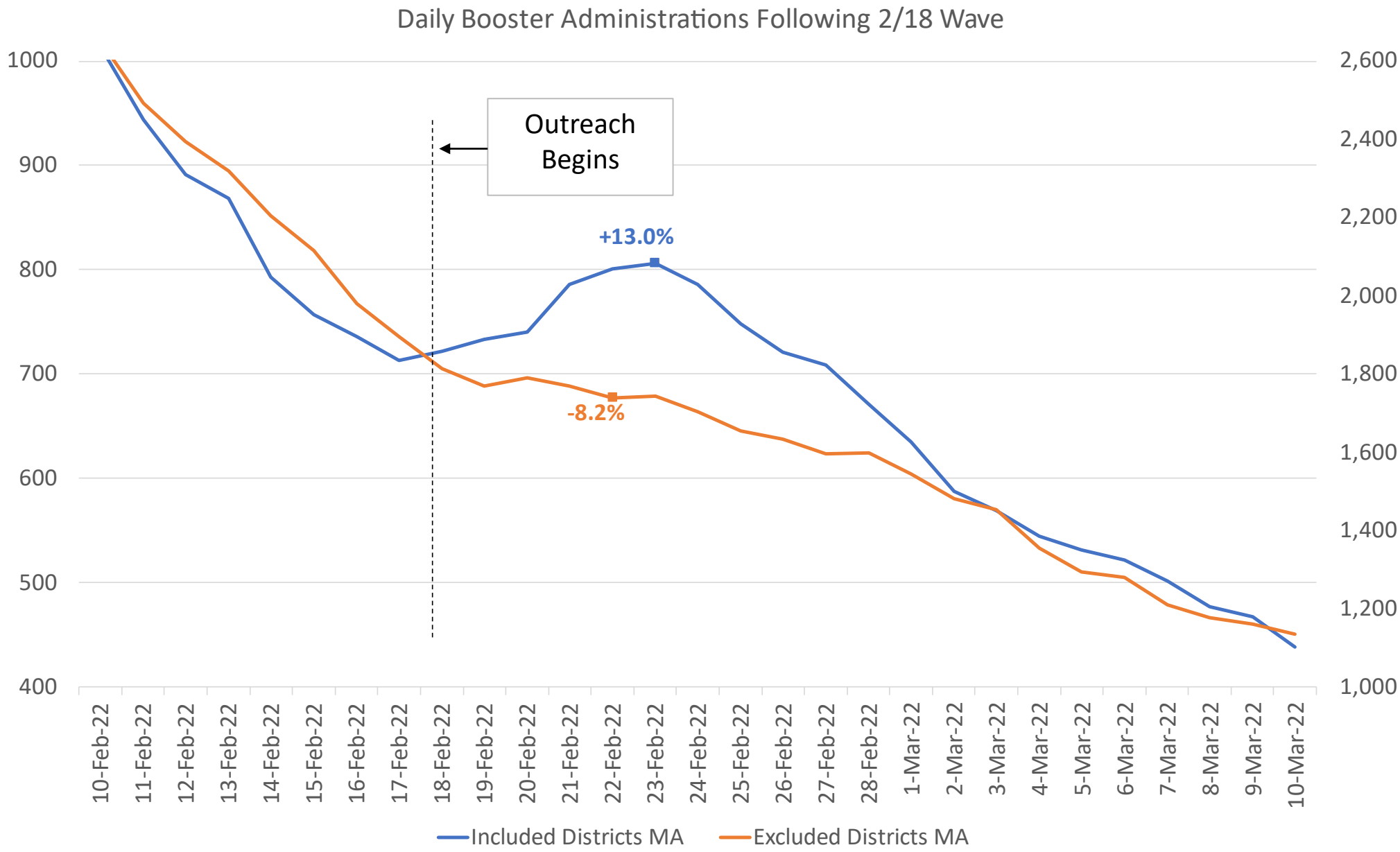
Virginia Department of Health records indicate you are eligible for a Booster COVID-19 vaccine. To schedule an appointment visit https://vase.vdh.virginia.gov or call (877) 829-4682. Please disregard this message if you have already received your Booster.

First Booster Outreach Project: Richmond/Henrico Outreach Trial

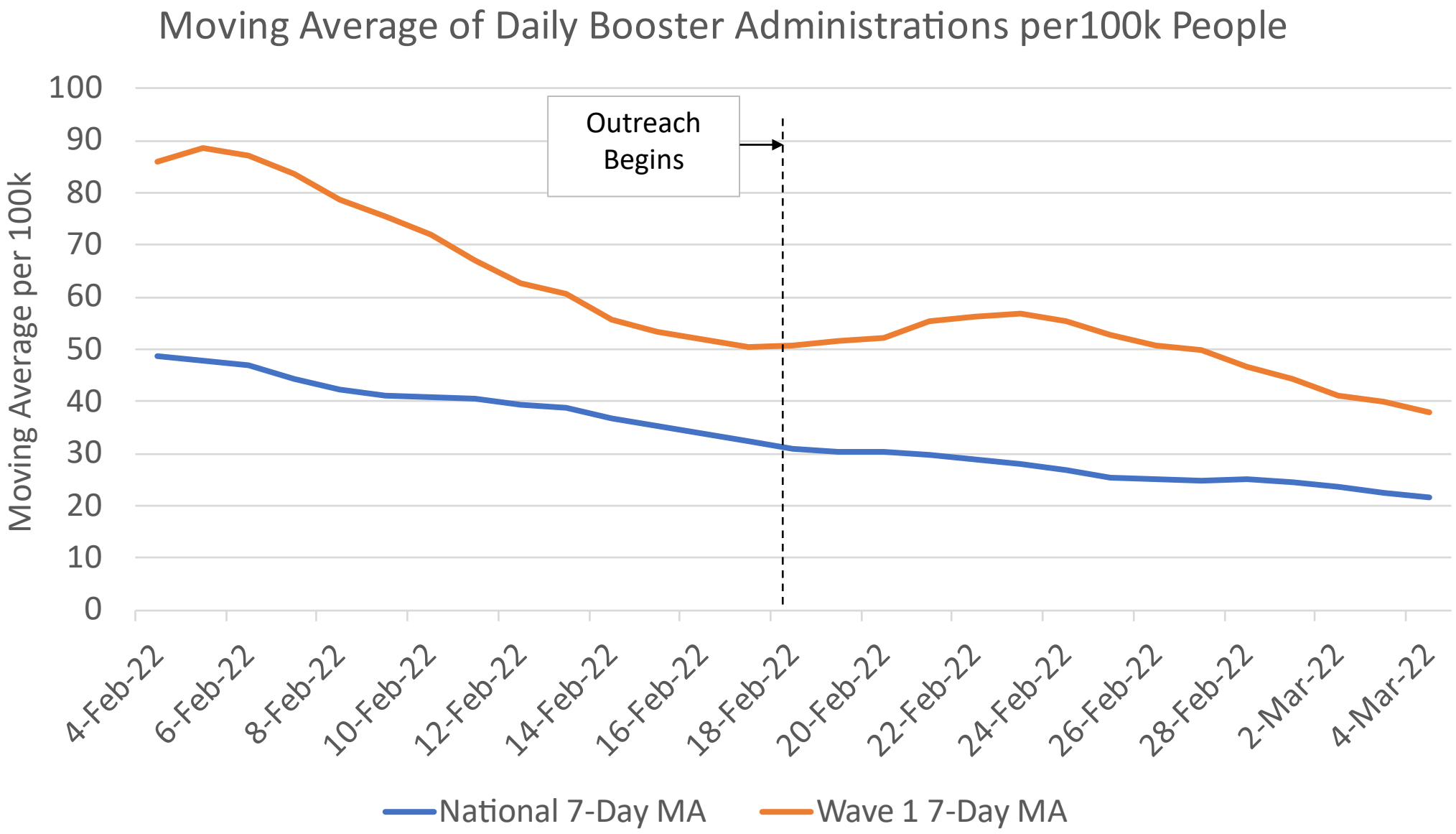
- Overall, booster uptake was **67%** higher for the outreach group compared to the eligible population of Richmond / Henrico

Population		Sample	
Eligible	74,594	**Eligible**	4,496
Received	1,359	**Received**	135
Uptake	**1.8%**	**Uptake**	**3.0%**

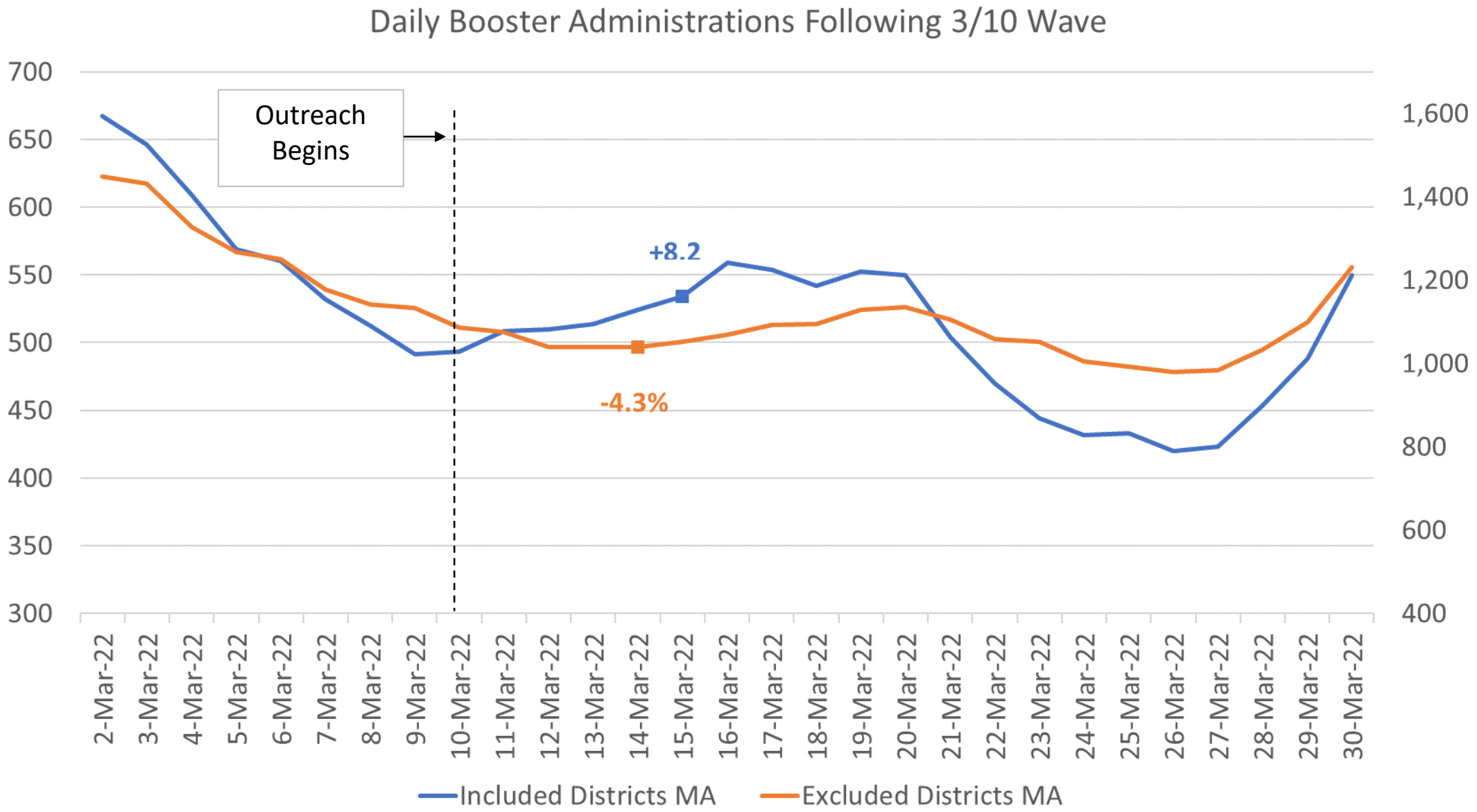
First Booster Outreach Project: Wave 1 vs Other Districts



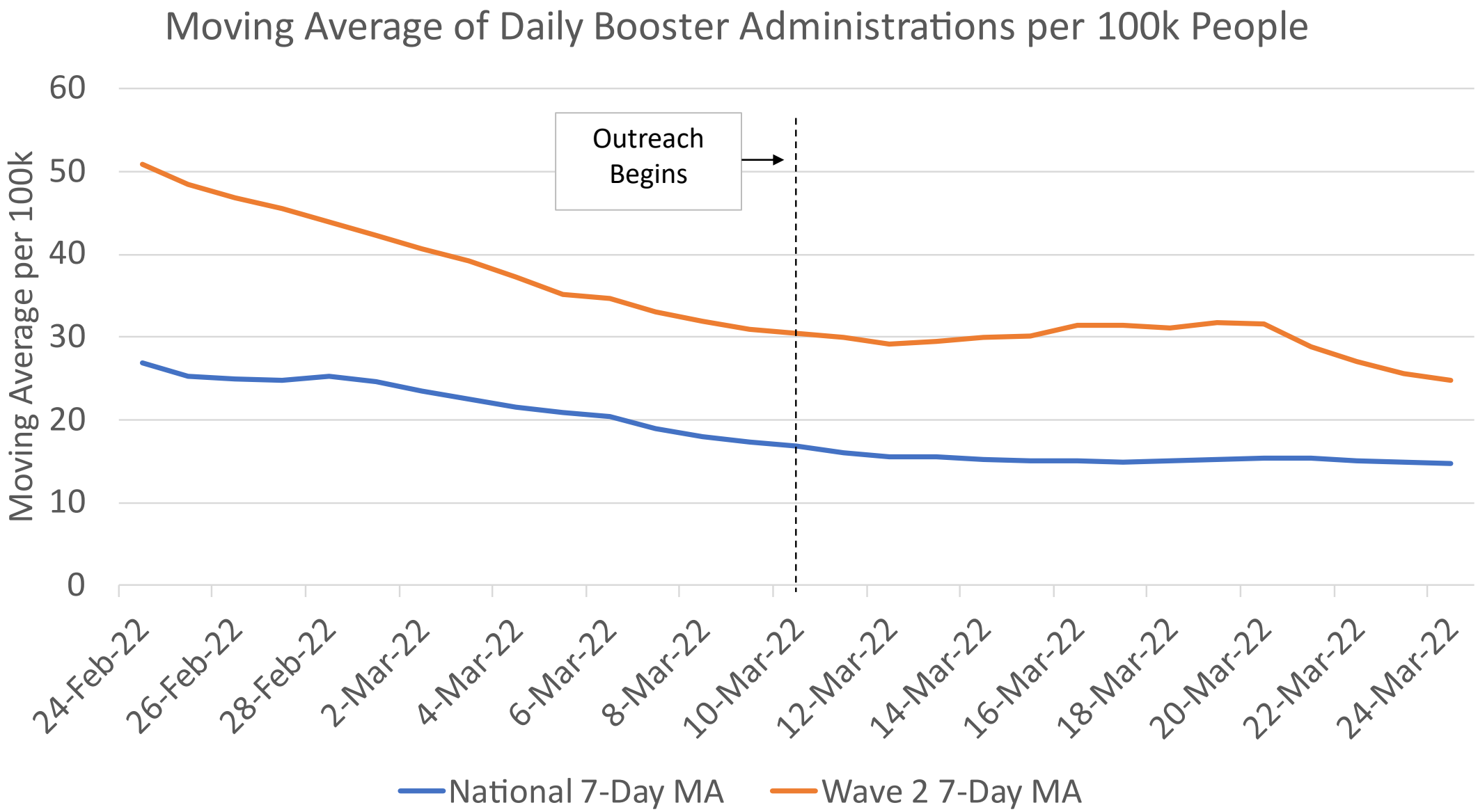
First Booster Outreach Project: Wave 1 vs National Average



First Booster Outreach Project: Wave 2 vs Other Districts



First Booster Outreach Project: Wave 2 vs National Average

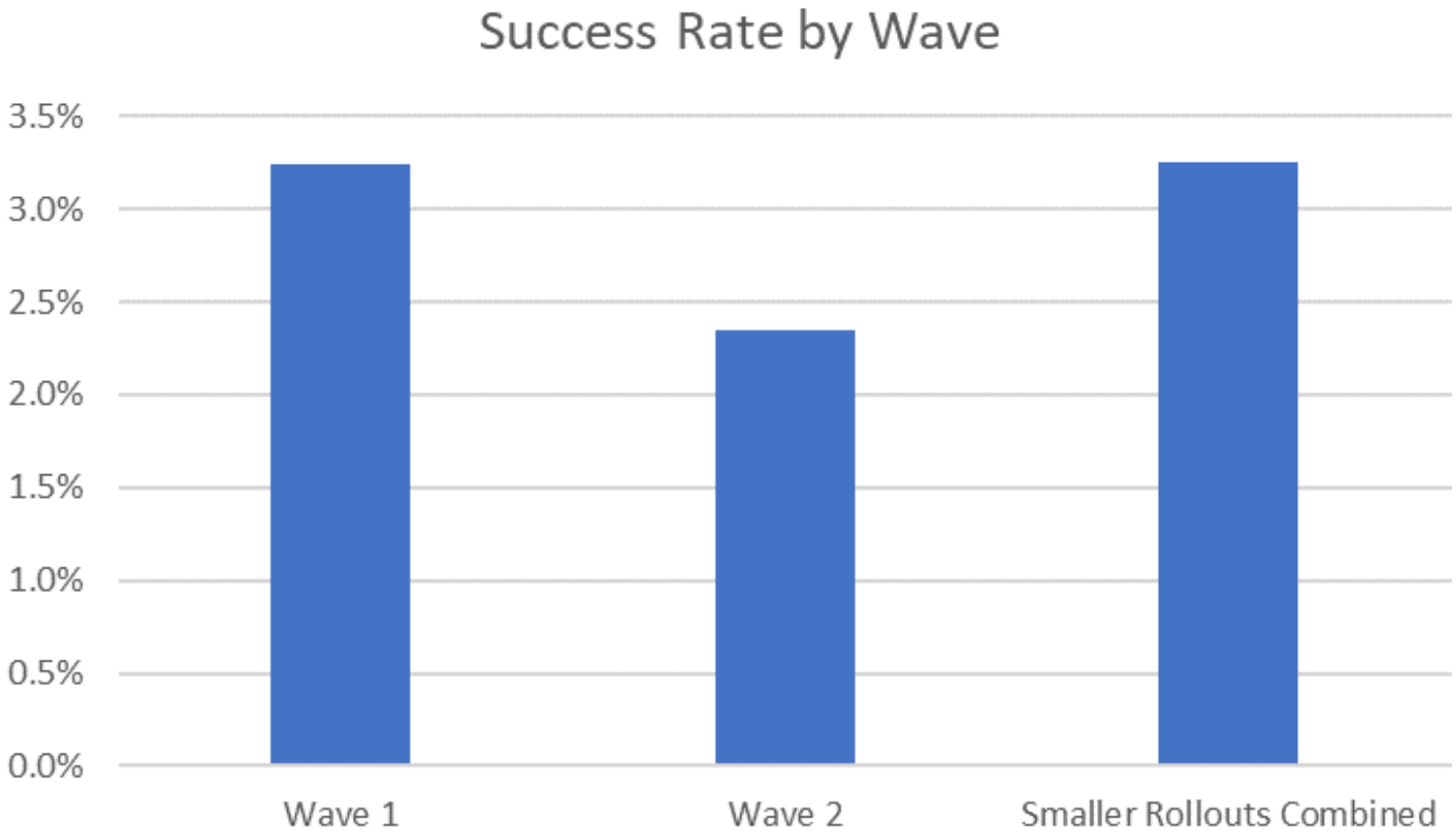


First Booster Outreach Project: Success Rates

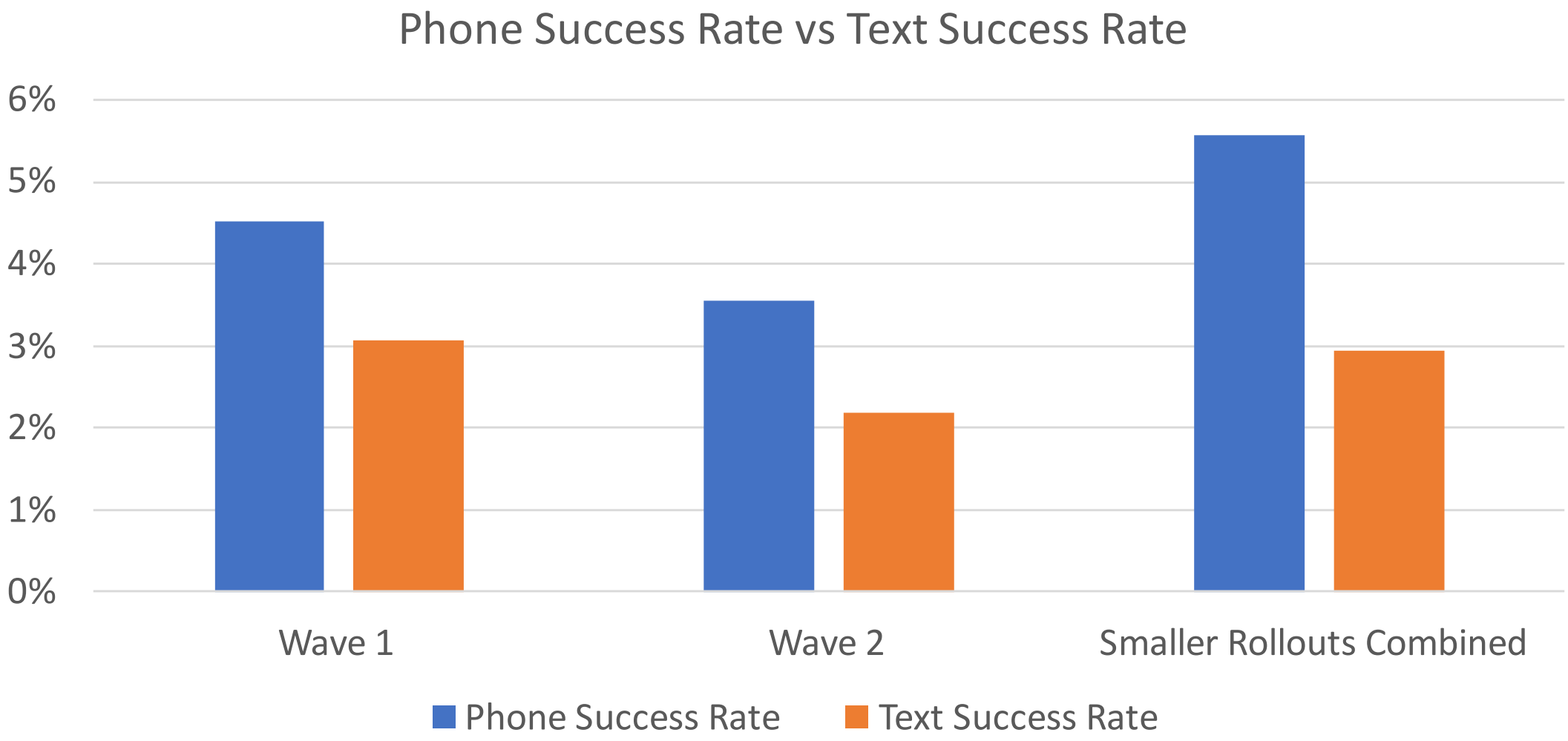
1,148,135 People Successfully Contacted

34,552 People Received Booster within three weeks

3.01% of Contacted People Received Booster within three weeks



First Booster Outreach Project: Phone vs Texts



Bivalent Booster Outreach

November 2022-December 2022

Bivalent Outreach Project: Process Summary

Build Database of Eligible Individuals and Contact Information

→

Generate lists of Eligible Individuals 50 years old and over

→

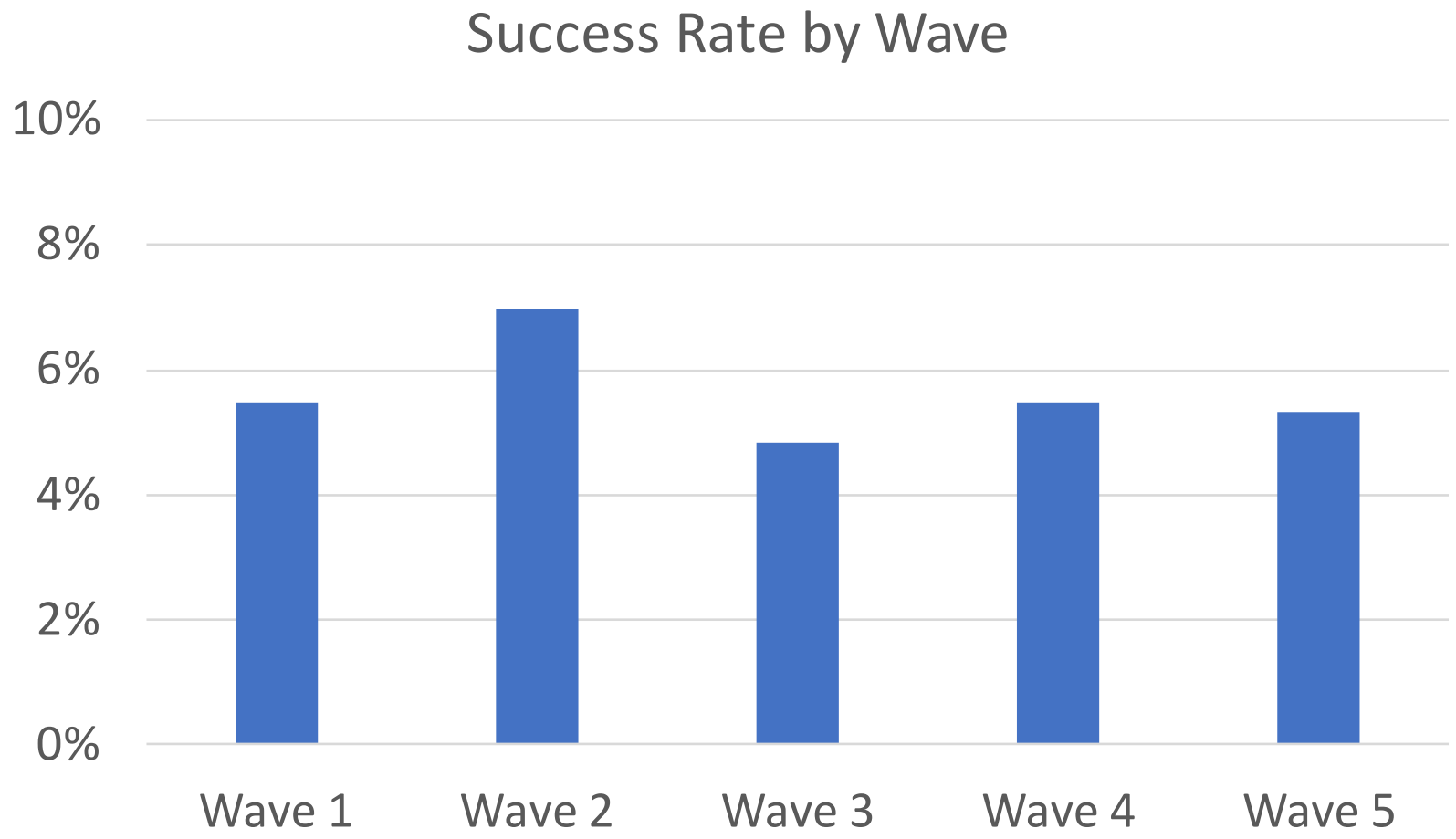
Use Twilio to text or call these individuals to schedule a bivalent booster appointment

Bivalent Outreach Project: Success Rates

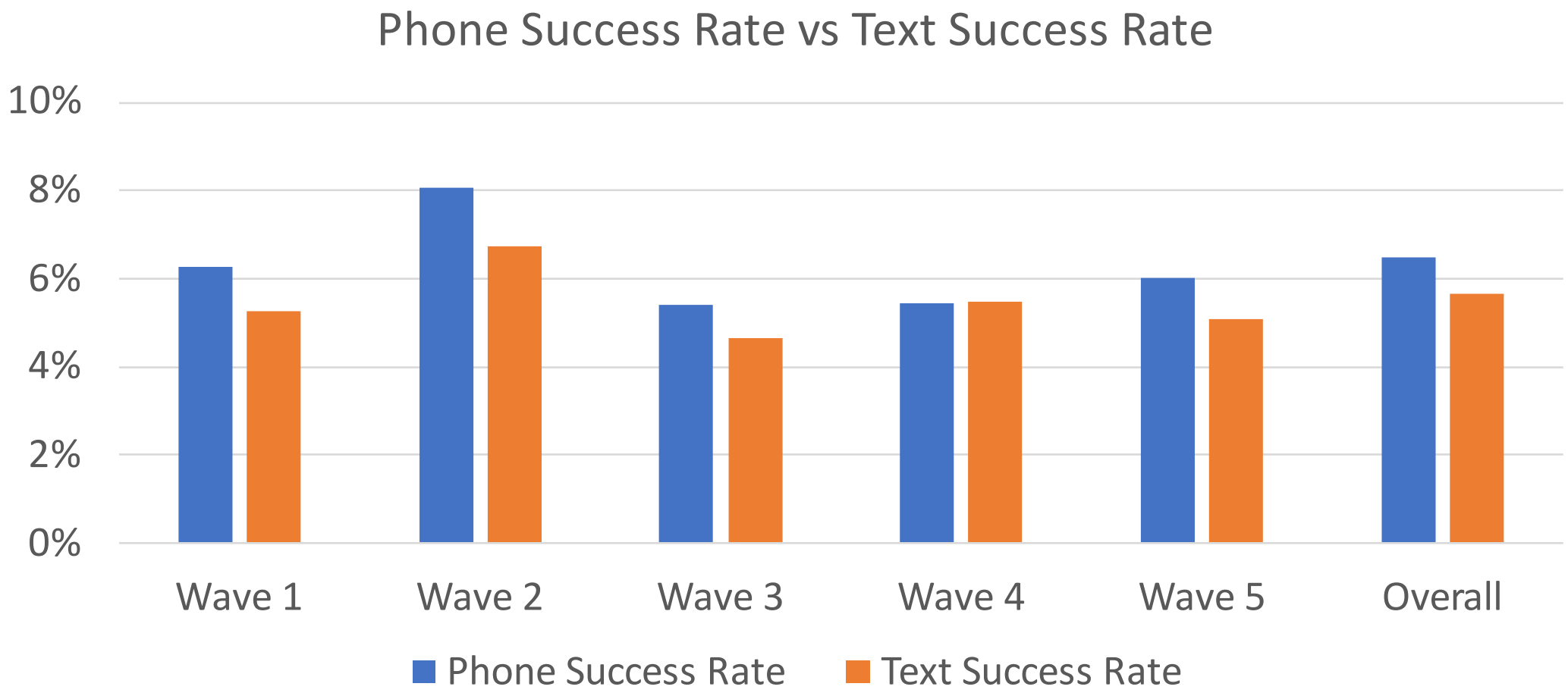
1,140,957 People Successfully Contacted

66,393 People Received Booster within three weeks

5.82% of Contacted People Received booster within three weeks

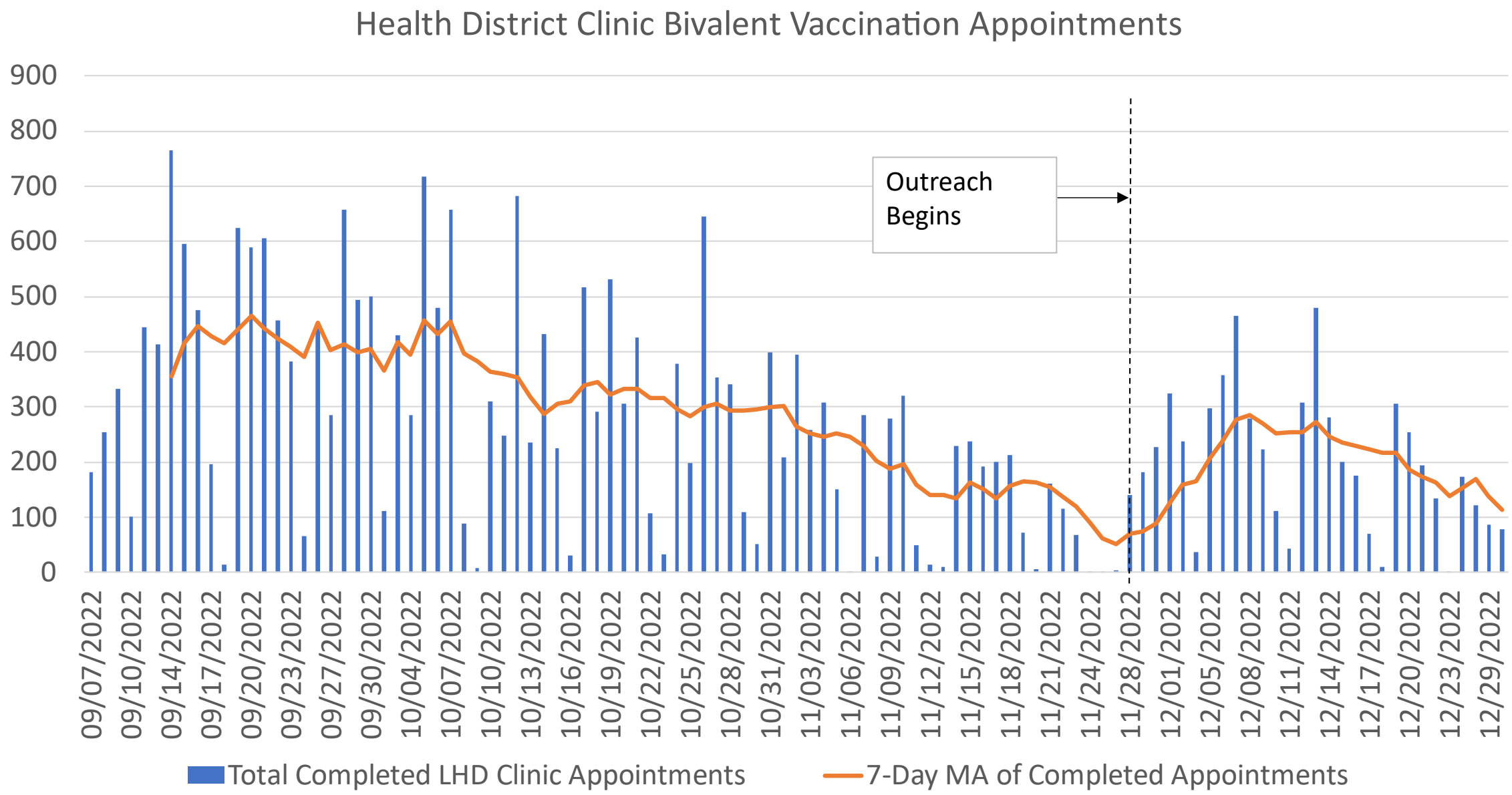


Bivalent Outreach Project: Phone vs Texts

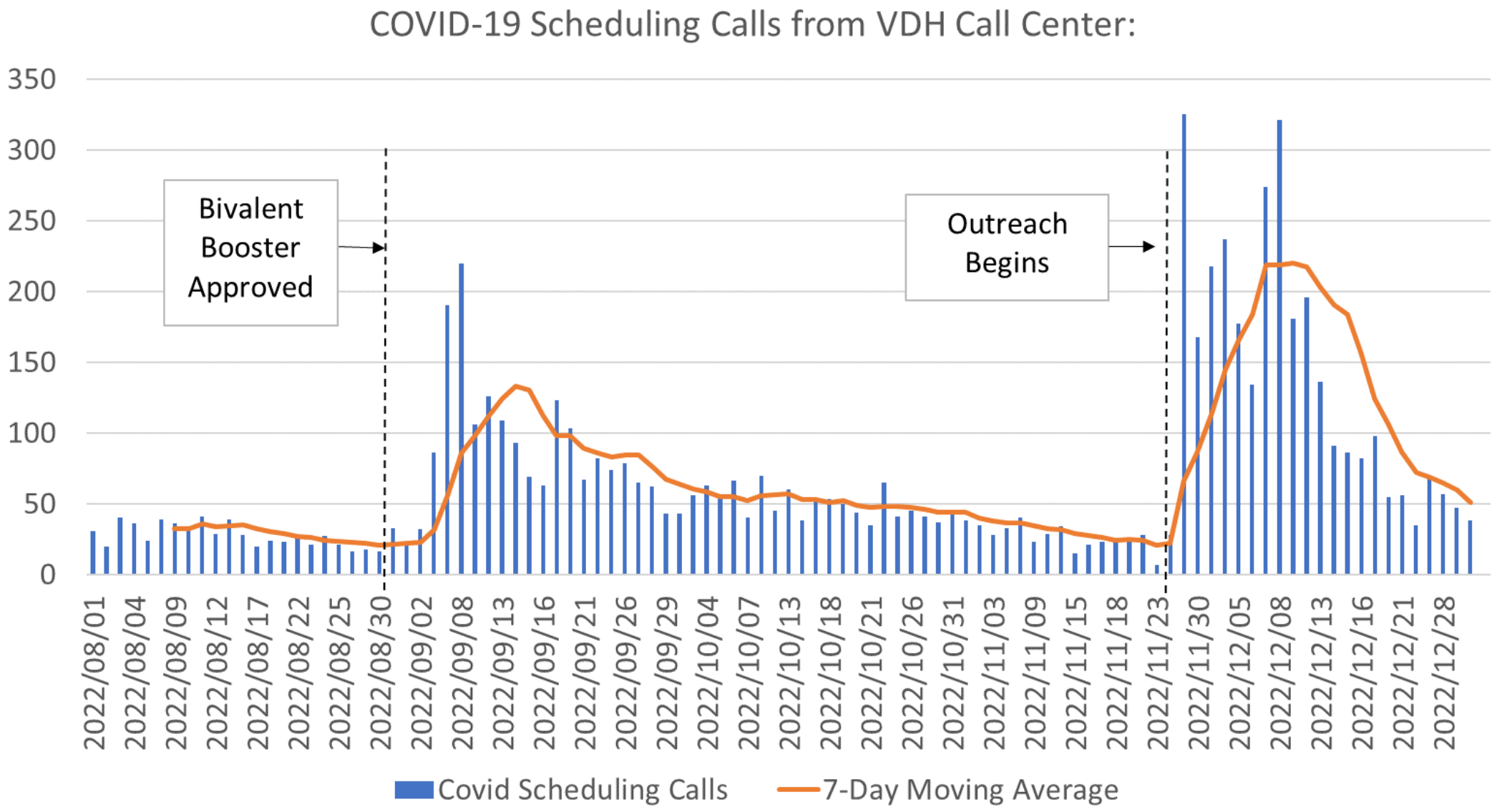


- 69.5% of People contacted via Phone Call answered

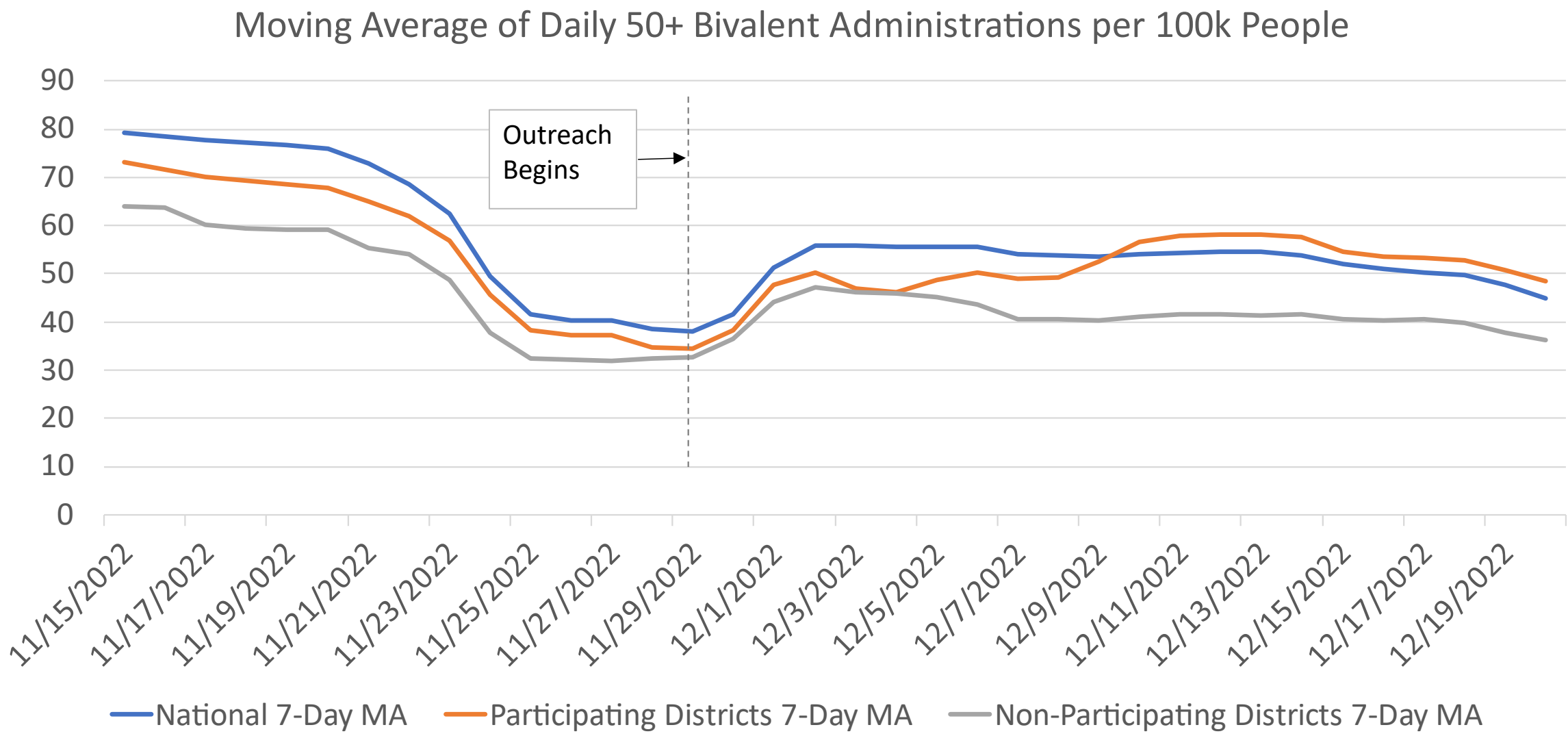
Bivalent Outreach Project: VASE+ Appointment Volume



Bivalent Outreach Project: VDH Call Center Scheduling Volume



Bivalent Outreach Project: Virginia vs National Moving Average



Key Takeaways:

- The Outreach Campaigns were effective
- The Bivalent Outreach proved more successful than the First Booster Outreach
- Phone calls saw a greater response than text messages
- Outreach campaigns can be used for related purposes in the future

Appendix

Insights: First Booster Outreach Demographics

- **Demographics with above average increases in uptake (above 66.9%)**

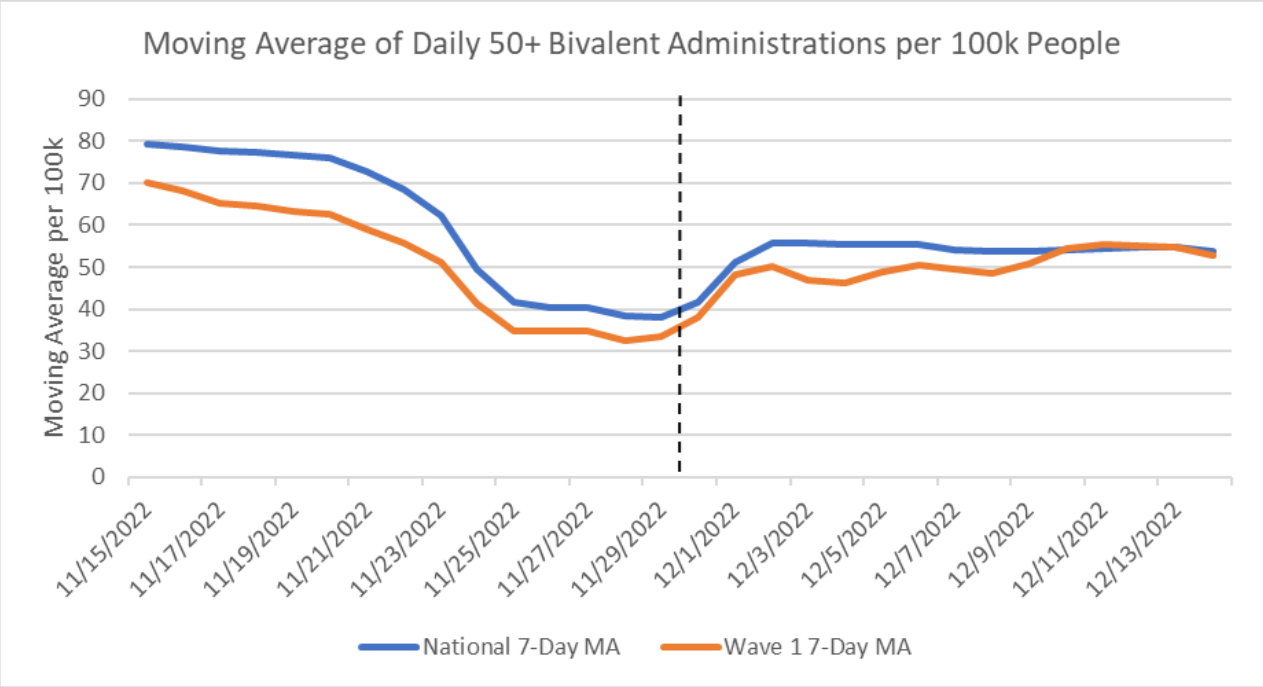
Age: 31+
The 20-30 age group saw a 54.2% increase while the 31+ age groups saw a 69.6% increase

Sex: Female
Female uptake saw a 71.3% increase, compared to a 59.7% increase in Male uptake

Race/Ethnicity: Asian, Black
Asian and Black individuals saw uptake increases of 77.7% and 78.7%, respectively

		Contacted			Not Contacted			Change	
		Boosted	Population	%	Boosted	Population	%	% Difference	% Increase
Race/Ethnicity	*Asian/Pacific Islander*	1,209	42,279	2.9%	788	48,951	1.6%	1.2%	77.6%
	Black	4,104	139,472	2.9%	2,143	130,173	1.6%	1.3%	78.7%
	Latino	1,679	76,785	2.2%	904	68,120	1.3%	0.9%	64.8%
	White	6,469	388,502	1.7%	4,052	392,822	1.0%	0.6%	61.4%
Age Group	*21 to 30*	1,806	146,662	1.2%	1,203	150,688	0.8%	0.4%	54.2%
	31 to 50	5,055	287,243	1.8%	2,762	273,528	1.0%	0.8%	74.3%
	51 to 64	4,219	182,904	2.3%	2,535	189,749	1.3%	1.0%	72.7%
	65+	2,967	111,323	2.7%	2,484	163,467	1.5%	1.1%	75.4%
Sex	*Female*	8,240	390,826	2.1%	4,895	397,627	1.2%	0.9%	71.3%
	Male	5,796	335,561	1.7%	4,089	378,147	1.1%	0.6%	59.7%

Bivalent Outreach Project: Wave 1 Districts vs National Moving Average



*Dotted line indicates when text/calls began for that wave

Districts	SVI Rating	SVI Classification
Alleghany/Roanoke	0.442	Low
Central Shenandoah	0.445	Low
Chesapeake	0.470	Low
Chesterfield	0.355	Low
Crater	0.766	Medium
Prince William	0.607	Medium
Pittsylvania/Danville	0.818	Medium
Overall	0.515	Medium

Race/Ethnicity (50+)

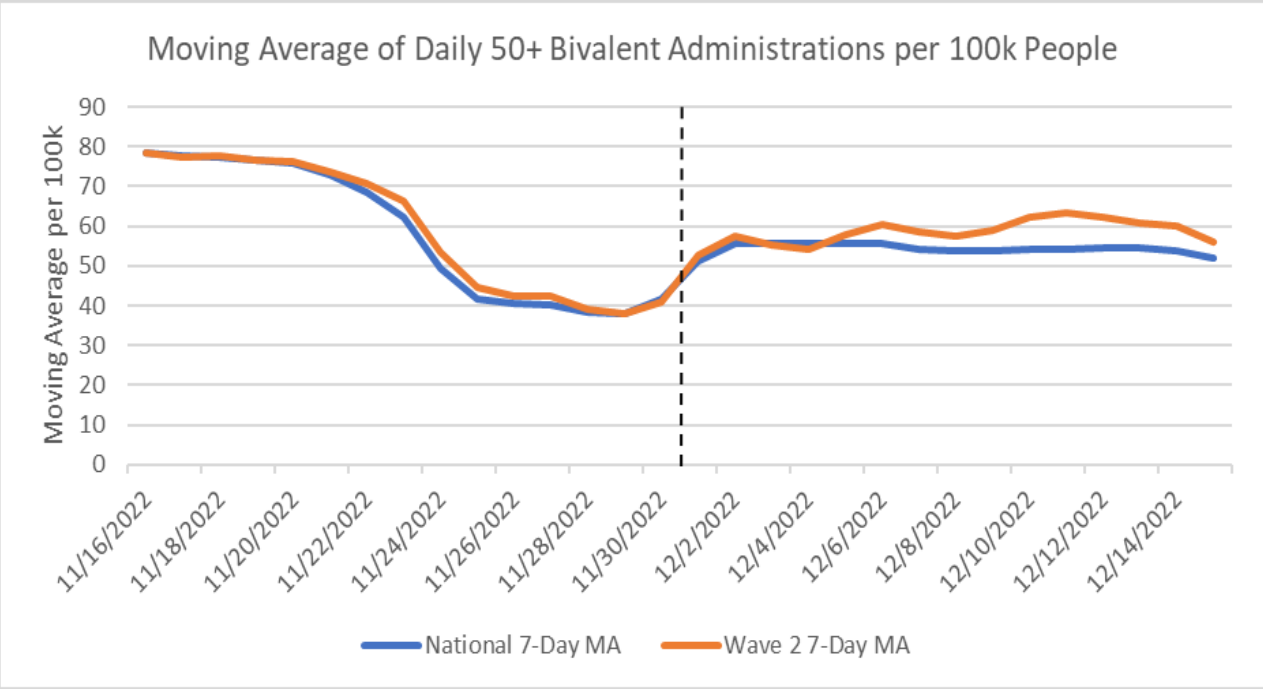
Race	% of Population (Wave Average –National Average)
Asian or Pacific Islander	4.0% (-2.4%)
Black	19.8% (+6.1%)
Latino	5.7% (-13.2%)
Native American	0.3% (-1.0%)
White	70.1% (+10.5%)

Isserman Index (50+)

Category	% of Total
Urban	47.0%
Mixed Urban	32.3%
Mixed Rural	13.3%
Rural	7.3%

SVI > 0.9 is High, SVI <0.9 & 9 > 0.5 is Medium, SVI <0.5 is Low

Bivalent Outreach Project: Wave 2 Districts vs National Moving Average



*Dotted line indicates when text/calls began for that wave

Districts	SVI Rating	SVI Classification
Alexandria	0.447	Low
Arlington	0.182	Low
Blue Ridge	0.380	Low
Central Virginia	0.438	Low
Chickahominy	0.049	Low
Fairfax	0.324	Low
Lord Fairfax	0.442	Low
Overall	0.329	Low

Race/Ethnicity (50+)

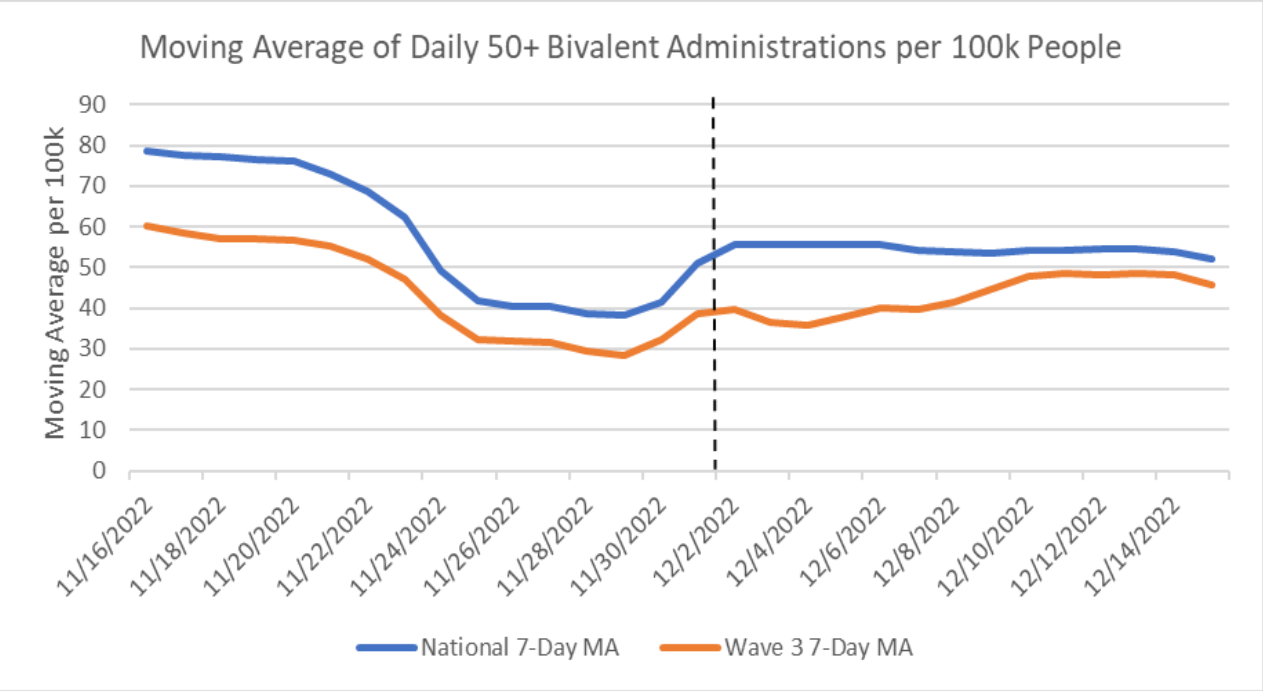
Race	% of Population (Wave Average –National Average)
Asian or Pacific Islander	10.7% (+4.3%)
Black	10.6% (-3.1%)
Latino	7.5% (-11.5%)
Native American	0.3% (-1.0%)
White	71.0% (+11.4%)

Isserman Index (50+)

Category	% of Total
Urban	49.9%
Mixed Urban	15.2%
Mixed Rural	21.9%
Rural	13.0%

SVI > 0.9 is High, SVI <0.9 & 9 > 0.5 is Medium, SVI <0.5 is Low

Bivalent Outreach Project: Wave 3 Districts vs National Moving Average



*Dotted line indicates when text/calls began for that wave

Districts	SVI Rating	SVI Classification
Norfolk	0.970	High
Portsmouth	0.871	Medium
Rappahannock	0.324	Low
Rappahannock- Rapidan	0.344	Low
Southside	0.746	Medium
Overall	0.574	Medium

Race/Ethnicity (50+)

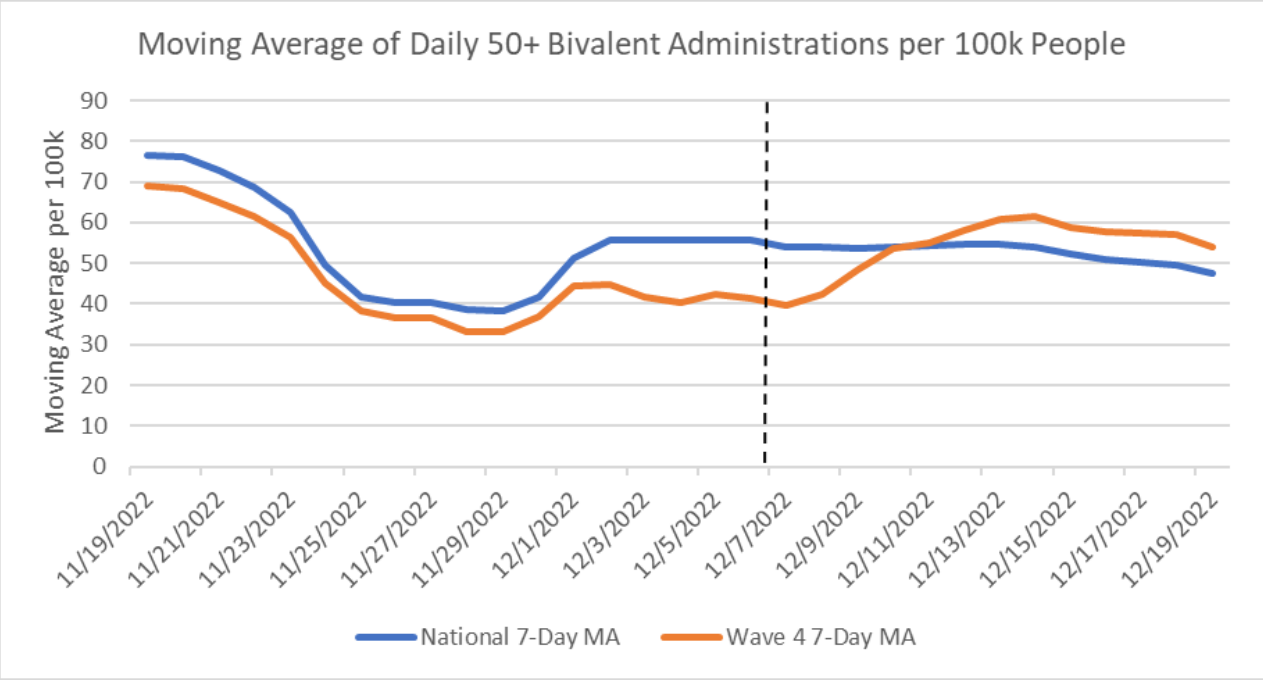
Race	% of Population (Wave Average –National Average)
Asian or Pacific Islander	2.6% (-3.8%)
Black	26.5% (+12.8%)
Latino	4.0% (-15.0%)
Native American	0.5% (-0.9%)
White	66.5% (+6.9%)

Isserman Index (50+)

Category	% of Total
Urban	31.6%
Mixed Urban	14.1%
Mixed Rural	23.1%
Rural	31.2%

SVI > 0.9 is High, SVI <0.9 & 9 > 0.5 is Medium, SVI <0.5 is Low

Bivalent Outreach Project: Wave 4 Districts vs National Moving Average



*Dotted line indicates when text/calls began for that wave

Districts	SVI Rating	SVI Classification
Loudoun	0.099	Low
Richmond/Henrico	0.632	Medium
Three Rivers	0.318	Low
West Piedmont	0.655	Medium
Overall	0.421	Low

Race/Ethnicity (50+)

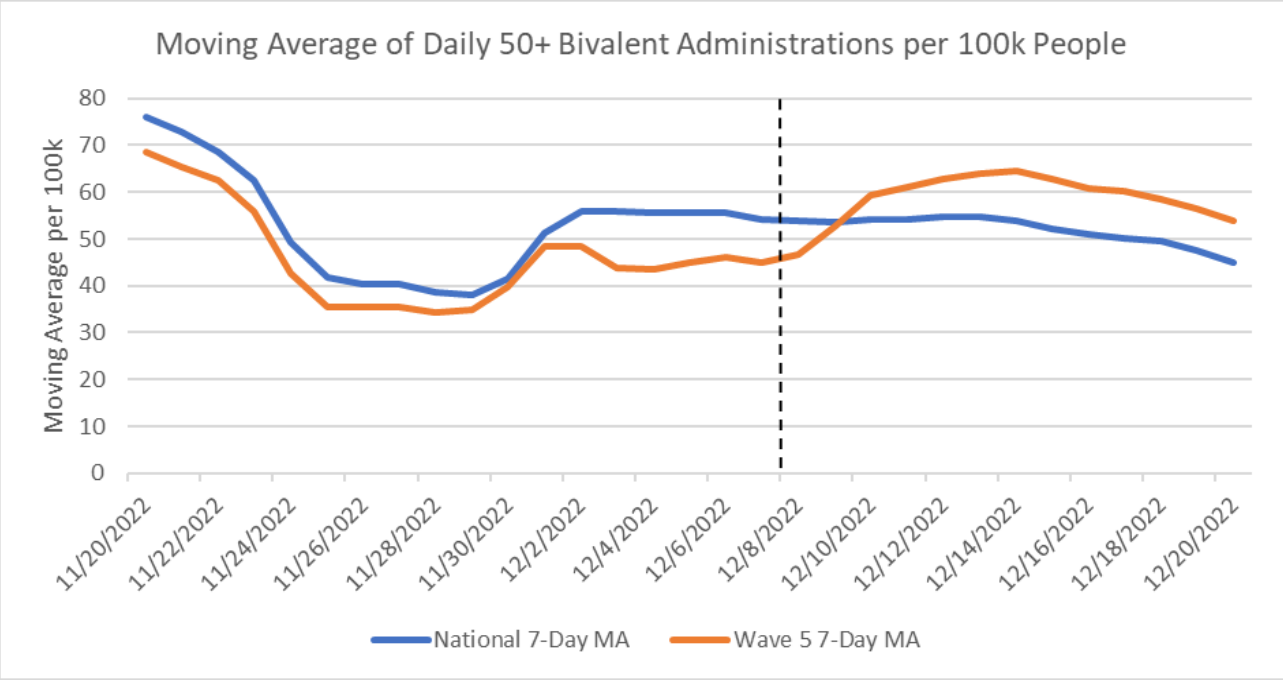
Race	% of Population (Wave Average –National Average)
Asian or Pacific Islander	6.5% (+0.1%)
Black	23.2% (+9.5%)
Latino	4.2% (-14.8%)
Native American	0.3% (-1.0%)
White	65.8% (+6.2%)

Isserman Index (50+)

Category	% of Total
Urban	43.2%
Mixed Urban	28.0%
Mixed Rural	9.0%
Rural	19.8%

SVI > 0.9 is High, SVI <0.9 & 9 > 0.5 is Medium, SVI <0.5 is Low

Bivalent Outreach Project: Wave 5 Districts vs National Moving Average



*Dotted line indicates when text/calls began for that wave

Districts	SVI Rating	SVI Classification
Peninsula/Hampton	0.647	Medium
Virginia Beach	0.364	Low
Western Tidewater	0.542	Medium
Overall	0.515	Medium

Race/Ethnicity (50+)

Race	% of Population (Wave Average –National Average)
Asian or Pacific Islander	5.1% (-1.3%)
Black	25.9% (+12.2%)
Latino	3.4% (-15.6%)
Native American	0.4% (-0.9%)
White	65.2% (+5.6%)

Isserman Index (50+)

Category	% of Total
Urban	74.8%
Mixed Urban	10.3%
Mixed Rural	8.6%
Rural	6.3%

SVI > 0.9 is High, SVI <0.9 & 9 > 0.5 is Medium, SVI <0.5 is Low

First Booster Outreach Project: Initiative Overview

Goals of Outreach	**Vaccinate individuals with their first booster shot through a reminder program** ○ Ensure knowledge of eligibility ○ Ensure opportunity to receive vaccine
Data Acquisition Process	**Joined Vaccine Administration records (VIIS) with Client Details records** ○ Using *Recipient ID* as the Primary Key ○ Only individuals aged 21+ ○ Has a Phone Number listed in the Client Details records ○ Has not been previously contacted ○ Wrote logic to create a subset of individuals that are eligible for a booster and have not received a booster

Message Delivery Process	○ Sent through Twilio messaging and calling service
	  ○ Provided a website to schedule a vaccination appointment
	  ○ Provided a phone number to schedule a vaccination appointment
	○ Did not contain any personal identification
	○ Messages were tailored to each Health District that participated
	  ○ This helped take advantage of CVC set ups
	○ Since there is a data lag for vaccination data, a disclaimer was added in case the individual recently received their booster shot

Bivalent Outreach Project: Initiative Overview

Goals of Outreach	**Encourage individuals aged 50+ to get the Bivalent Booster through a reminder program** ○ Let these individuals know they are eligible ○ Give them information to assist in scheduling an appointment
Data Acquisition Process	**Combined database of people eligible for the Bivalent Booster with the Client Details table** ○ Created Database of all individuals eligible for the Bivalent Booster ○ Filtered to get only get individuals aged 50+ ○ Pulled in contact information from the Client Details table ○ Only kept people who Phone Number listed in the Client Details records ○ Districts were polled to see who was interested in participating. Interested districts were able to customize the phone or text message or provide a Spanish version. ○ Generated lists of people who were eligible for the shot for each health district that chose to participate (29 out of 35 Districts).
Message Delivery Process	○ Due to throughput limitations in the tool used to send the texts and phone calls (Twilio), participating districts were grouped into 5 Waves. ○ Each wave was sent over the course of a few days. As a result, it took approximately two weeks for all 5 Waves to be completed. ○ The lists were refreshed the day before each Wave began to maximize accuracy. ○ Before sending out any texts or calls, the phone numbers were scanned to determine if each number was a landline or a mobile phone. This ensured each person was contacted in the appropriate manner.