



Capital  
Markets

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April 17, 2020

## MackKay's COVID-19 pandemic update: examining economic re-opening potential

In the attached slide deck we analyze global trends of countries that have effectively controlled the spread of COVID-19 through social distancing efforts, and examine where the US stands vs these global examples. We see daily case count as the leading metric most closely associated with COVID-19 spread/control, and note that countries across the globe which have re-opened their economies following COVID-19-induced quarantines have done so after cases declined 50%-60% from peak. US daily case count has seen declines of ~13-27% from highs (excluding CDC's pull-through high-point outlier from 4/6), though continues to largely plateau vs the sharp declines seen in several other geographies where more stringent quarantine protocols may have been in effect. However, the US has dramatically ramped up testing to now lead in daily tests performed, which we see as an encouraging sign despite lagging somewhat in daily per-capita testing. We deepen our analysis & tracking of the US COVID-19 spread with a granular state-by-state analysis of the COVID-19 infection. We note several states (western states & LA) have seen dramatic declines in daily new COVID-19 cases, in-line with the declines seen by EU countries prior to easing of social distancing protocols and quarantines. We anticipate economic re-opening will be a significant focus in the US and anticipate daily case growth (not mortality) will be one of the leading metrics most closely watched in order to make quarantine easing decisions as well as monitor the risks associated with easing of these protocols.



# A global look at relaxing the quarantine: a look at US states/territories and where the US stands vs global territories that have relaxed social distancing protocols

April 17, 2020

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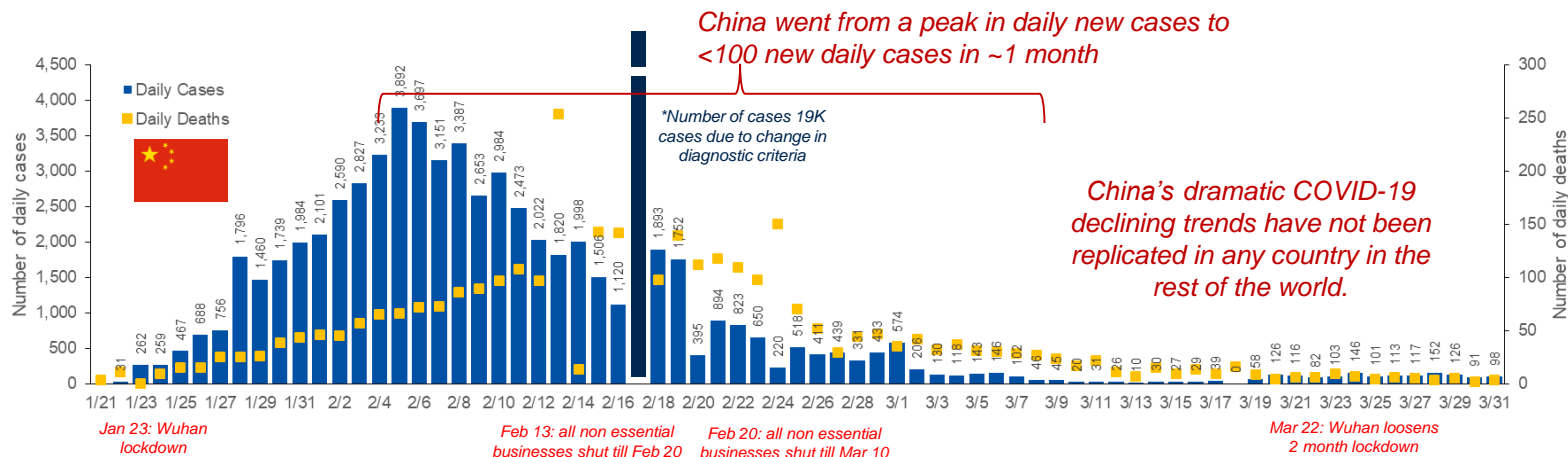
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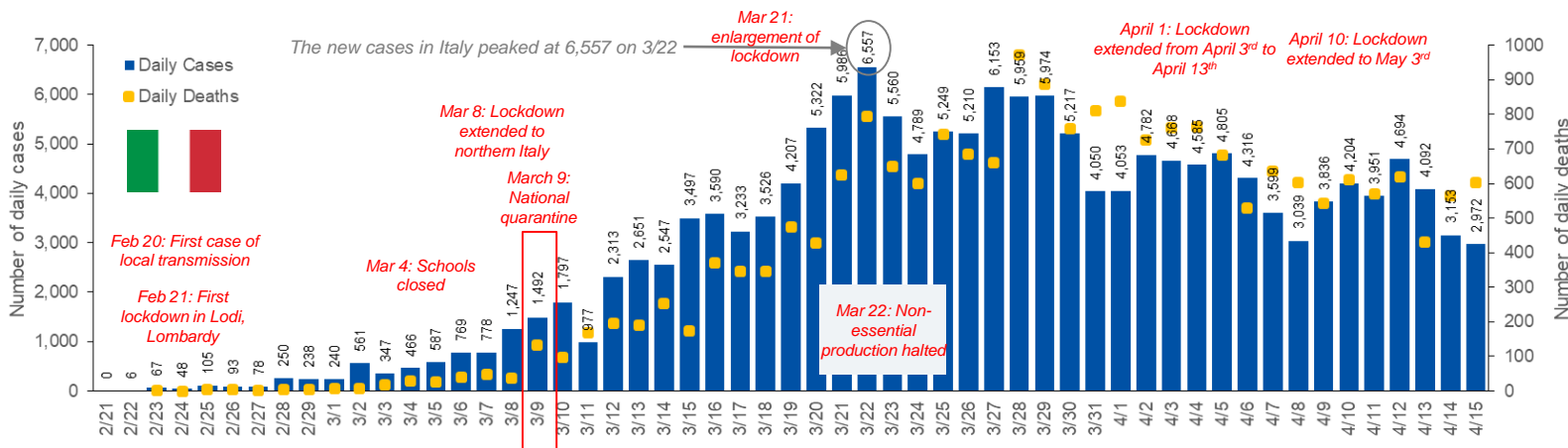
# China set initial promising COVID-19 recovery example while Italy's recovery has been hard

China saw rapid recovery not seen in the rest of the world – we expect US recovery may more closely follow Italy

China: Daily new cases & deaths



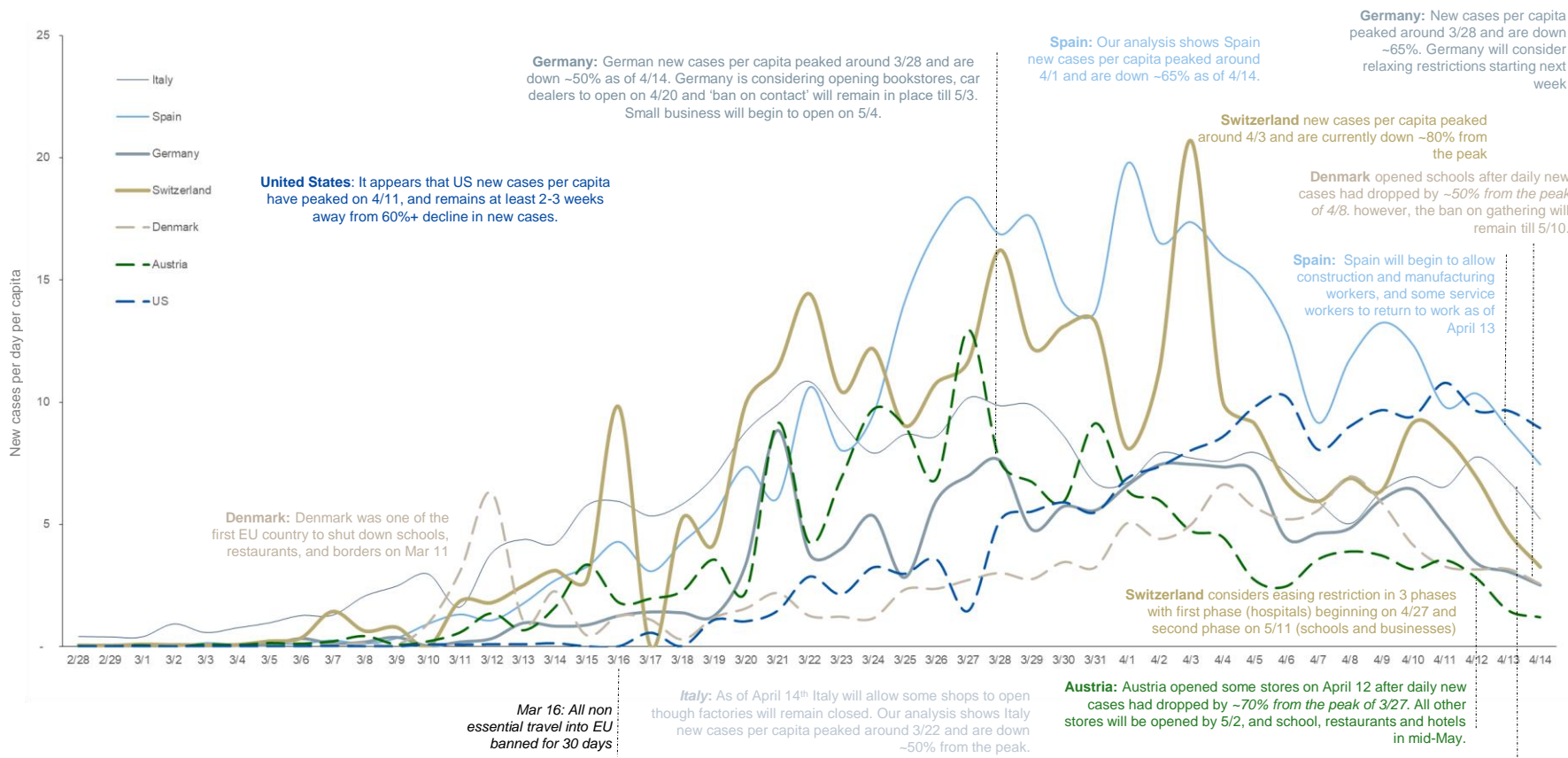
Italy: Daily new cases & deaths



Source(s): RBC Capital Markets research; data from WHO situation reports, census.gov

## EU countries started easing quarantine/social distancing in relation to daily case declines

Globally countries have waited for 50-60+% declines in daily new cases to start ease restrictions

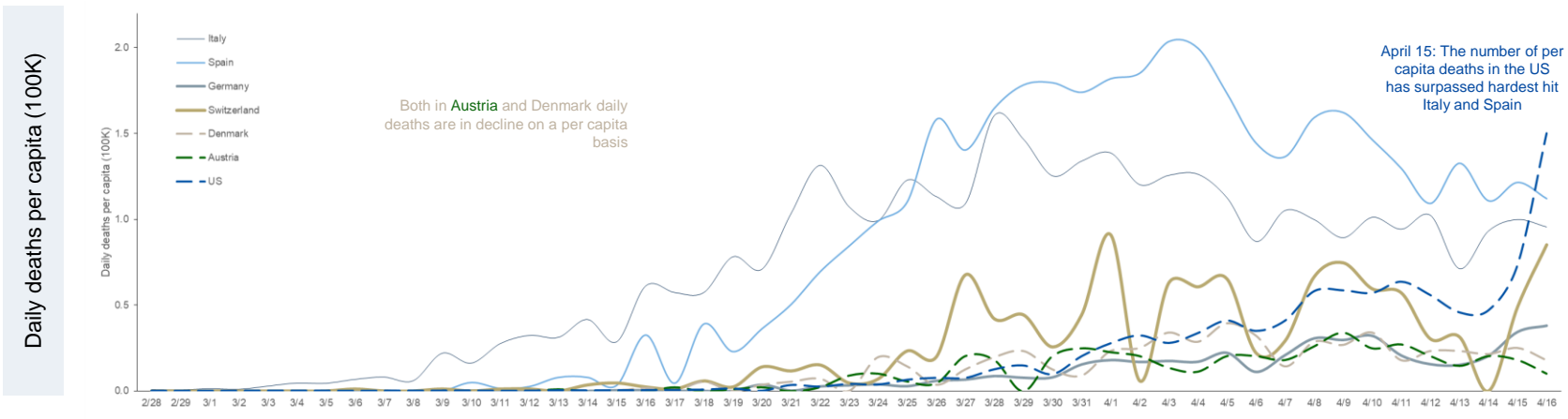
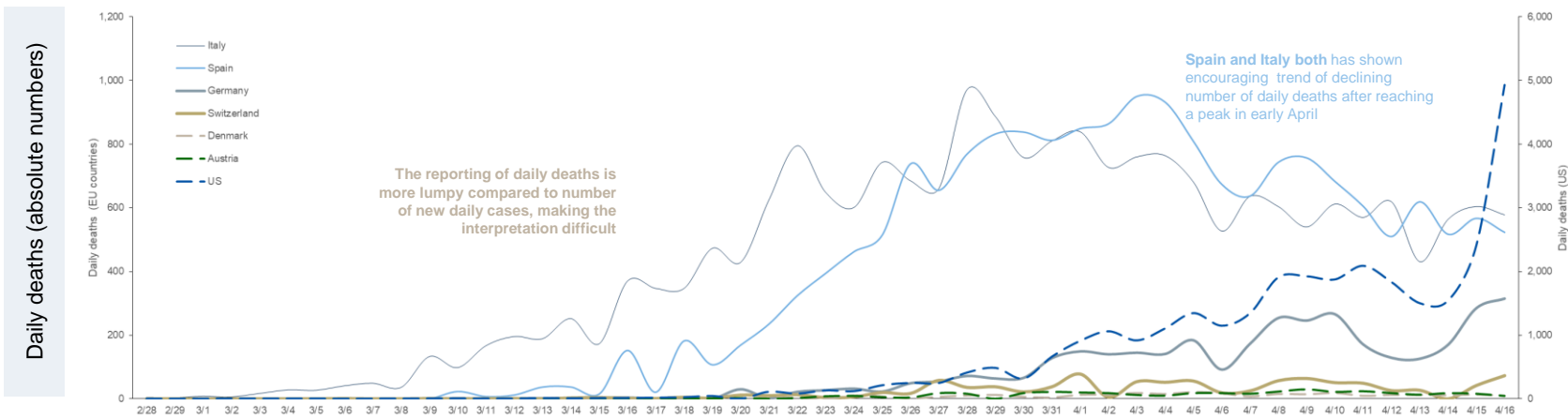


Source(s): RBC Capital Markets research; WHO situation reports

April 17, 2020

## Mortality trends in EU countries lag daily case trends and don't relate to quarantine easing

Number of deaths lags viral case spread and doesn't seem to inform the social distancing easing

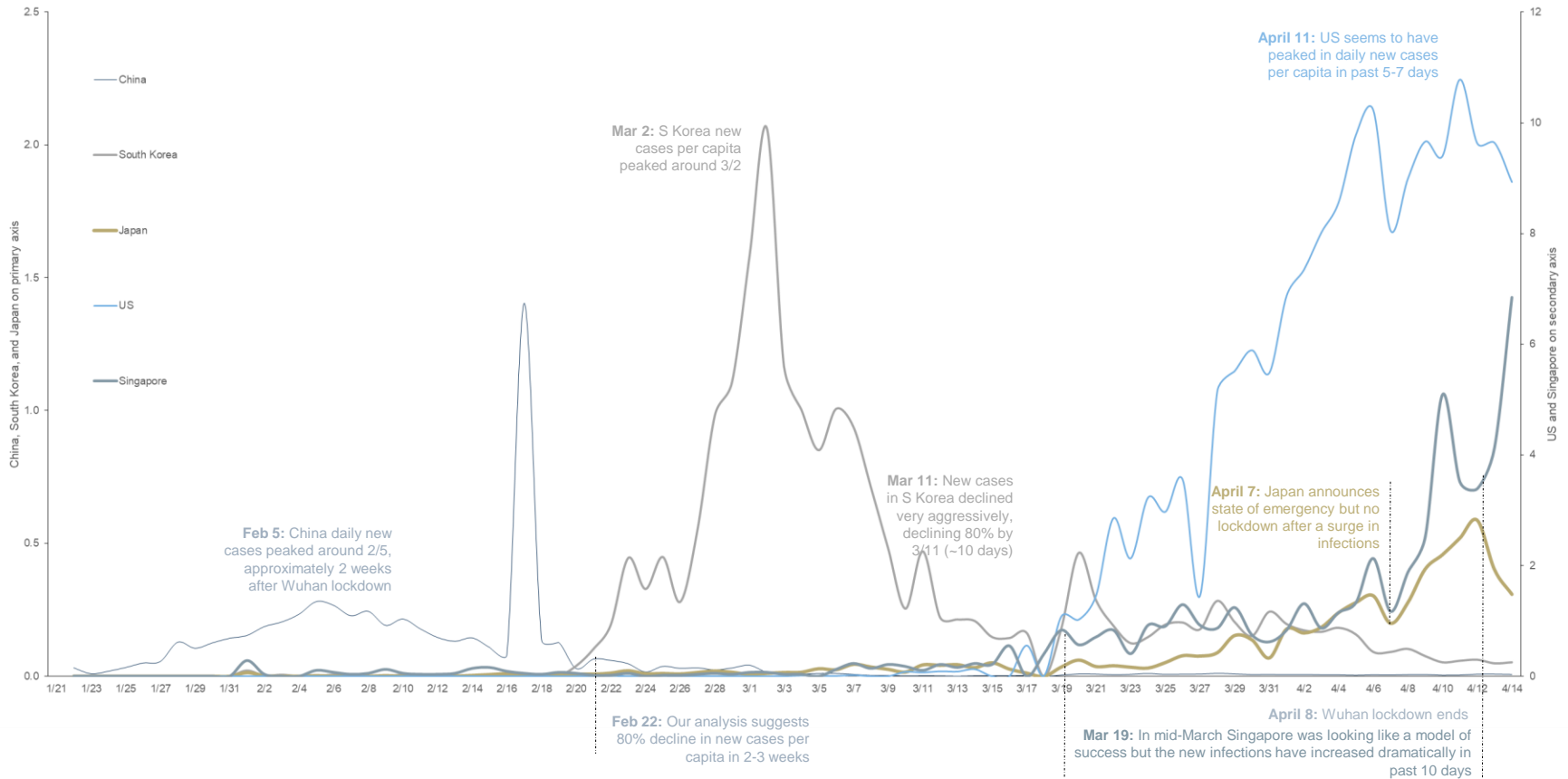


Source(s): RBC Capital Markets research; WHO situation reports; ourworldindata



# Asian countries add anecdotal examples of COVID-19 control and economic re-opening

China and S Korea have successfully contained the disease whereas Japan and Singapore have not

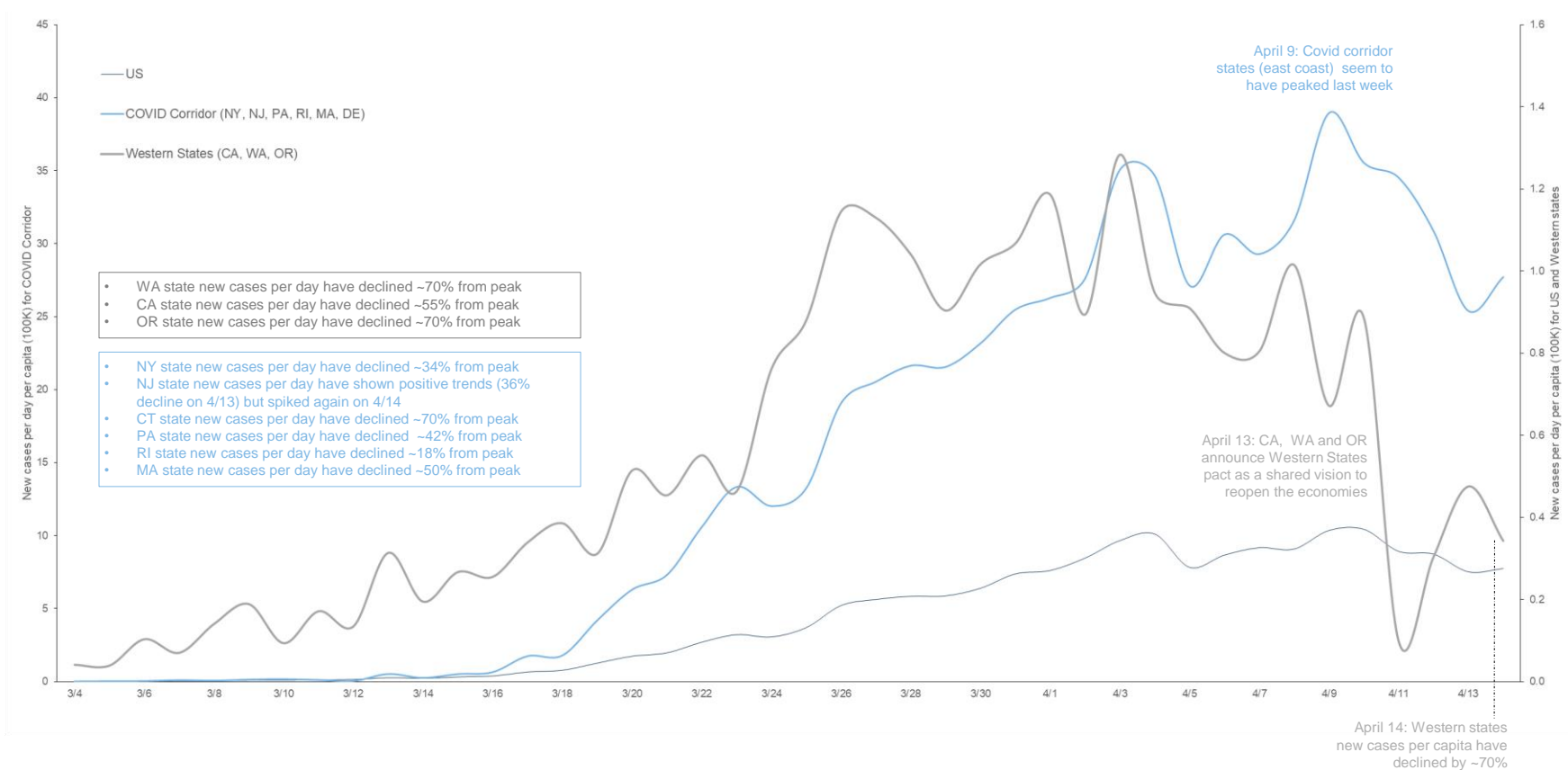


Source(s): RBC Capital Markets research; WHO situation reports

April 17, 2020

## The western states have shown encouraging signs of decline in new COVID-19 cases

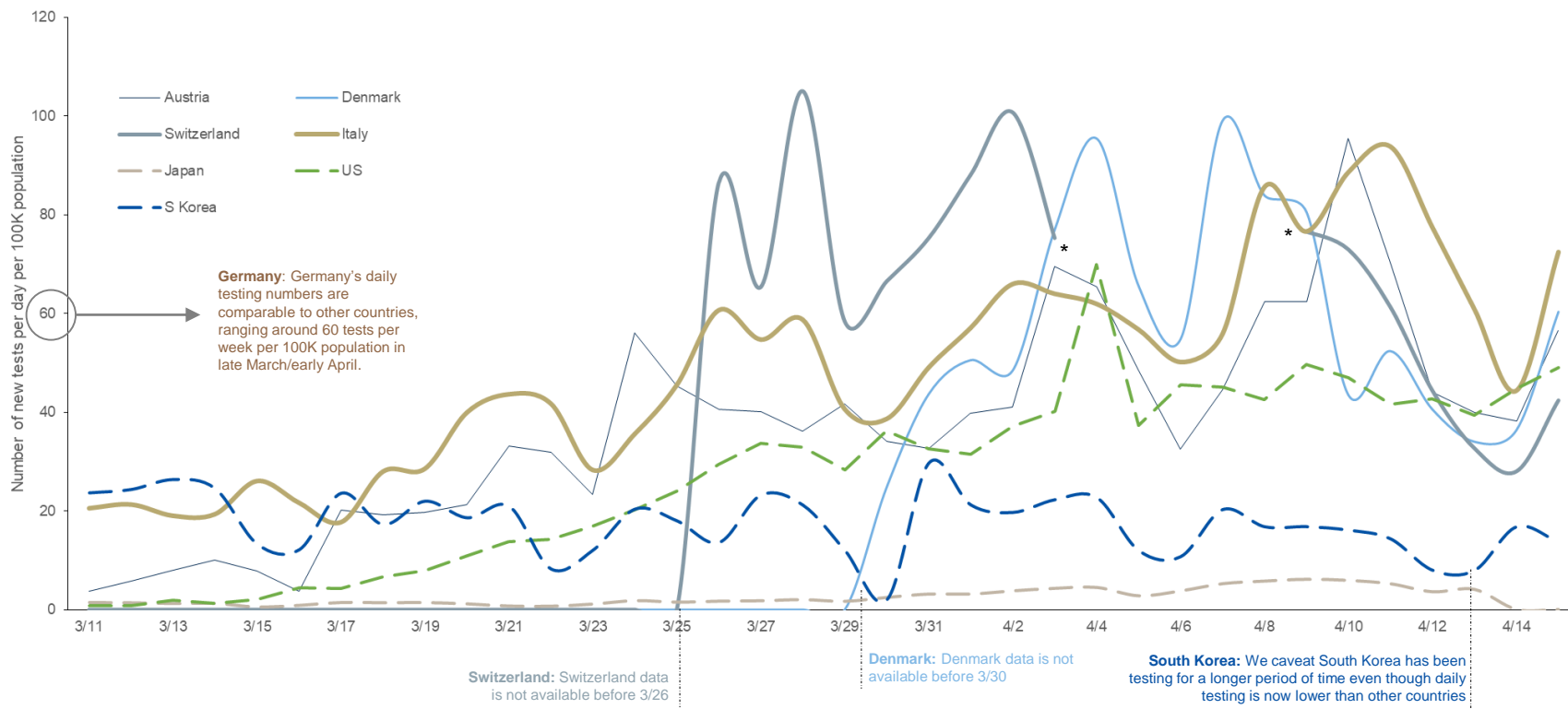
Eastern states appear to be in decline following a more recent peak in new cases per day



Source(s): RBC Capital Markets research; The COVID Tracking Project

## US per capita testing is now comparable to select EU countries

The US is consistently conducting 40 tests per 100K population since early April (4/3)



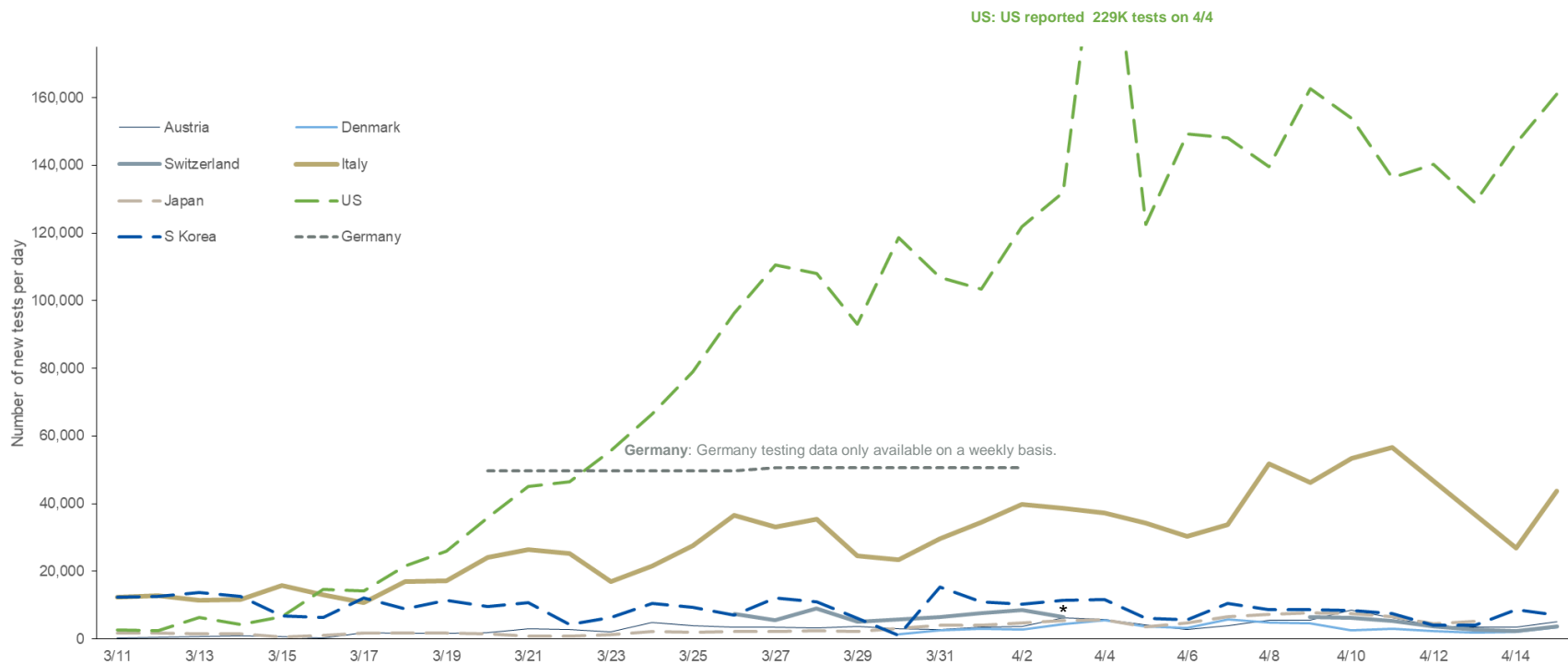
\* Switzerland data missing from 4/4 - 4/8

Source(s): RBC Capital Markets research; government health websites, ourworldindata



## US now leads in absolute number of tests per day

US absolute testing is now the highest in the world, though has stabilized around 130-150K tests per day

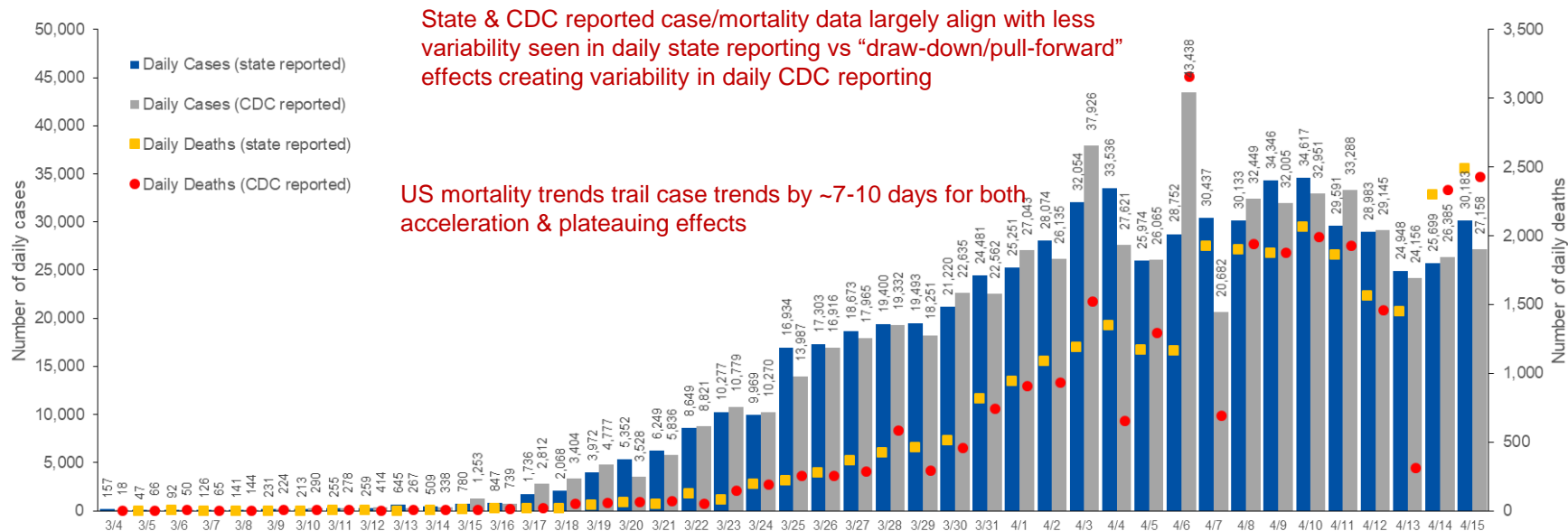


\* Switzerland data missing from 4/4 - 4/8

Source(s): RBC Capital Markets research; government health websites, ourworldindata

## USA COVID-19 cases reported by the CDC and aggregates of states are similar

Daily mortality trends trail daily case identification trends by ~1 week in the USA (longer globally)

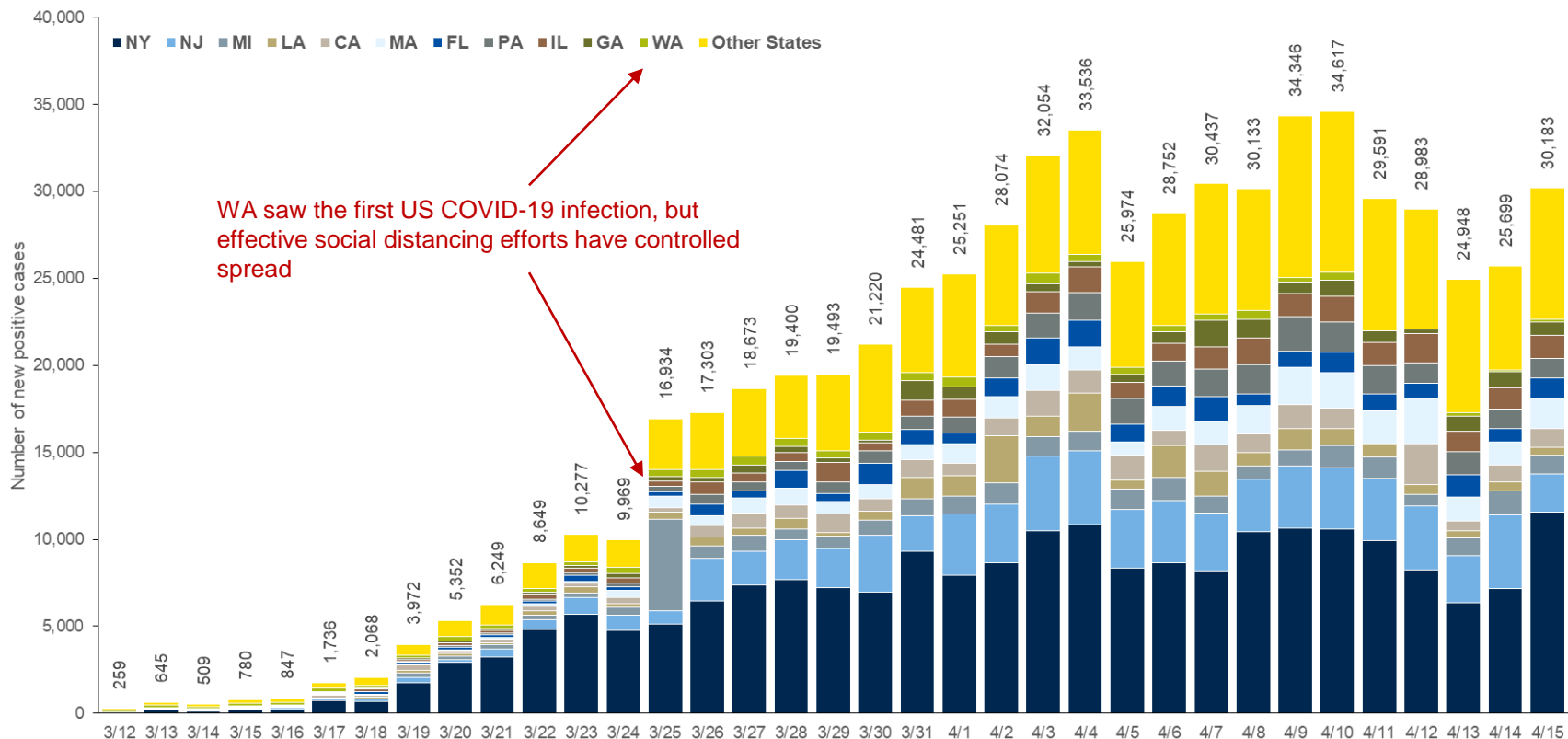


Daily COVID-19 case count and mortality count in the USA

Source(s): RBC Capital Markets research; Data aggregated from state department health websites as of 4/15, CDC

## New cases/day in select US states

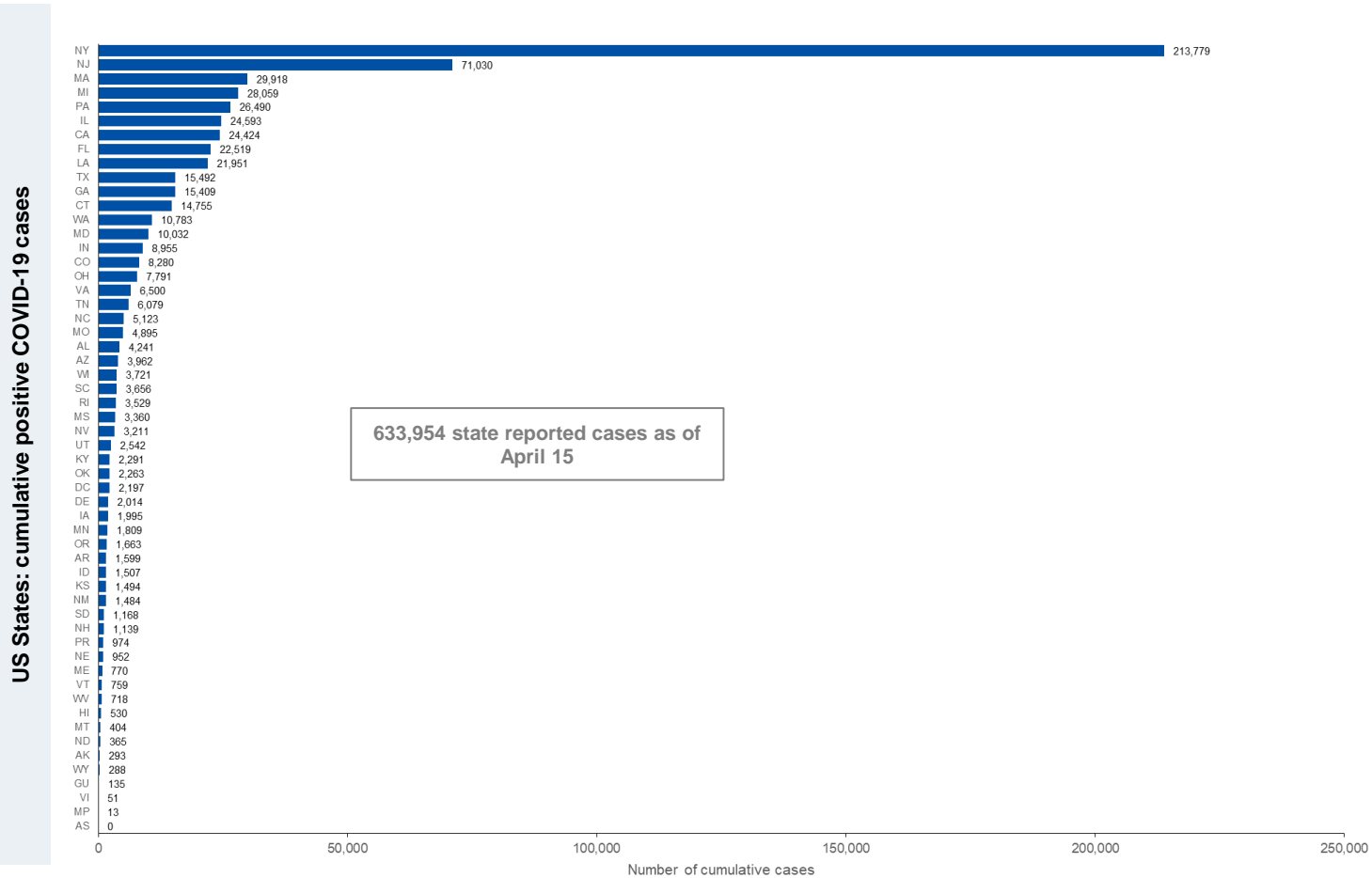
NY & NJ represent the primary drivers of US COVID-19 cases



Source(s): RBC Capital Markets research; Data aggregated from state department health websites as of 4/15

## Several state hotspots emerge: NY state accounts for ~34% of US COVID-19 cases

The top 5 states with highest infection account for ~58% of all COVID-19 cases in the US

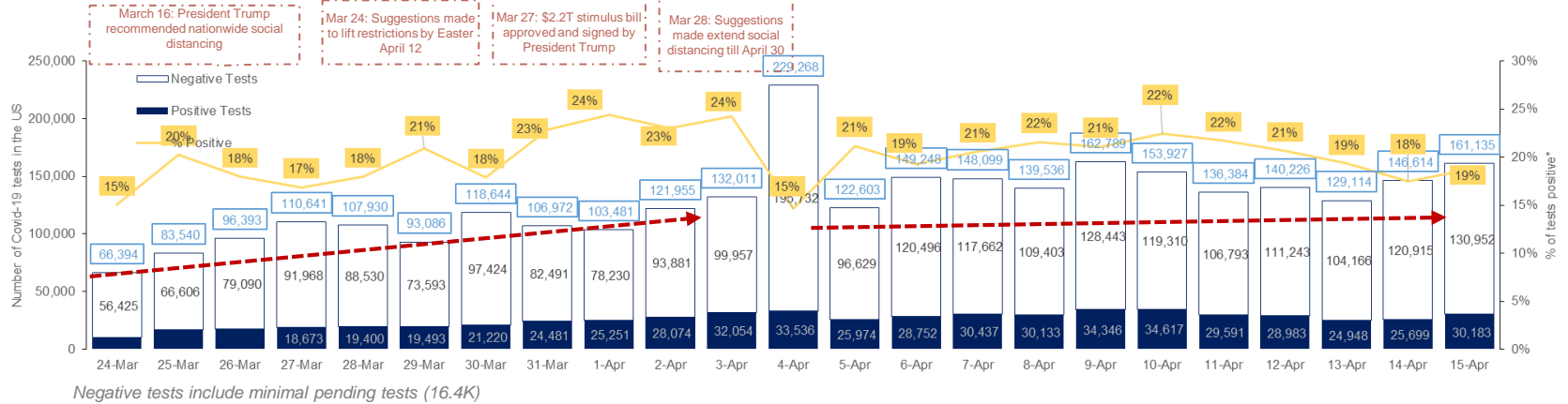


Source(s): RBC Capital Markets research; Data aggregated from state department health websites as of 4/15

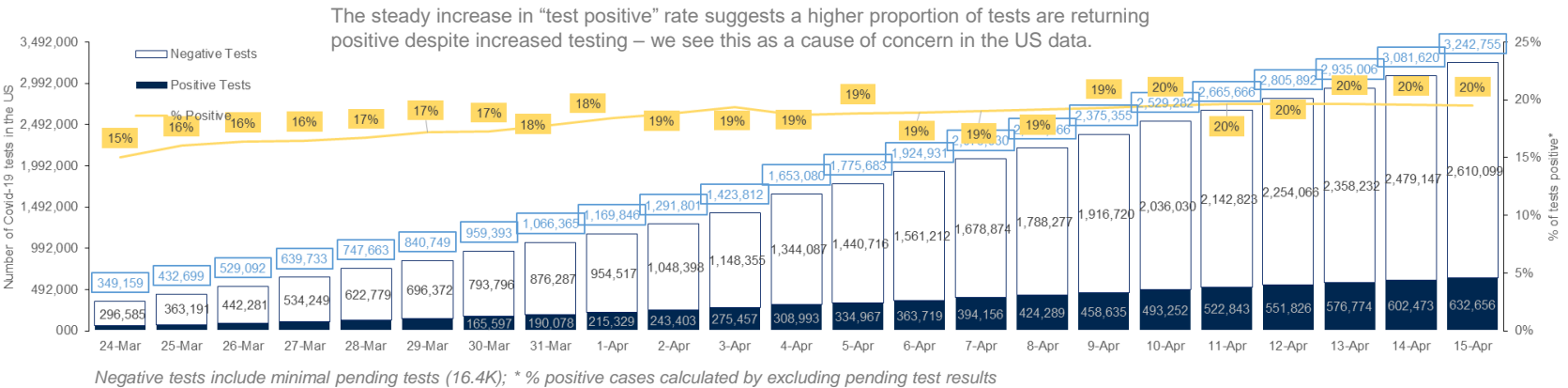
# COVID-19 testing remains key but has largely plateaued in the US

## The relative plateau in new daily testing raises concern around testing capacity

Testing on a per day basis



Testing on a cumulative basis

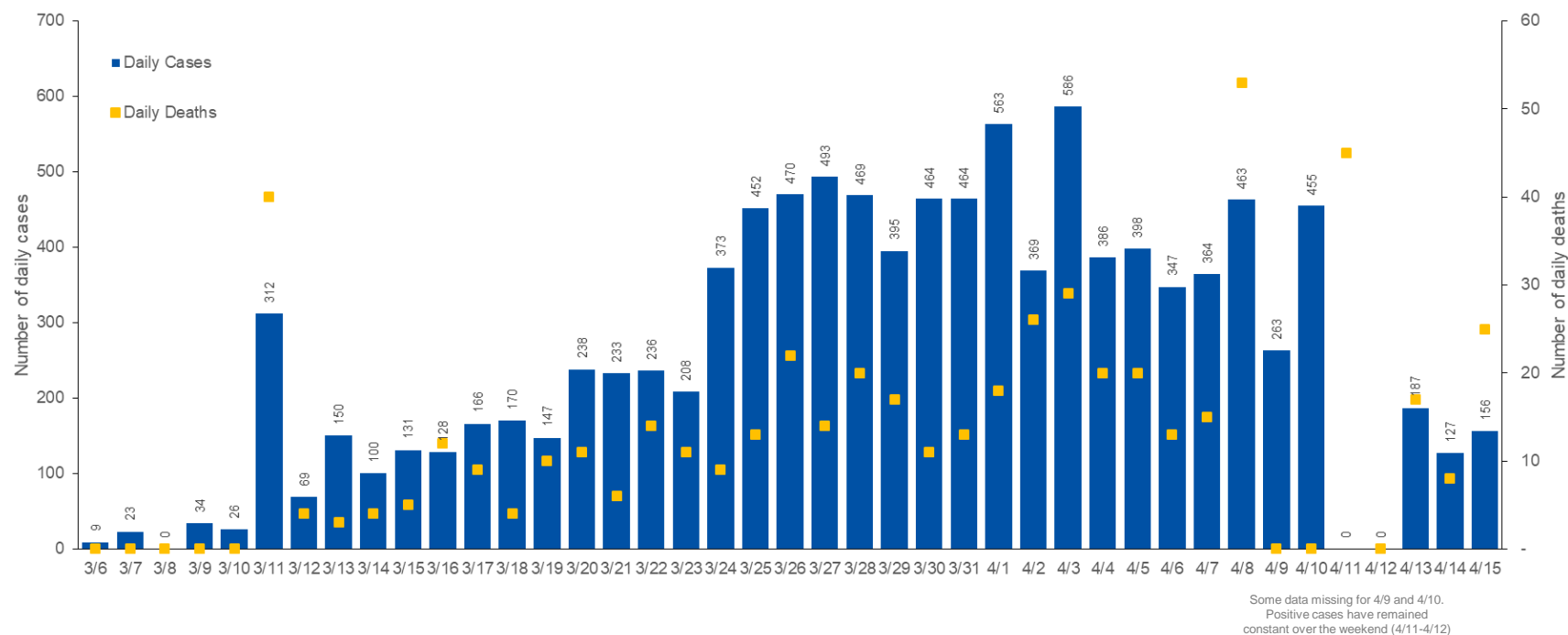


Source(s): RBC Capital Markets research; Data aggregated from state department health websites as of 4/15

## Washington state (WA) appears to be successful in controlling COVID-19 spread

WA state recorded the 1st domestic COVID-19 patient but rigorous testing has controlled spread

Daily cases and deaths in the WA state from COVID-19

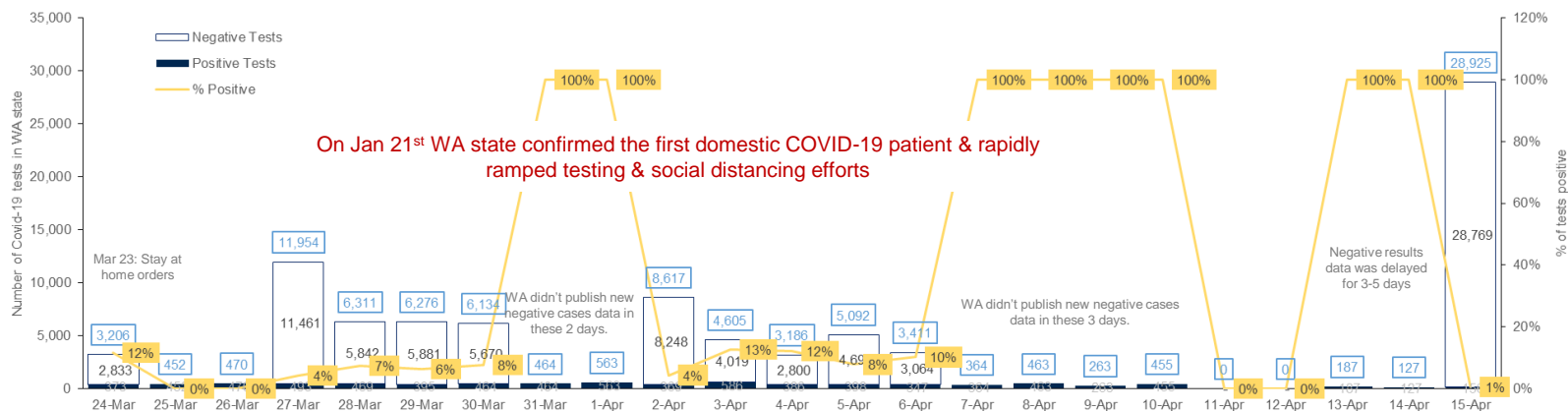


Source(s): RBC Capital Markets research; Data aggregated from WA state department health website as of 4/15

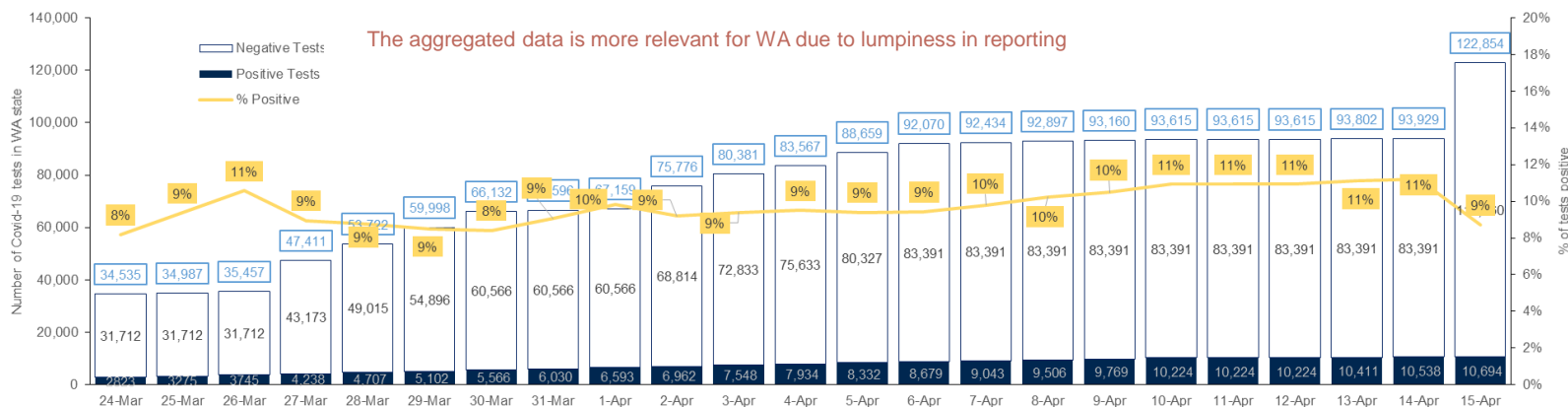
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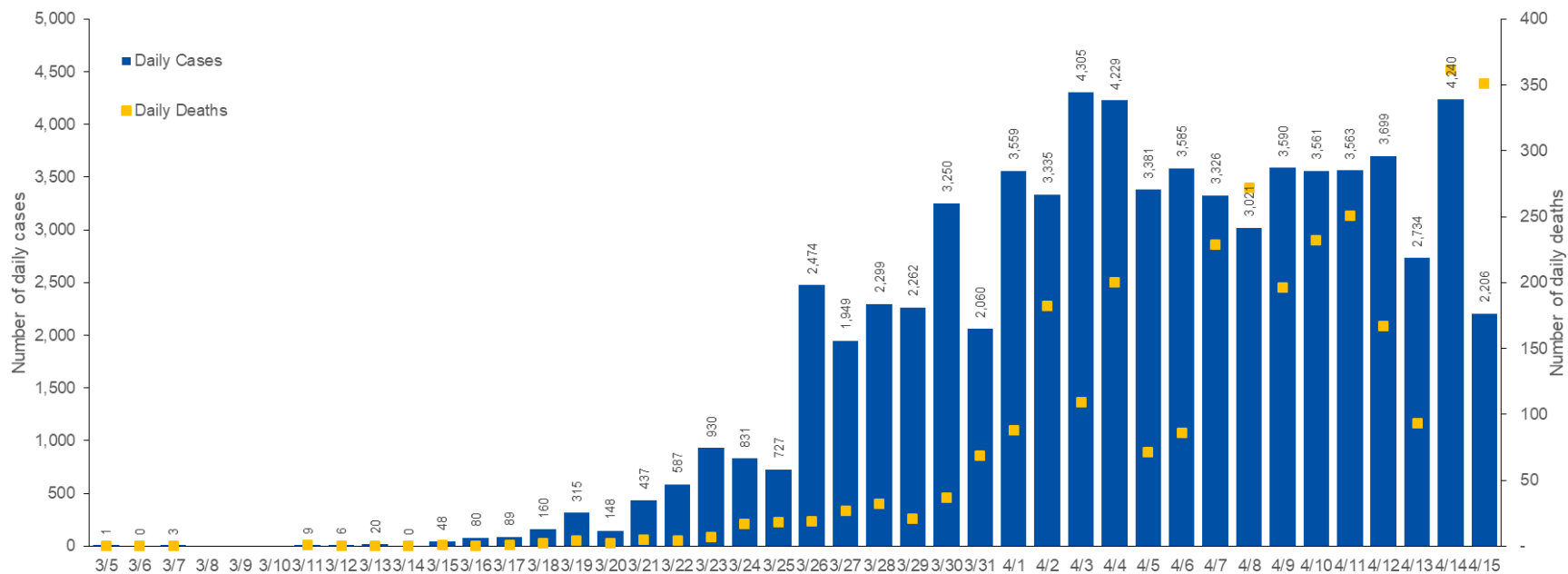


Source(s): RBC Capital Markets research; Data from WA State health website

## New Jersey (NJ) COVID-19 cases and deaths

New Jersey (NJ) COVID-19 case growth and deaths have followed similar pattern to NY state

Daily cases and deaths in the NJ state from COVID-19



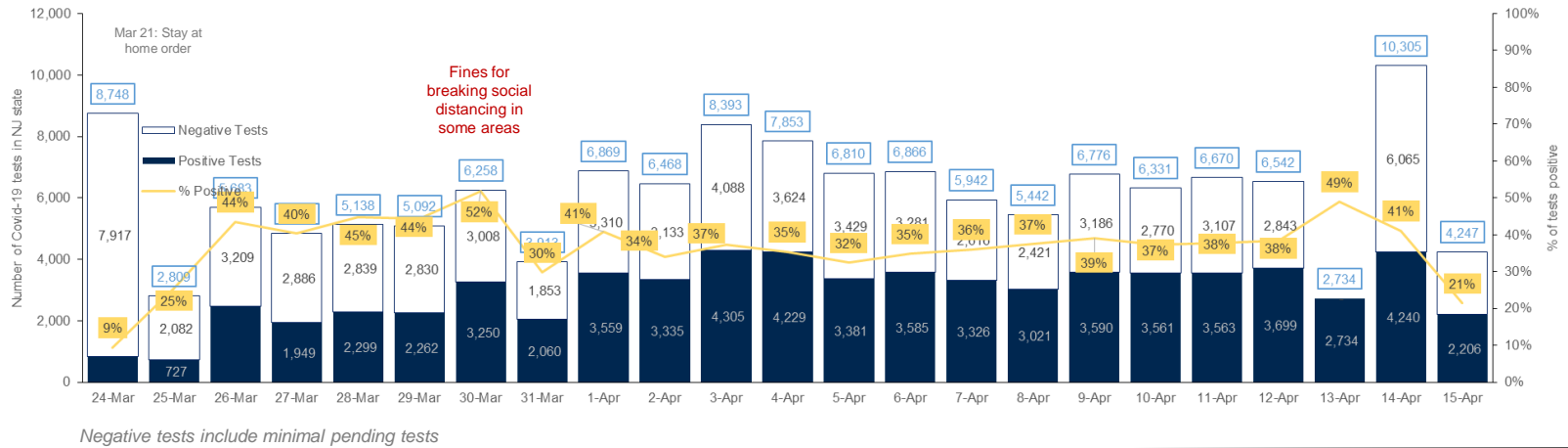
Source(s): RBC Capital Markets research; Data aggregated from NJ state department health website as of 4/15



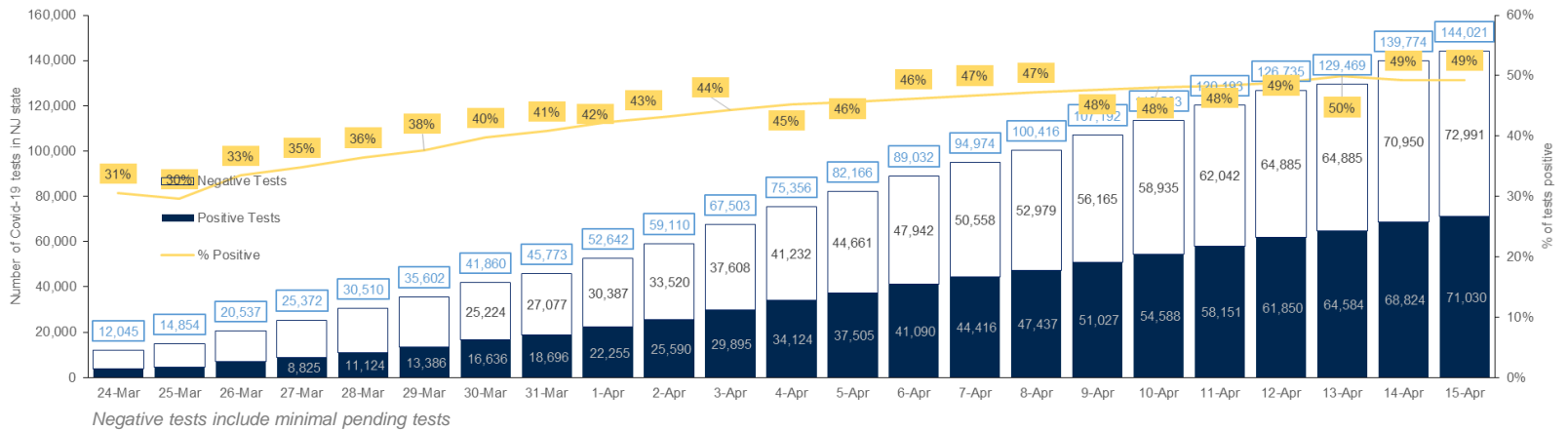
## New Jersey (NJ) COVID-19 testing

Testing in NJ may be lagging significantly as suggested by high 35%+ "test positive" rates

Testing on a per day basis



Testing on a cumulative basis

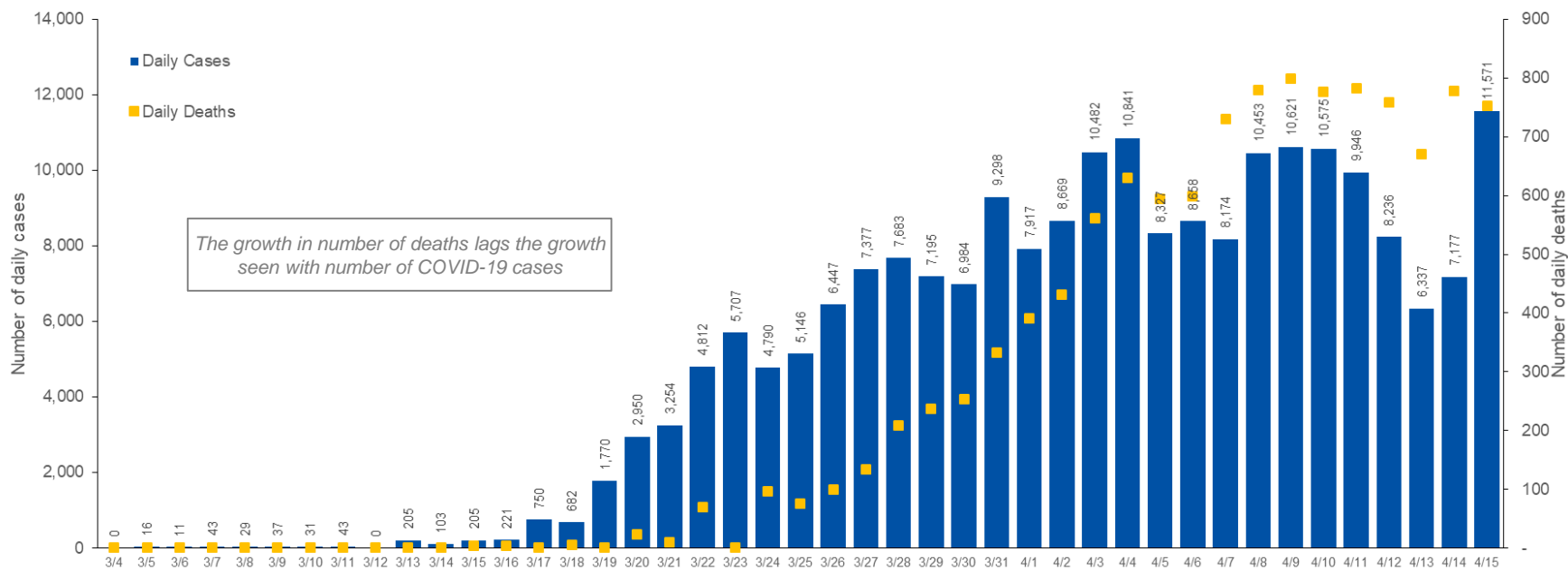


Source(s): RBC Capital Markets research; Data from NJ State health website

## New York (NY) COVID-19 cases and deaths

New York (NY) state has shown encouraging signs of stabilization of new COVID-19 cases in past 7 days

Daily cases and deaths in the NY state from COVID-19

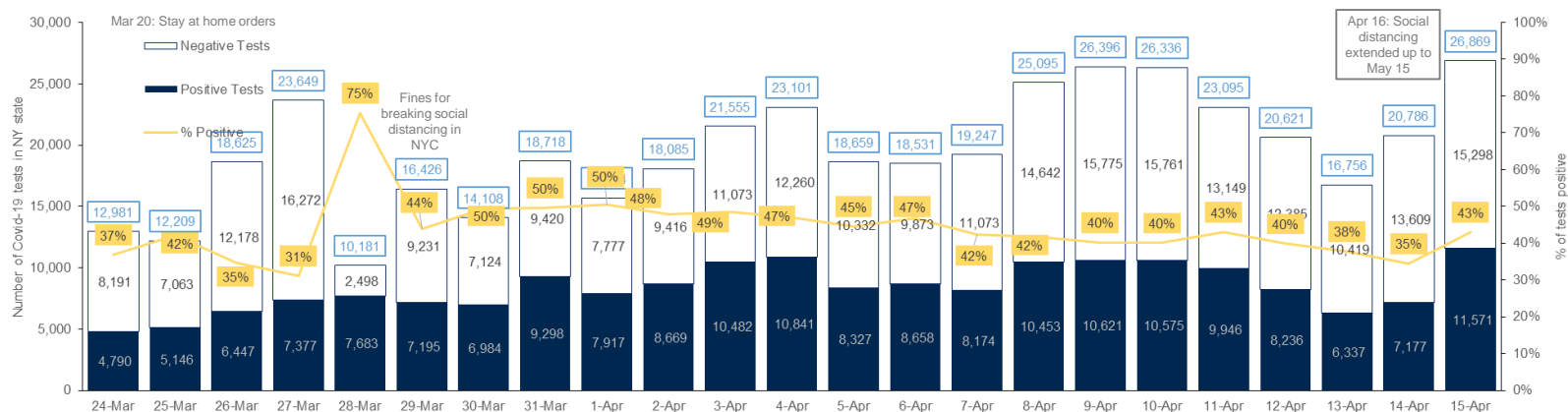


Source(s): RBC Capital Markets research; Data aggregated from NY state department health website as of 4/15

## New York (NY) COVID-19 testing – high test positive rate highlights limitations in testing

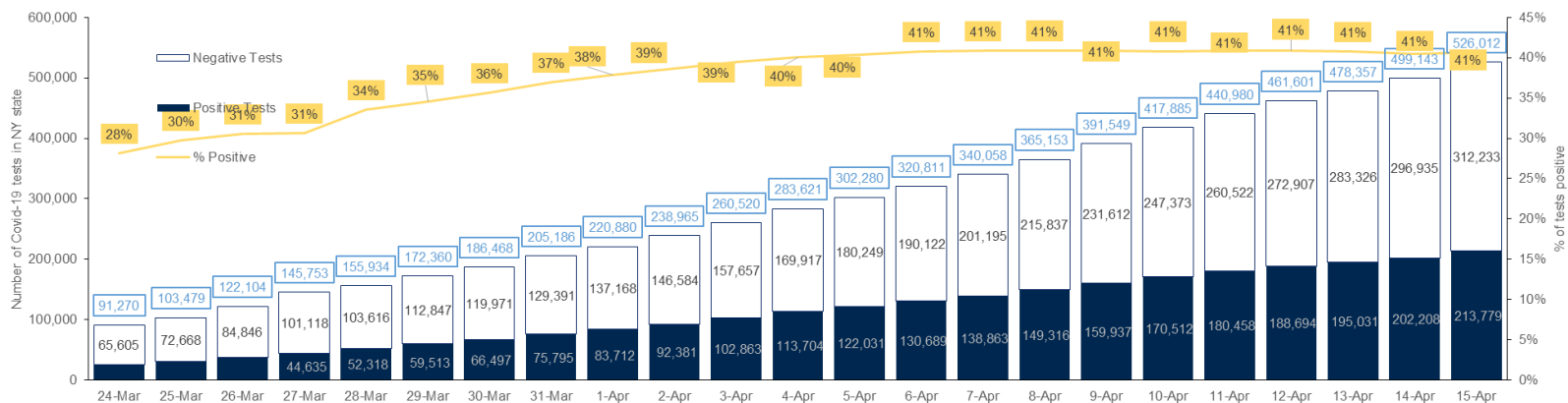
Despite high absolute number of tests in NY a very high test positive rate suggests potential under-testing

Testing on a per day basis



Negative tests include minimal pending tests

Testing on a cumulative basis



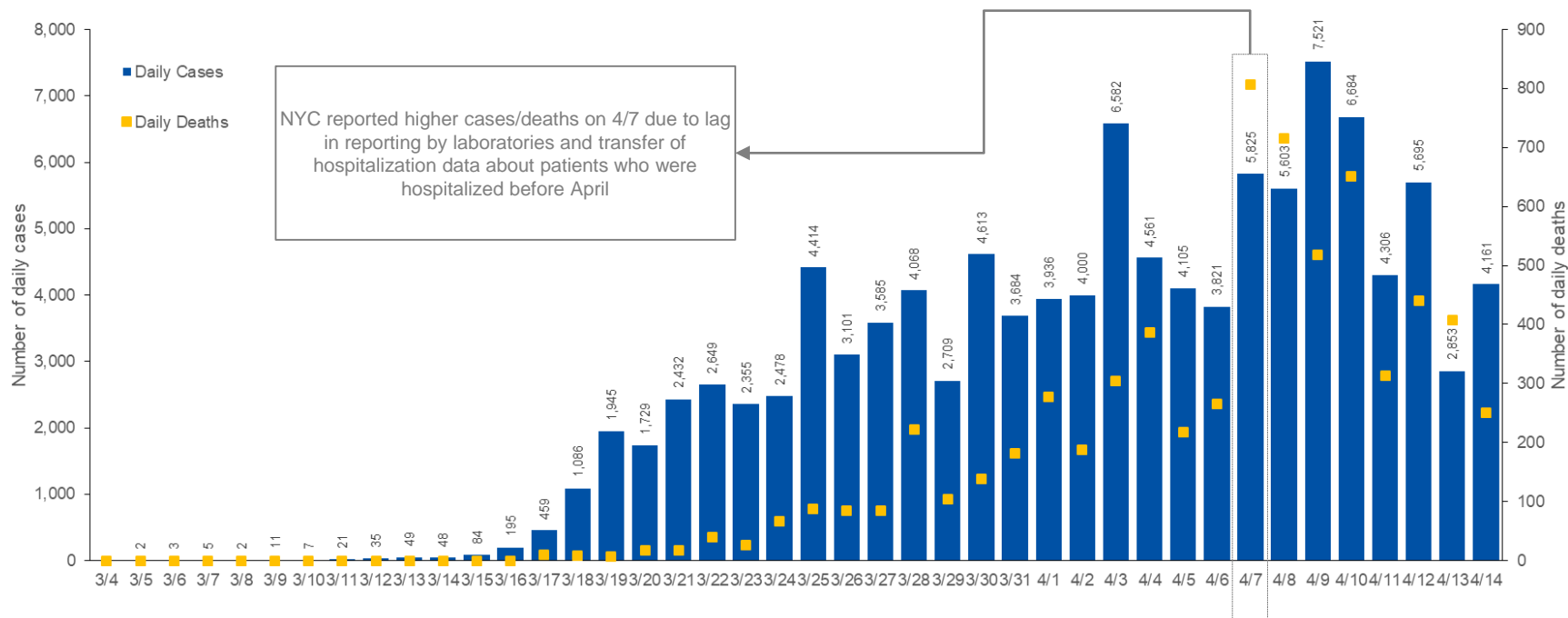
Negative tests include minimal pending tests

Source(s): RBC Capital Markets research; Data from NY State health website

## New York City COVID-19 cases and deaths

Queens is the most impacted region in NYC

Daily cases and deaths in the NYC from COVID-19

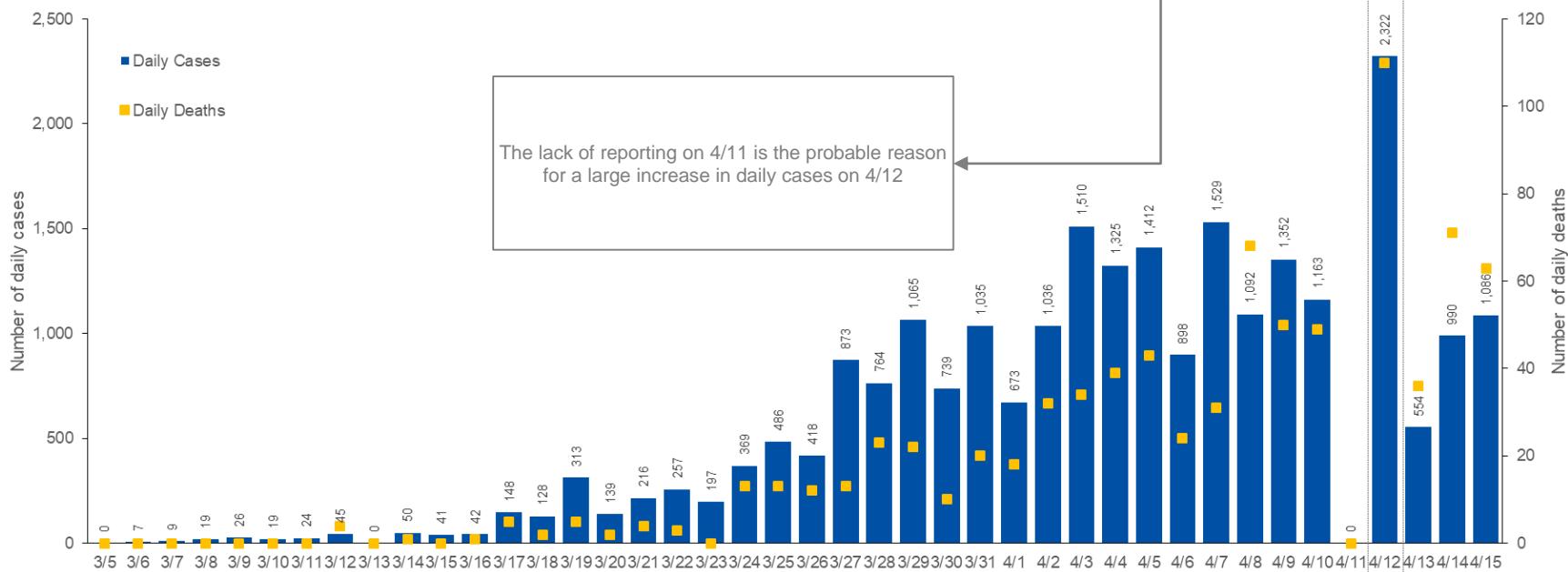


Source(s): RBC Capital Markets research; Data aggregated from NY state department health website as of 4/14

## California (CA) COVID-19 cases and deaths

California has largely plateaued after early social distancing controls

Daily cases and deaths in the CA state from Covid-19

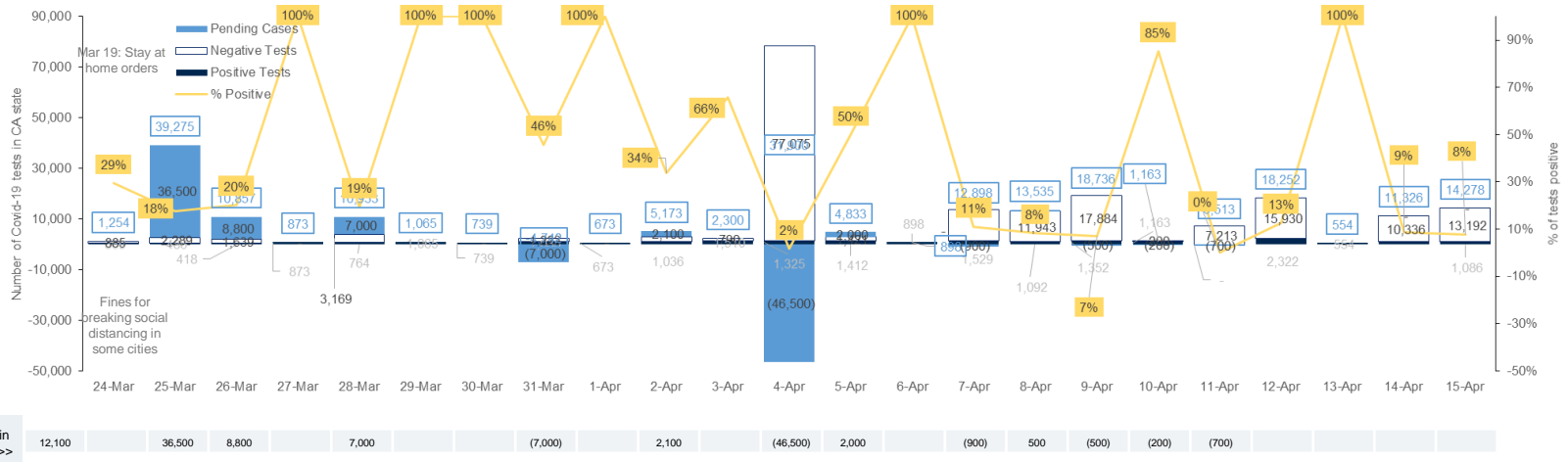


Source(s): RBC Capital Markets research; Data aggregated from CA state department health website as of 4/15

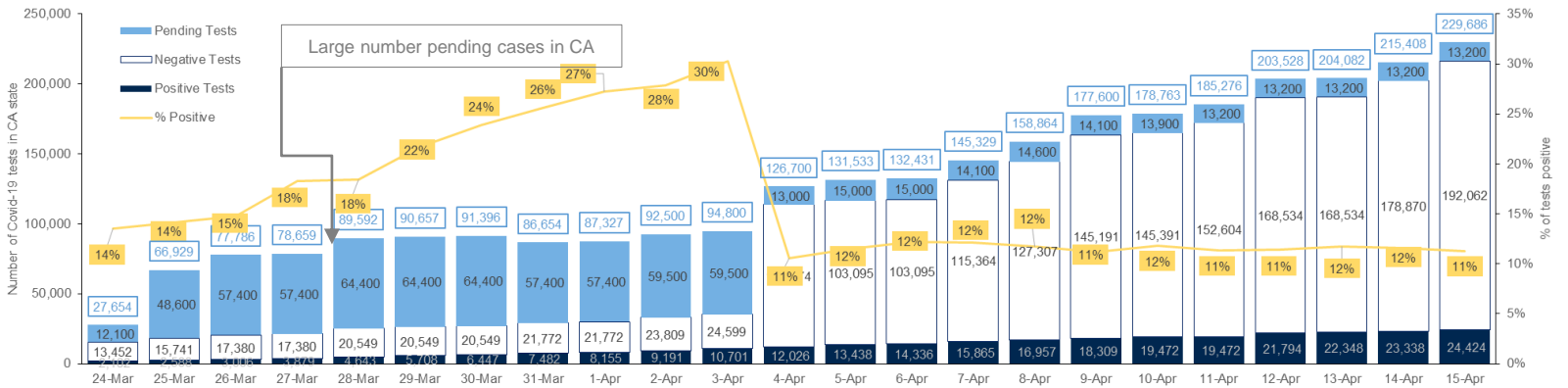
# California (CA) COVID-19 testing has increased despite backlog issues

CA private labs had a large number of pending tests most of which have been cleared as of 4/4

Testing on a per day basis



Testing on a cumulative basis

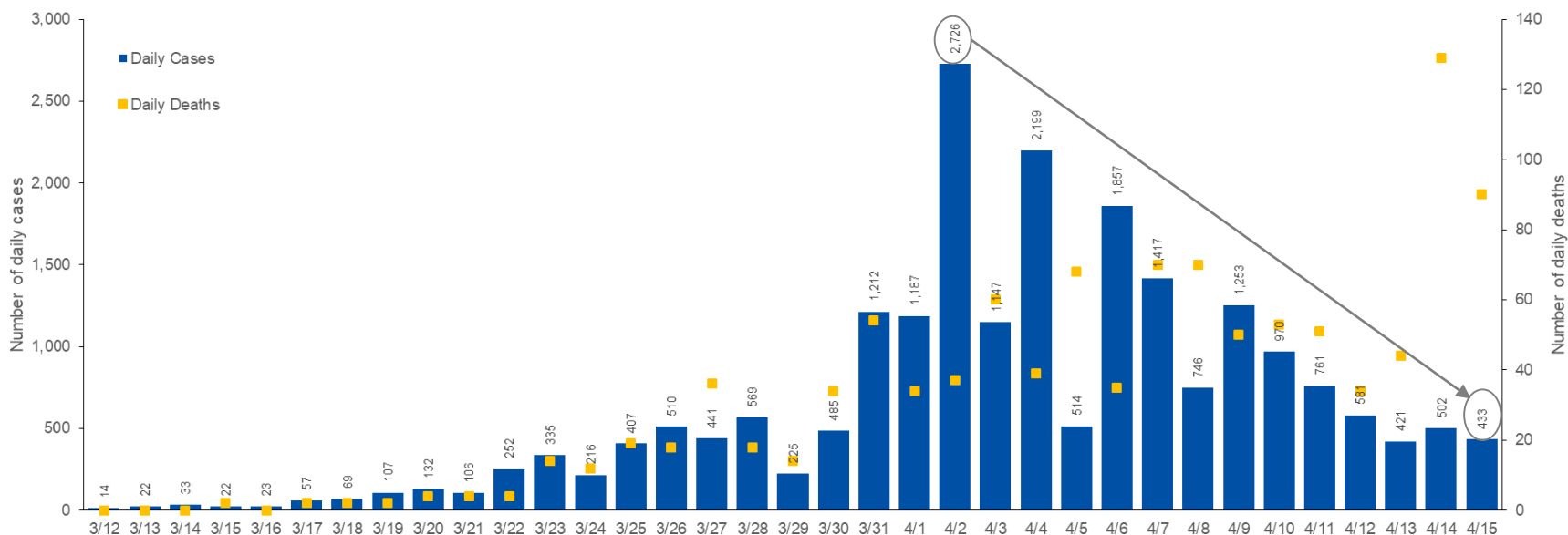


Source(s): RBC Capital Markets research; Data from CA state health department website

## Louisiana (LA) COVID-19 cases and deaths

LA state has shown encouraging signs as daily cases have declined consistently over past 10 days

Daily cases and deaths in the LA state from COVID-19

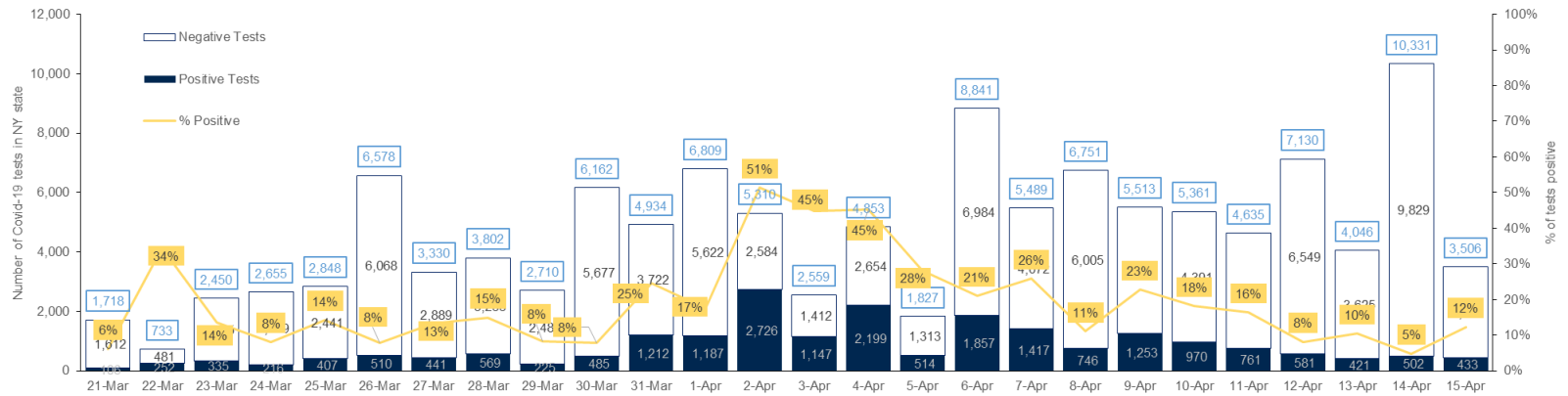


Source(s): RBC Capital Markets research; Data aggregated from LA state department health website as of 4/15

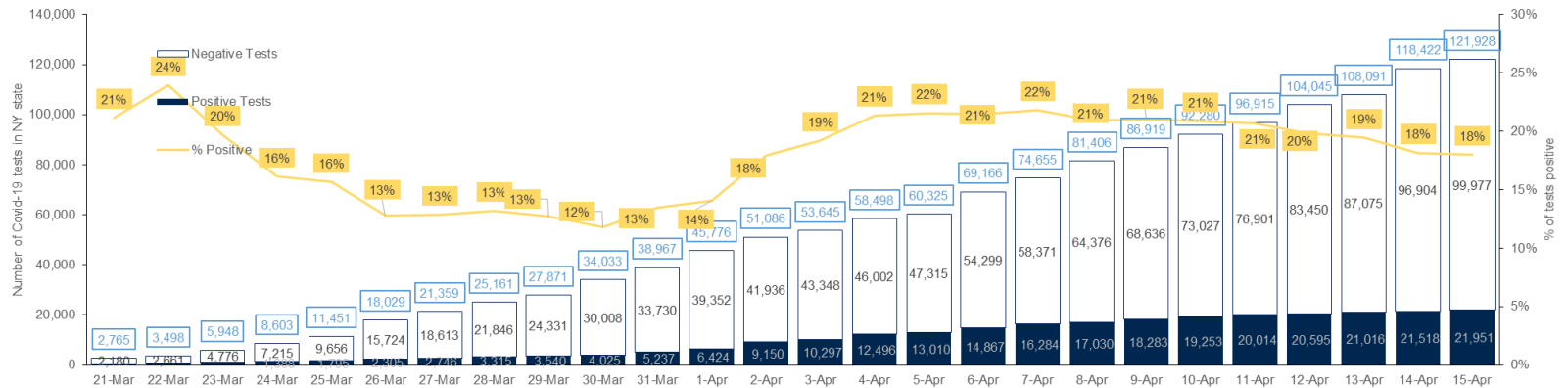
## Louisiana (LA) COVID-19 testing

New cases per day have decreased as testing ramped up in LA

Testing on a per day basis



Testing on a cumulative basis



Source(s): RBC Capital Markets research; Data aggregated from LA state department health website as of 4/15





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