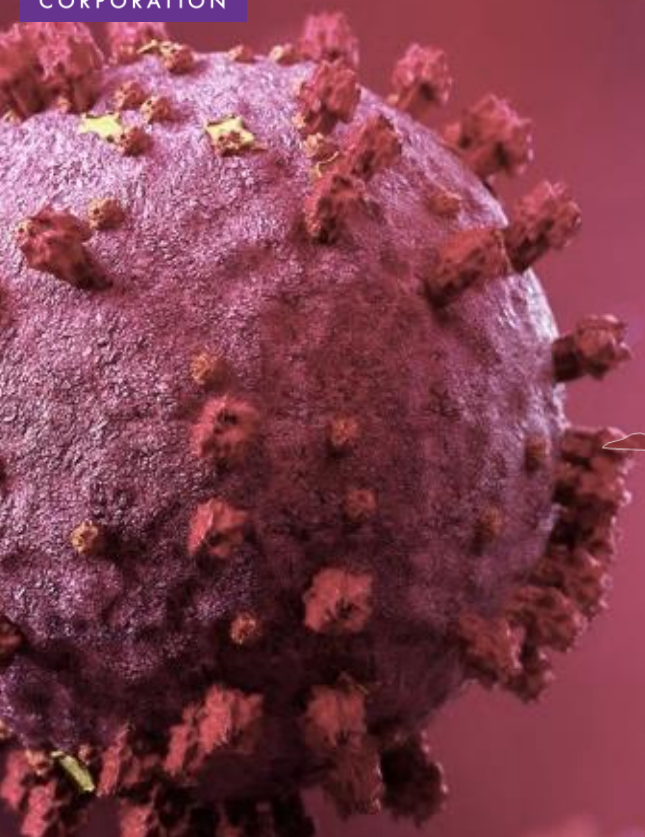
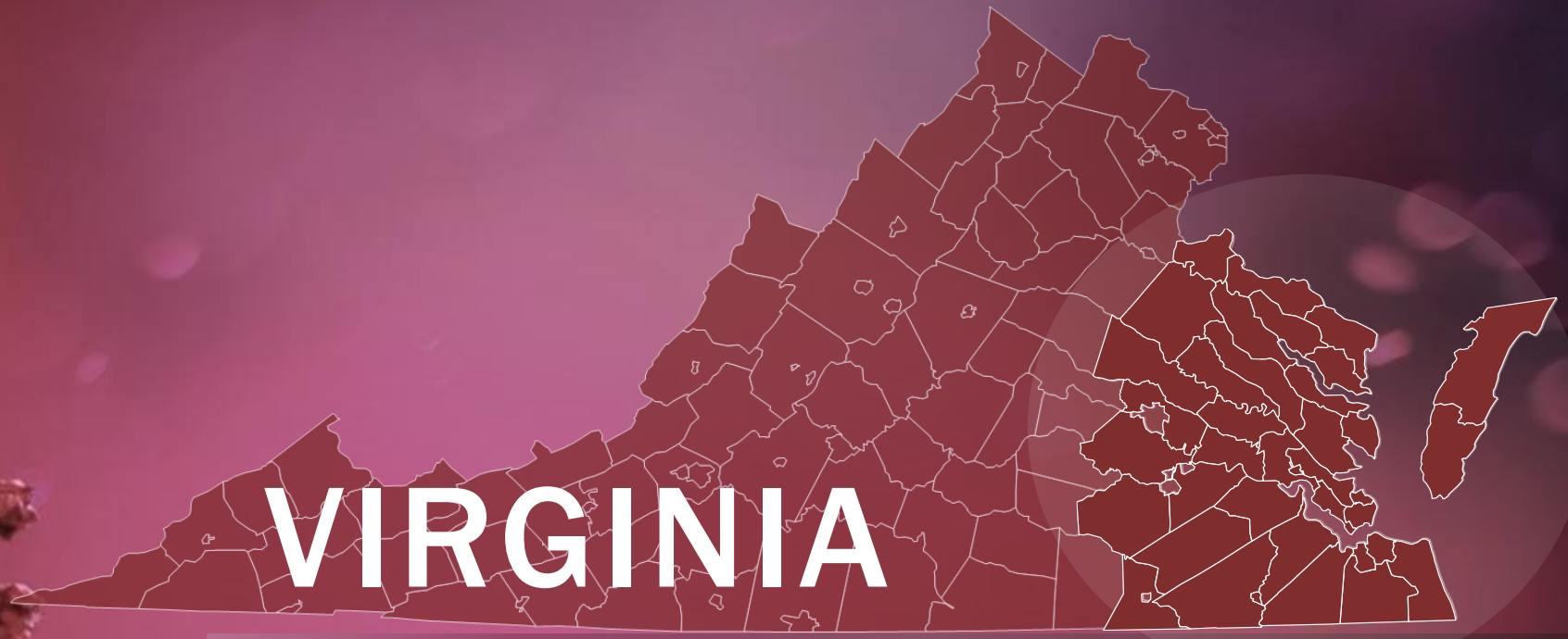




VIRGINIA

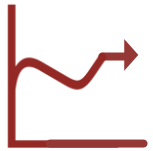
COVID-19 Update February 18th, 2021

Carter C. Price, Ph.D.

A team of RAND researchers was asked by the Commonwealth of Virginia to review available information on COVID-19 models of the Commonwealth to determine the strengths and weaknesses of each model and their relevance to decisionmaking. The information in this presentation is intended to keep policymakers abreast of the latest findings of the research team.

This research was sponsored by the Commonwealth of Virginia and conducted by the RAND Corporation. RAND is a research organization that develops solutions to public policy challenges to help make communities throughout the world safer and more secure, healthier and more prosperous. RAND is nonprofit, nonpartisan, and committed to the public interest. For more information, visit www.rand.org.

Bottom-Line Up Front



Virginia's total case levels remain very high but have declined

- Hospitalizations are declining but remain somewhat elevated
- Testing has trended lower

Vaccine administration is accelerating

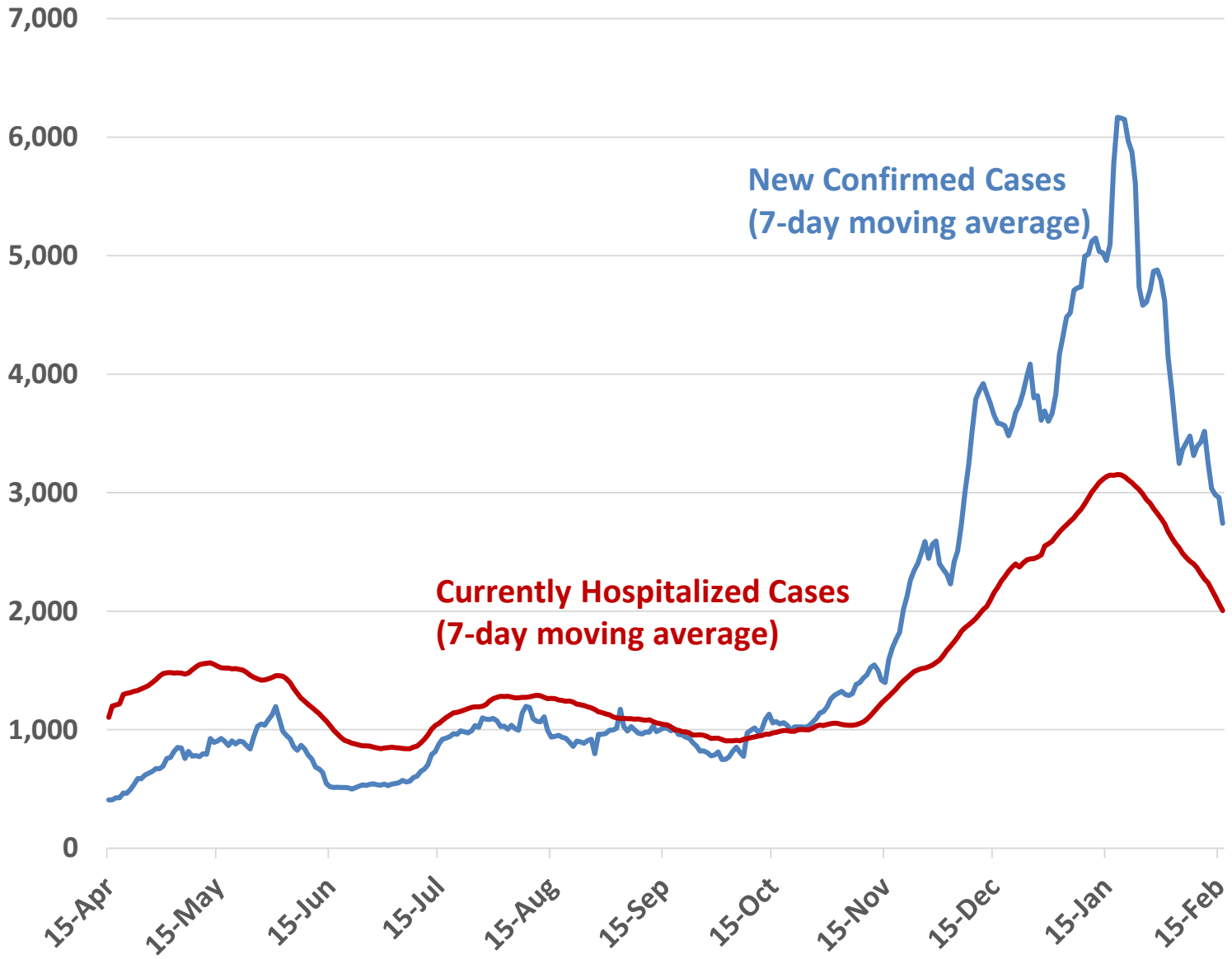
- Stockpiles have declined
- Supply will remain a constraint for another month or two
- Efforts to increase vaccine demand will be needed to reach some populations

New COVID variants have been detected in Virginia and could accelerate spread

Model forecasts may be less accurate because behavior is driving growth

- Models will continue to be useful for comparing policies and exploring scenarios

Cases and hospitalizations remain high



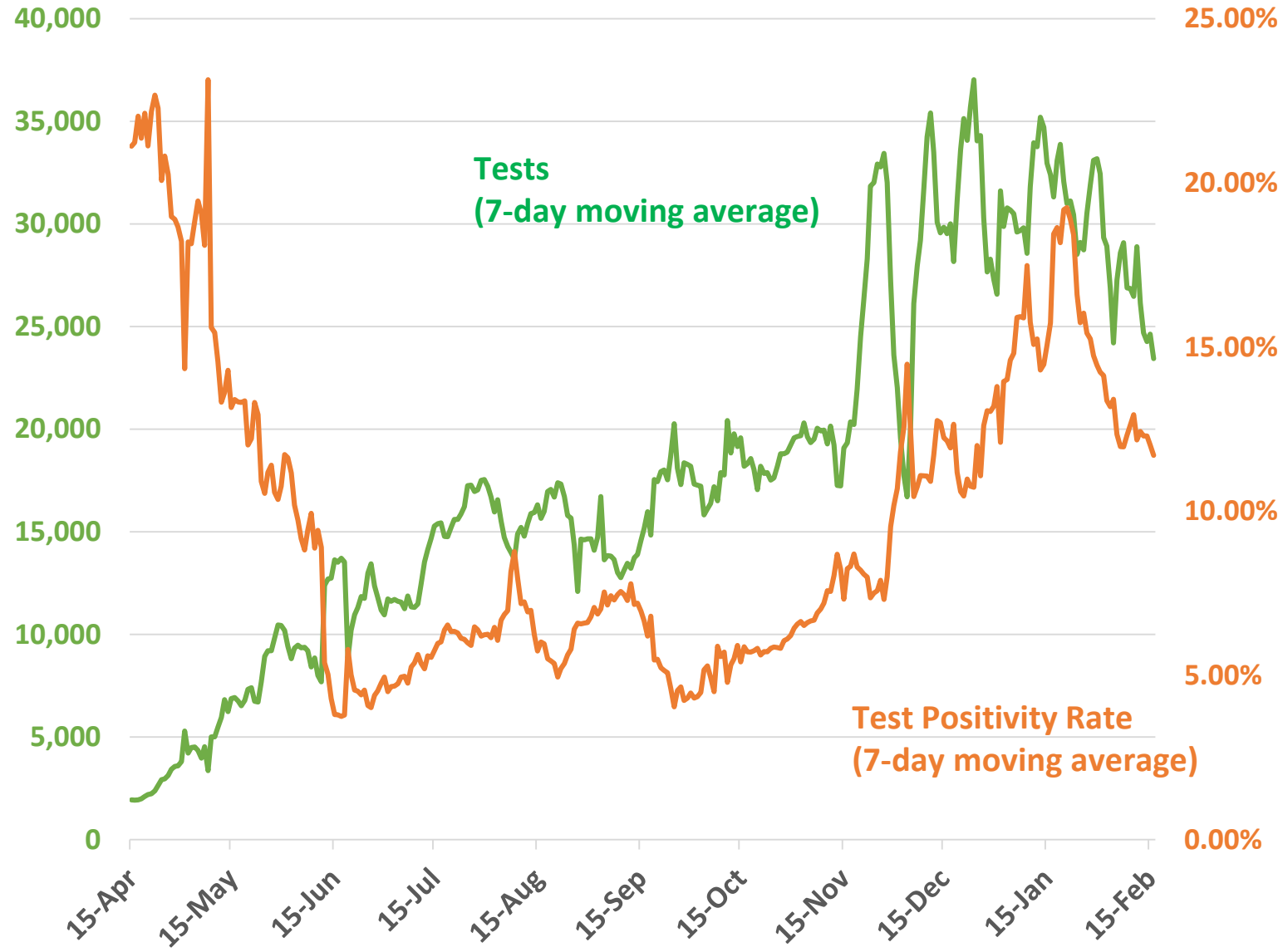
New confirmed cases have dipped to 2,700/day on average

- This is the level from early December

Currently hospitalized cases peaked in mid-January

- Hospitalizations are likely to continue to fall for the next few weeks
- The decline in hospitalizations will typically be slower than that of cases

Testing remains high but may be drifting lower



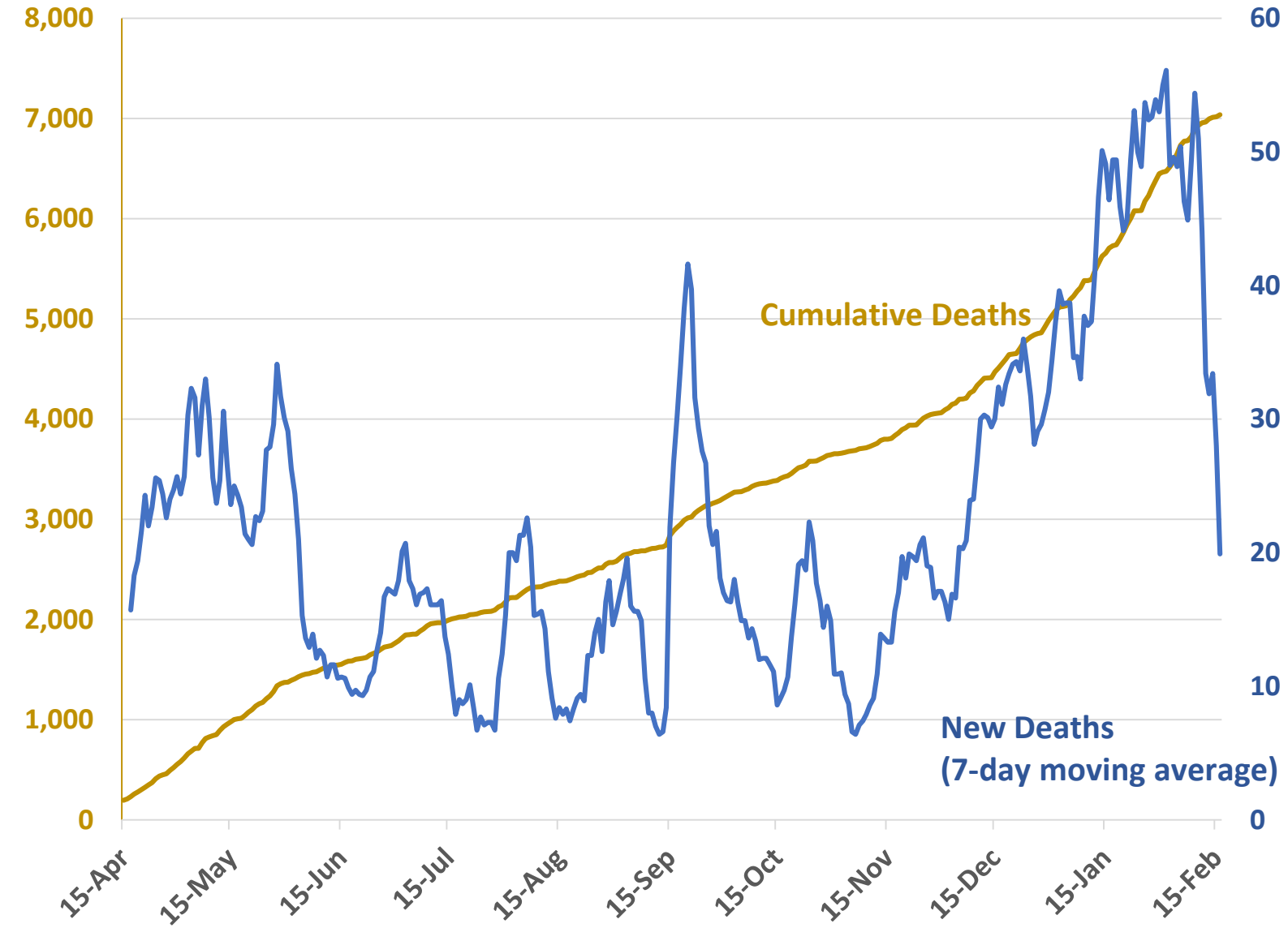
Tests per day have averaged around 23,000

- This is lower than the 30,000 to 35,000 range that had been maintained since November

The test positivity rate is roughly 12 percent

- Five percent is a suggested target
- At this rate, the case count levels are likely to be slightly less reliable

The new deaths from COVID remain elevated



Cumulative Deaths have passed 7,000

- At 83 per 100,000, Virginia's death rate from COVID remains well below the national rate of 148 per 100,000

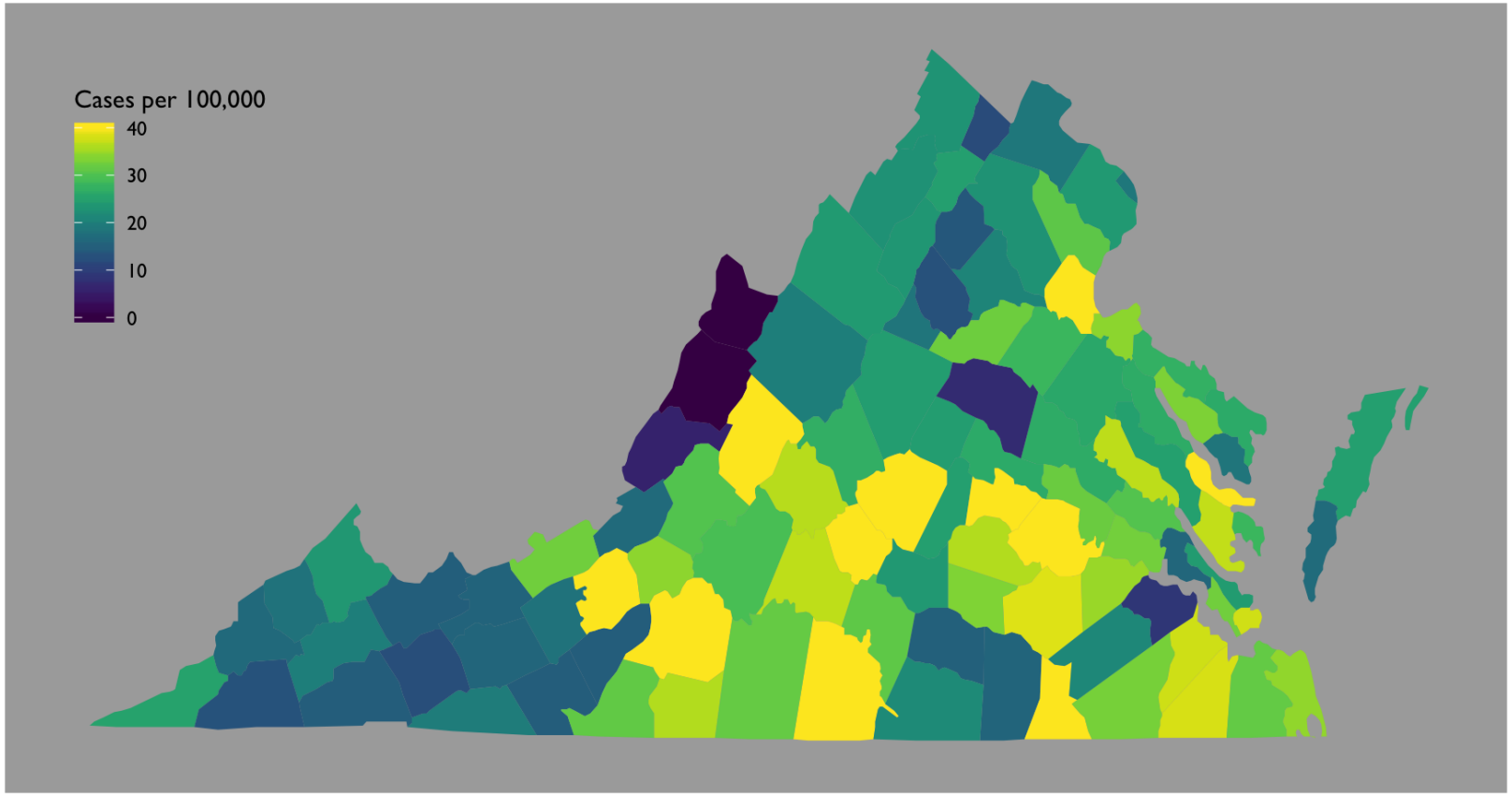
New deaths have dropped substantially in the last week

- Death rates typically lag case rates by several weeks
- This drop may be driven, in part, by a lag in reporting or data entry

Case levels have continued to decline but remain very high in pockets

CASE COUNT

Source: VDH



Yellow indicates at least 40 cases per 100,000

- This is rescaled from last week when the scale ended at 60 cases per 100,000

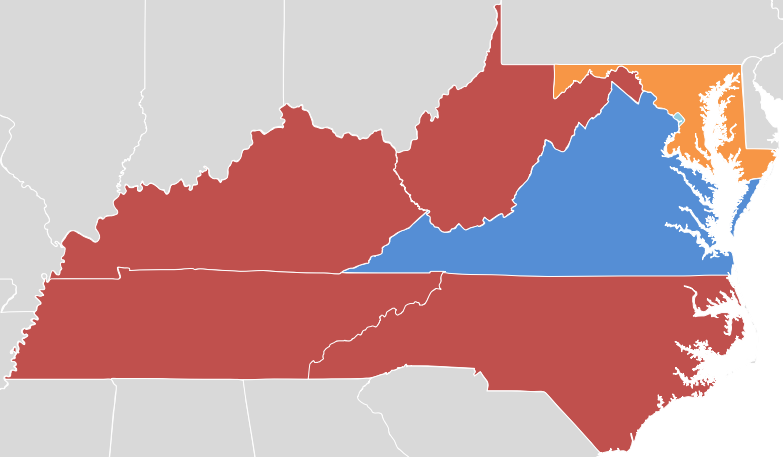
Case levels have declined across the Commonwealth

- 17 percent of counties have more than 40 cases per 100,000 (89 percent four weeks ago)
- No counties have more than 100 cases per 100,000 (18 percent four weeks ago)

These data were updated February 17th and represent a seven-day average of the previous week

The spread has declined substantially in neighboring states

Over the last 7 days, Virginia had 32.1 (-19% from last week) new confirmed cases per day per 100,000



Very high case loads (>20):

- North Carolina (33.1 new cases per 100k, -36% from last week)*
- Kentucky (30.8, -32%)*
- Tennessee (25.2, -25%)
- West Virginia (20.7, -28%)

*Test positivity rates above 10%

- **High case loads (10-20):**
- District of Columbia (17.2, -26%)
- Maryland (15.8, -17%)

Lower case loads (<10): None

These data were updated February 17th and represent a seven-day average of the previous week

Four percent of Virginians are fully vaccinated and eight percent have received the first shot

Age	0-9	10--19	20-29	30-39	40-49	50-59	60-69	70-79	80+	Total
Fully Vaccinated	0	2,028	41,828	60,747	62,912	65,501	49,606	42,583	40,853	366,058
% Full	0.0%	0.2%	3.6%	5.2%	5.8%	5.8%	5.1%	6.9%	13.1%	4.3%
Partially Vaccinated	0	4,094	51,928	74,385	84,398	98,278	130,040	156,869	95,642	695,634
% with Partial	0.0%	0.4%	4.5%	6.3%	7.8%	8.7%	13.3%	25.5%	30.7%	8.1%
Confirmed Cases	22,989	54,828	103,030	88,343	80,158	79,006	54,336	30,024	22,084	534,798
% Confirmed Cases	2.3%	5.0%	8.9%	7.5%	7.4%	7.0%	5.6%	4.9%	7.1%	6.3%

Source: VDH, February 17th

Vaccinations are being rolled out in Virginia

- 1,766,575 doses have been distributed as of February 17th
- Virginia's program has administered 96 percent (936,715 out of 975,700) of its first doses
- It has also administered 54 percent (311,113 out of 580,275) of its second doses
- The Federal Long-Term Care Facility Program has administered 85 percent (179,922 of 210,600) of doses

At some point in the next month or two, vaccine supply will likely be less of a constraint, and growing the vaccination rates will rely on improving demand

- A series of national surveys by the Kaiser Family Foundation found 71 percent of adults will "definitely" or "probably" get the vaccine, which is up from 63 percent in September
- KFF also noted disproportionately more skepticism about COVID vaccines in the Black population, and a majority of the Black and Hispanic populations report not having enough information about the vaccination process

We've been monitoring recent, relevant literature (1/2)

Pei et al. estimated the COVID-susceptible population in the U.S. using a county-level model

- They estimate that 68.8 percent of Americans remained susceptible by the end of 2020
- For Virginia, they estimate that 77.1 percent of the population was susceptible at the end of the year

Goldhaber et al. looked at the role of in-person schooling in the spread of COVID-19 using data from Michigan and Washington on COVID cases and school district instruction modality

- The authors estimate that in-person schooling is not associated with significantly higher spread in areas with low pre-existing levels of COVID
- However, areas with a moderate or high pre-existing level of COVID may be expected to have a small increase in spread

Nguyen et al. reviewed survey data about the perceptions of the COVID vaccine

- They assessed surveys by IPSOS and NORC taken in September and December
- Though skepticism declined, 32 percent of people reported being "not likely" to get the vaccine
- Those in rural areas, African-Americans, the uninsured, and younger people were more skeptical of the vaccine
- 30 percent of those not intending to get the vaccine reported being concerned about the side effects as the main reason
- The demographic results are consistent with the findings of the KFF survey discussed earlier

We've been monitoring recent, relevant literature (2/2)

Monod et al. studied age patterns in U.S. mobility and mortality data to identify how COVID spread is sustained in the community

- They noted that as of October 2020, those 20-49 years of age were the only age group with a reproduction number above one
- They estimate that 65 percent of COVID-19 infections originate among individuals aged 20-49

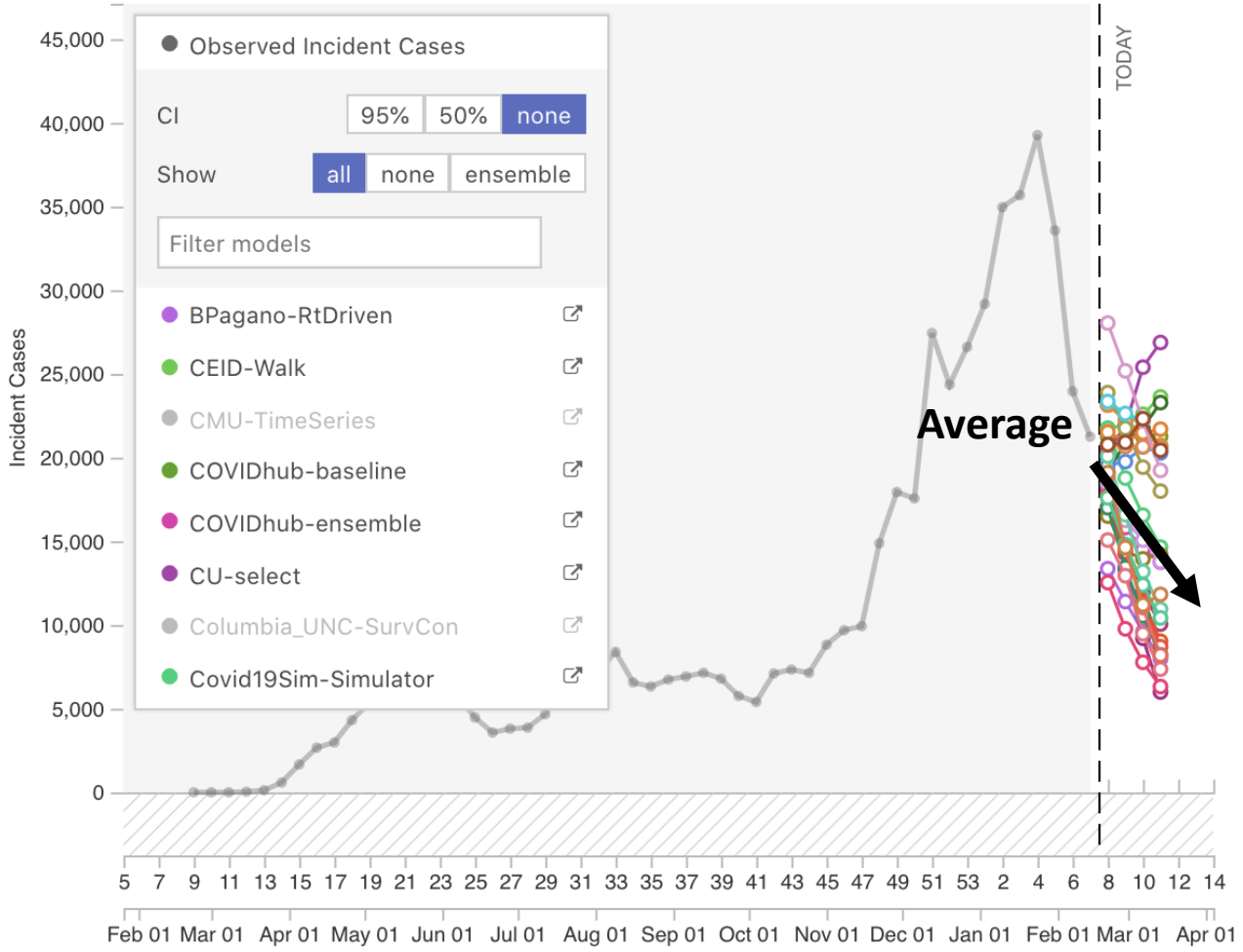
Rogawski et al. used serological samples taken between June 1st and August 14th from 4,675 Virginians to estimate the share of the population with some degree of acquired immunity to COVID

- They estimate that 2.4 percent of Virginians had been infected in the Commonwealth's initial wave
- There was substantial variation with a prevalence of 10.6 percent among Hispanic adults
- The Northern region had a prevalence of 4.4 percent compared to 0.9 percent in the Southwest
- The prevalence among the uninsured was estimated to be 5.9 percent

Corlette et al. studied the the effects of COVID-19 on primary care practices by interviewing doctors

- Higher costs and lower volumes have caused financial strain on PCPs
- PCPs have increased the use of telehealth
- PCPs report high rates of burnout among both doctors and other staff

The models are generally forecasting a steep decline in cases



There is broad agreement among the forecasts that there will be a steep decline in cases over the next few weeks

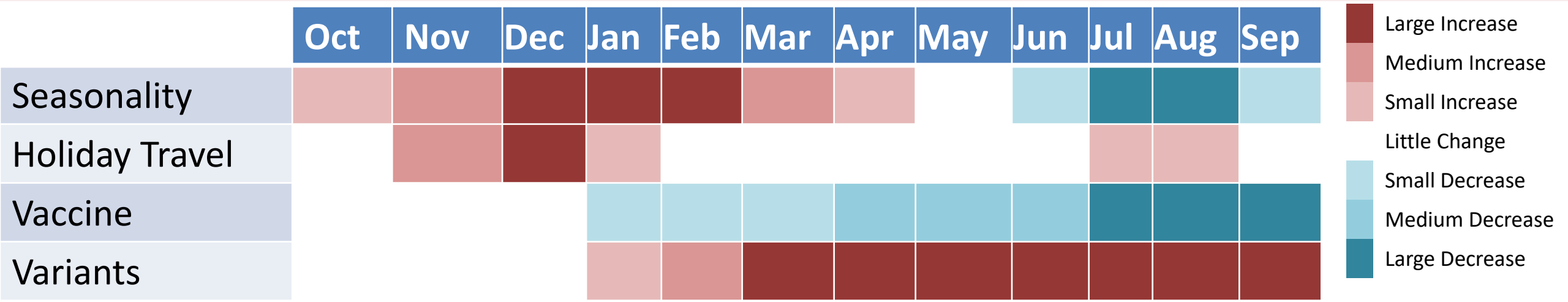
- The models differ on specific levels more than change
- The variation between models typically arises from different definitions (e.g., cases versus infections)

Many of the model predictions lag the data

- This means that they match the trends in retrospect but not as forecasts

Source: COVID-19 Forecast Hub, https://viz.covid19forecasthub.org/
Accessed February 17th

There are several factors driving the spread



There are several factors that will continue to drive the spread for the next few months

- Seasonal effects for COVID-19 appear to have increased spread during colder weather
- Holiday activities appear to have increased spread but are largely over for now
- The vaccines may begin to meaningfully slow the spread in the next month or two, but maintaining the rate of vaccine administration will require outreach to skeptical subpopulations
- The B.1.1.7, B.1.351, and P.1 Variants of Concern may increase the rate of spread as they enter Virginia, and future variants could also change the severity or the efficacy of vaccines

There are some key unknowns about the current spread

- How many people have been infected with COVID-19 and have lingering protection?
- To what degree are people complying with best practices for prevention?

Discussion and Questions