W. Capra
CONSULTING GROUP

Analysis of COVID-19 Trends in the United States

W. Capra Data Analytics Team

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Contents

Introduction

Across the globe, the COVID-19 pandemic has quickly changed business landscapes across all verticals in unprecedented fashions. Cases and deaths are accelerating, as well as business closures and job losses. In an effort to keep W. Capra, our clients, and other external partners up-to-date on the latest trends across the United States, we publish this report on state-by-state COVID-19 data trends. Our goal is to identify:

- How states' handlings of COVID-19 develop over time
- Which states are approaching "containment," and
- What environmental, regulatory, and cultural factors drive containment

As we look at state-by-state analyses, there are many factors to keep in mind, such as population density, success at social distancing, healthcare networks, lock-down dates, weather, etc. All of these appear to have some effect on the transmission and successful containment of the disease

Trends we consider to be important indicators as to how the pandemic is affecting states:

- Testing Volume and Capacity: Indicates the accessibility of testing and the state's ability to meet testing demand
- Case Velocity: Number of new cases reported each day
- Death Velocity: Number of new deaths reported each day
- Case Rate: Percentage of tests performed that end in a positive result. Testing rates are skewed towards symptomatic patients due to testing policies.
- Death Rate: Percentage of positive cases that lead to death. This is driven by the performance of healthcare systems and the general health of underlying population.
- Case Acceleration: Change in Case Velocity. If Case Acceleration is positive, a state is reporting a greater number of new cases day over day. If negative, Case Velocity is decreasing, and the state is reporting a lesser number of new cases day over day.
- Death Acceleration: Change in Death Velocity. If Death Acceleration is positive, a state is reporting a greater number of new deaths day over day. If negative, Death Velocity is decreasing, and the state is reporting a lesser number of new deaths day over day.

Disclaimer

The W. Capra Data Analytics Team is comprised of data scientists and analysts. We are not medical professionals nor policy makers. As such, this report is not to be construed as providing guidance. We are data-driven professionals that are interested in seeing how we can leverage data to understand the trajectory of states in the COVID-19 pandemic. As such, we advise that you make your own assessment as to actions to take based on this information. Please carefully consider local laws and follow the advice of medical professionals and policy makers at local and national levels.

Data Sources

- The COVID Tracking Project, https://covidtracking.com/
- New York Times COVID Data, https://github.com/nytimes/covid-19-data
- COVID-19 Community Mobility Reports, Google, https://www.google.com/covid19/mobility/

Benchmarks

We understand that states are experiencing and will pass through various states of their handling of the pandemic. Obviously, positive outcomes for states occur as new daily cases and deaths begin to drop; this is

commonly referred to as the "peak" for a particular region. However, we are also interested in tracking the acceleration rates of cases and deaths. We see that consistent reduction in acceleration is an early indicator of positive outcomes. From global trends, we expect velocity and acceleration rates (both new cases and deaths) to follow a trend similar to the one depicted in Figure 1.

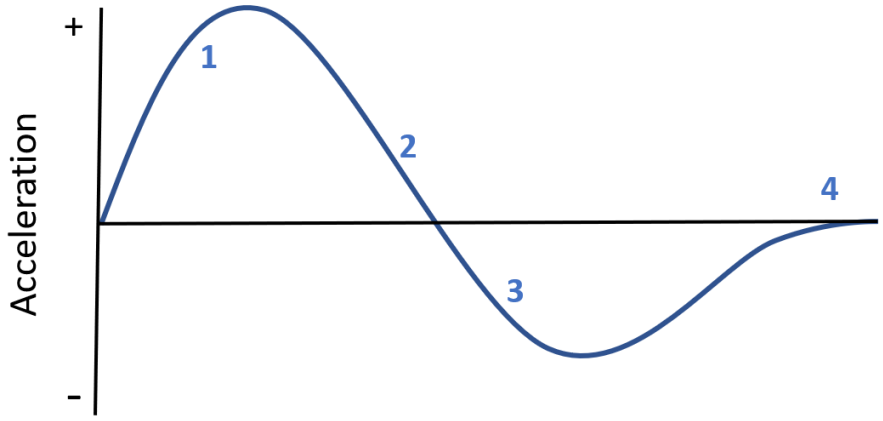


Figure 1: Acceleration Curve

- 1 - Exponential Stage: New daily cases and deaths are increasing. Velocity and acceleration are positive.
- 2 - Linear Stage: New daily cases and deaths are flat. Velocity is positive while acceleration is approaching zero.
- 3 - Improvement Stage: New daily cases and deaths are decreasing. Velocity is decreasing while acceleration is negative.
- 4 - Containment Stage: Zero or few new daily cases and deaths. Velocity is near zero, while acceleration is slightly negative or zero.

Later in the report we will take a closer look at measuring and ranking accelerations.

Analysis

Testing Across the US

Inconsistent testing data reinforces that testing is still not being performed at the paces desired by most states. The ability to test wide populations quickly will be crucial to not only achieving containment but also maintaining it. Initial decelerations of cases and deaths is good sign; however, until states have the capacity to test people at the appropriate scales, states will continue to be at risk of resurgences in COVID-19 cases/deaths.

Currently, 0.9% of the entire US population has been tested. This is very small from a sampling perspective, but not too far off from the rest of the world. The distribution of these tests is also very unevenly distributed.

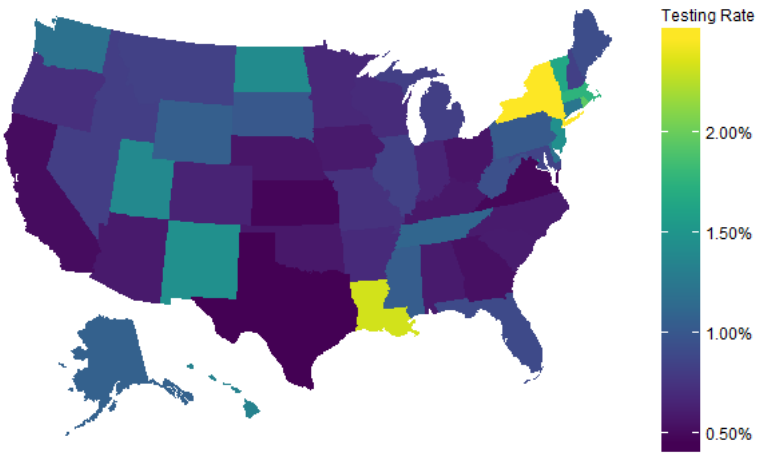


Figure 2: Testing Rates

Case and Death Rates Across US

Case Rates

Case rates, or the rate of tests which are positive for COVID-19, vary across the US and reach higher than 40%. A large driver behind this trend is self-quarantine directives: Patients with symptoms are told to stay home as long as the symptoms are manageable. Once severe enough, patients are told to see a doctor and get a test. The true rate is probably much lower, but because we cannot test every individual at this time, this is an unknown.

In the heatmap below (Figure 2), we can see that NY and NJ have high positive test rates. This aligns with macro-level trends as this region represents the US "epicenter," where population density is quite high and transmission rates tend to be higher as well. MI sticks out, however. MI has high positive test rates yet low population densities, pointing to poor and inaccessible testing that is only being used for severely ill patients.

Death Rates

Death rates, or the rate of positive cases that result in morbidity, is currently 2.23% for the United States. It tends to be higher for populations with comorbidities and advanced ages. In the heatmap below (Figure 4), there are a few interesting points. WA is higher, but that's mostly due to how COVID-19 had a big impact on older populations. KY, OK, and NY are also rather high, while MI is currently experiencing the highest rate at 6.2%.

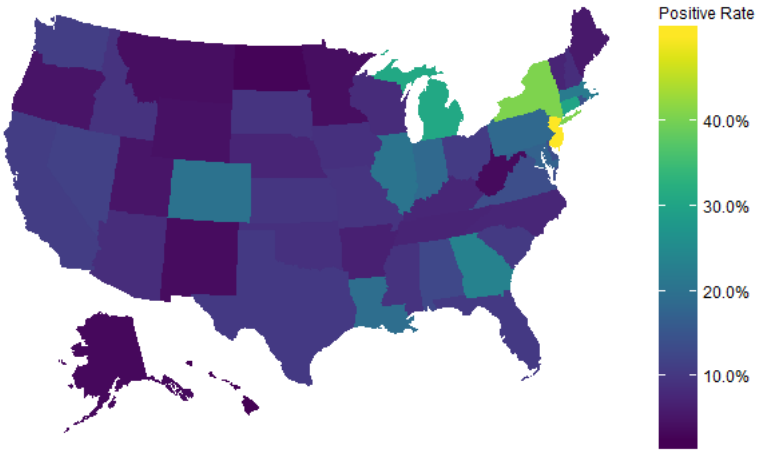


Figure 3: Positive Rates

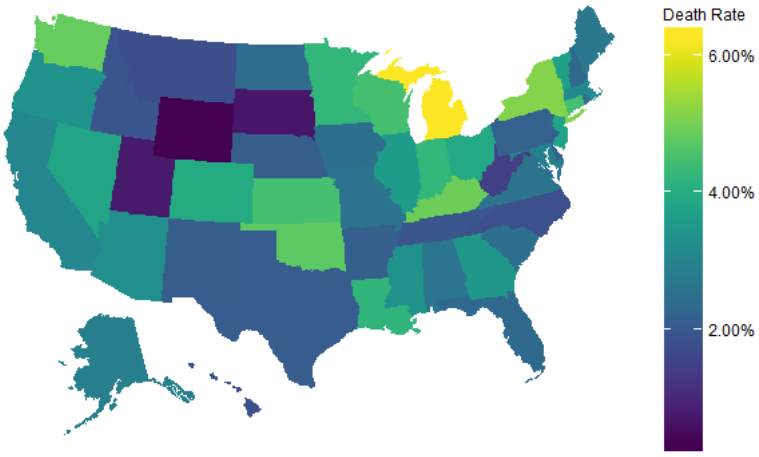


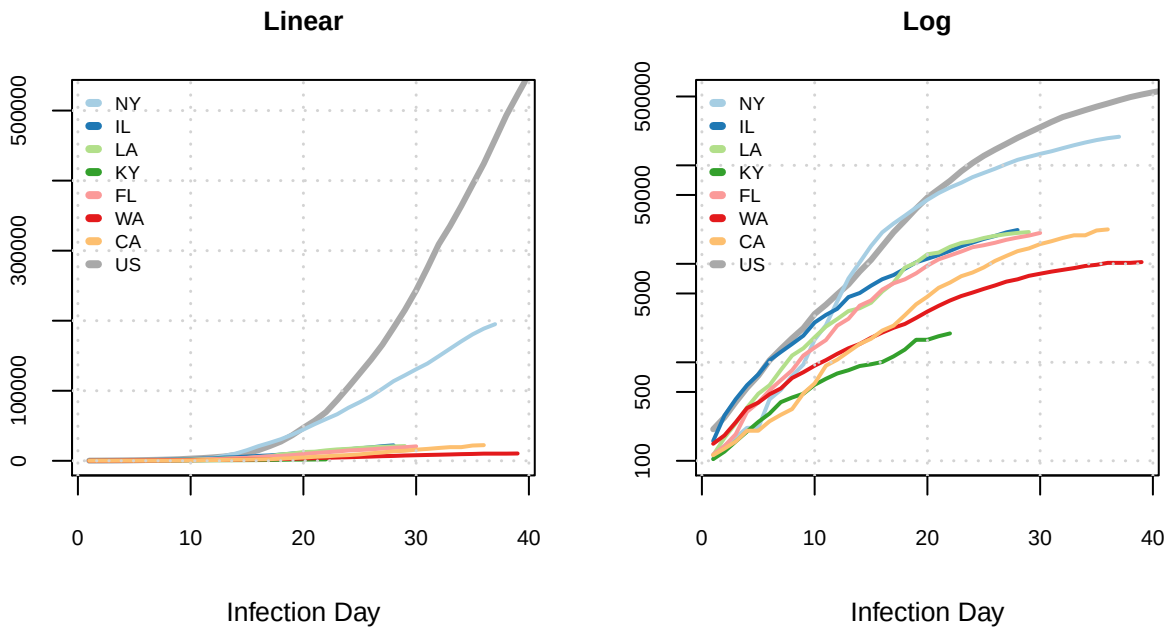
Figure 4: Death Rates

Growth Trends

Although we are still early in the growth curve of the disease (i.e. all states are either in the "Exponential" or "Linear" growth phase), we want to develop a framework for evaluating the severity of the disease and success of treatment among the states. To be able to compare them against each other, we need to look at rates or take a per-capita approach, although looking at total numbers overtime can reveal interesting trends as well. We normalize time among all states by using a baseline "infection day", which equals the first day when the state had reported more than 100 positive cases cumulatively. Because of this, the entire United Sates ("US") total line is sometimes below other states.

Case Growth

The growth of positive cases is directly tied to testing availability, but we can start to see how transmission rates might differ between different states. In Figure 5, you will see the case rates of various states of interest compared to the United States (US). Since infection day, CA and WA have not experienced nearly as much growth in cases as NY. A notable factor in these differences has to do with NY administering more tests per capita (2,460 per 100,000 people) than CA (511) or WA (1,203). The slow growth also points to the successes CA and WA have had in flattening the curve with early implementations of lock-downs and social distancing measures. In fact, WA appears to be reaching its "peak" in Case Velocity. NY and NJ appear to very close to approaching their "peak" in Case Velocity. Not only are new cases in NY and NJ leveling off, but so are state-wide deaths. Please see the Appendix for more information on the current accelerations for these states.



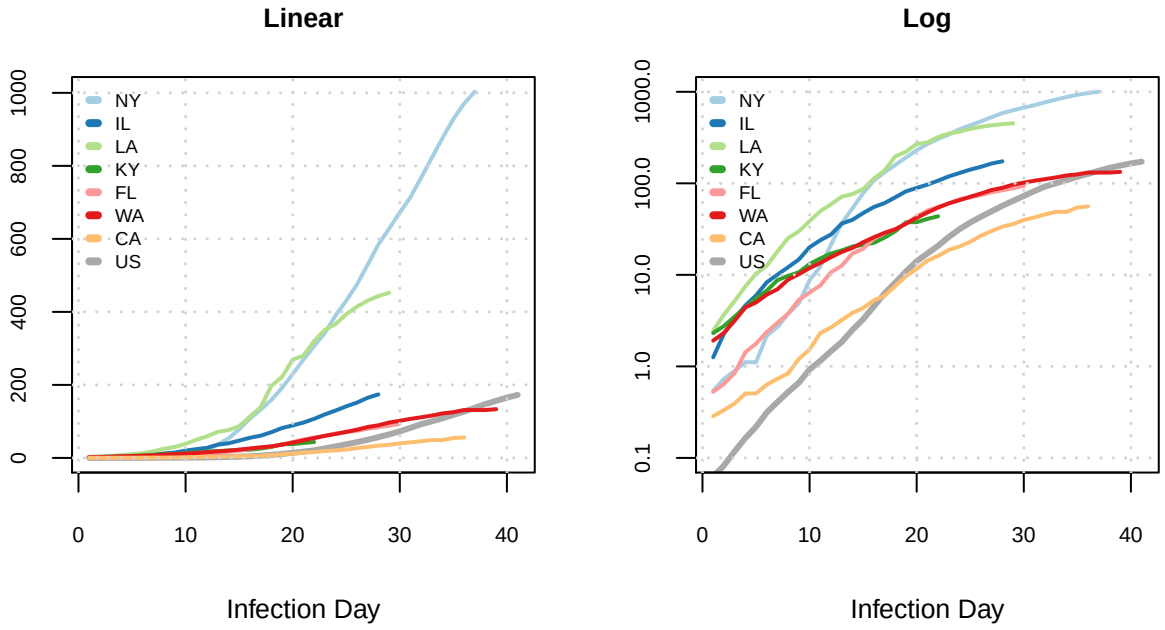
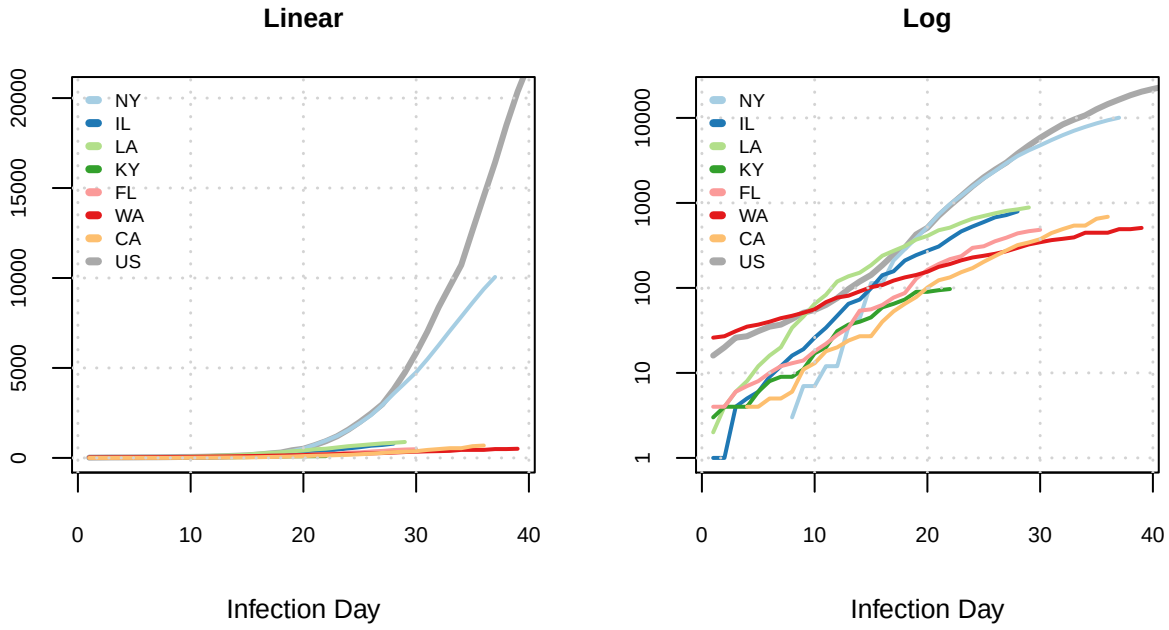


Figure 5: Case Growth

Death Growth

Similarly to cases, we investigate growth in deaths against "infection days". In Figure 6, you will notice that deaths in CA and WA are growing at a much slower rate. This can be attributed to early lock-downs, proper social distancing, and lower population density. Deaths in LA were starting to outpace NY and the US at large due to a spike in the data, but LA deaths have since started to level off. In terms of death rate, KY has performed the worst over the past six days with MI catching up (Figure 6).



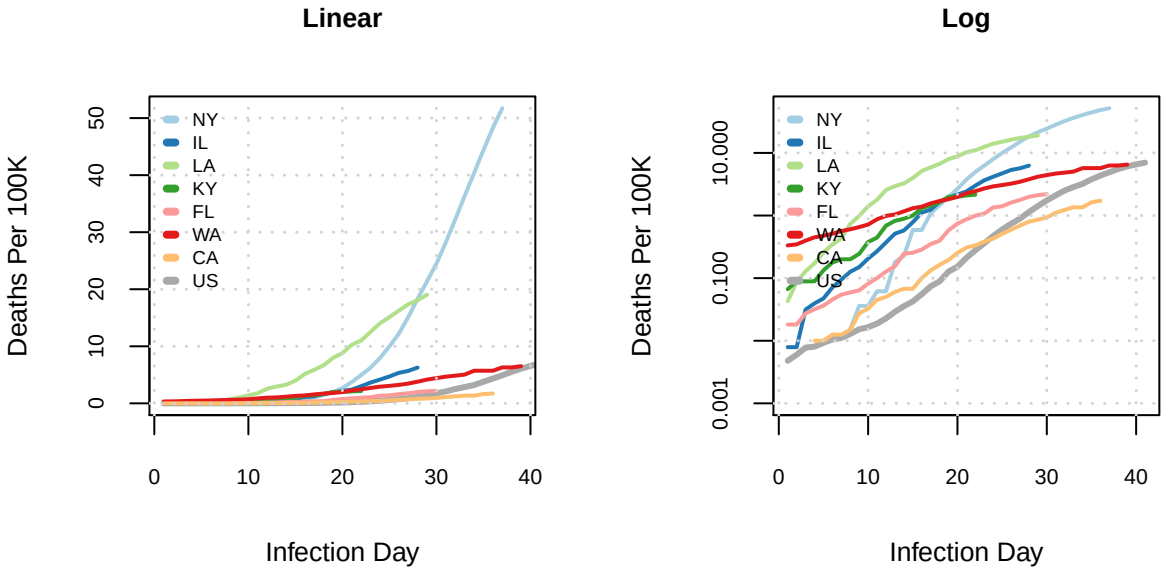


Figure 6: Death Growth

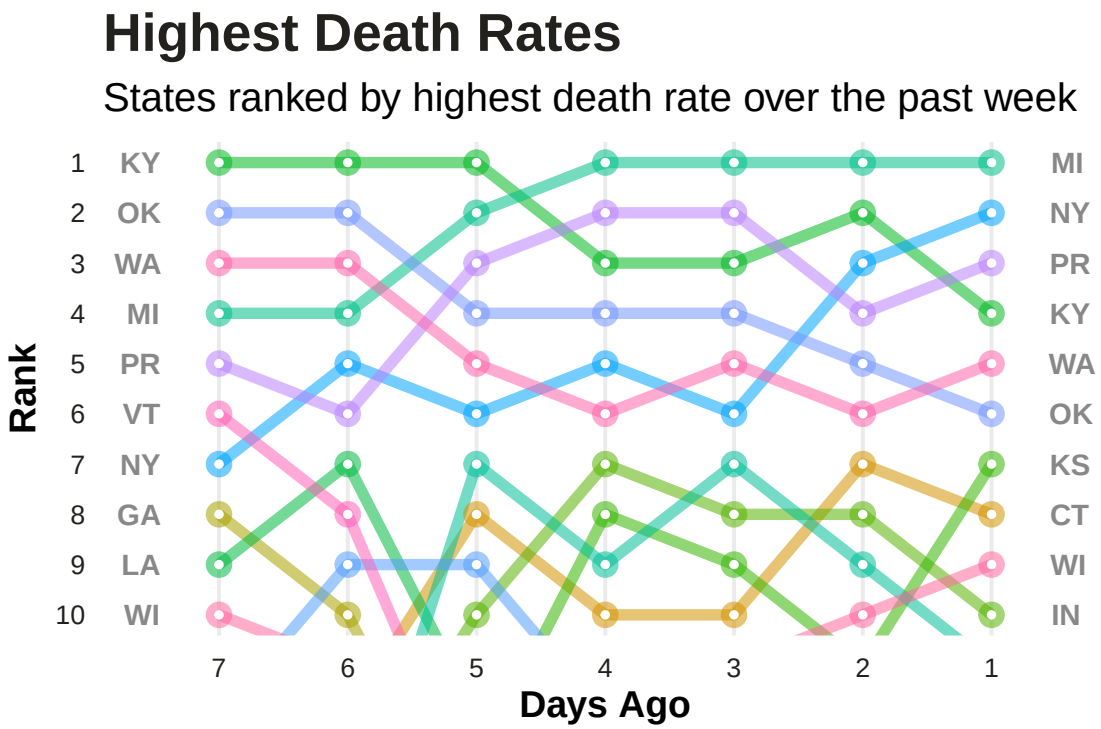


Figure 7: Death Rate Rankings

Measuring Acceleration

The rate at which new observations are growing each day represents the acceleration metrics. We use this to measure states' progressions along the disease growth curve, and these metrics will help flag states that are starting to slow in growth and reverse course towards containment. To measure acceleration, we first need to smooth out the data as reporting on tests, cases, and deaths is not linear. It is common for states to see large daily swings in tests, cases, and velocities that are caused by a variety of unknown forces. To solve for this issue, we apply Weighted Moving Averages ("WMA") velocities and accelerations. The smoothing period for both velocity WMAs and acceleration WMAs is currently set to seven (7) days. This technique gives more weight to recent observations. Here is an example on how the WMA approach changes the trend for NY.

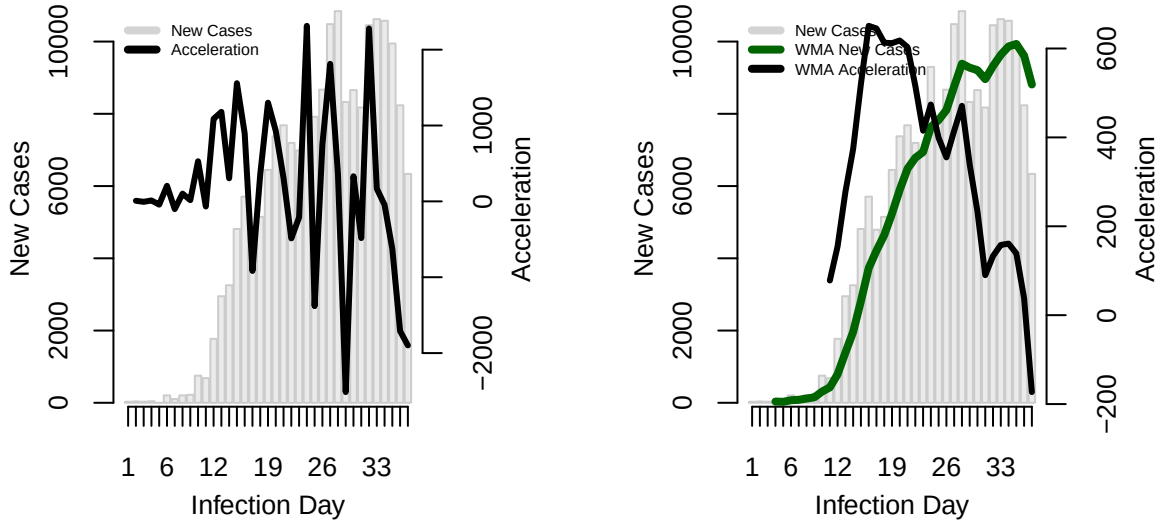


Figure 8: Noisy Data vs. Weighted Moving Average for NY case data

Acceleration charts for all states for tests, cases, and deaths can be found in the appendix.

State Comparisons

We now compare the velocity and accelerations of tests, cases, and deaths on a per-capita basis using 100,000 to normalize. The following graphs show the outliers for each category after plotting both the velocity and acceleration of the most recent observation. Velocity is a weighted moving average of new daily observations, while acceleration is the rate of change of the velocity. We have yet to plot the course of these values through time, but when considering the phases of disease spread, we would expect states to follow this path: going from the origin to top-right (Phase 1 of Figure 1), then to top-left as acceleration turns negative (Phase 2 and 3), and back down to the origin as the velocity of new observations shrinks to zero (Phase 4).

Testing

With testing, we can see that it is increasing, but the rate of new tests is starting to fall for many states. ME, RI, and other New England states, however, are starting to ramp up testing.

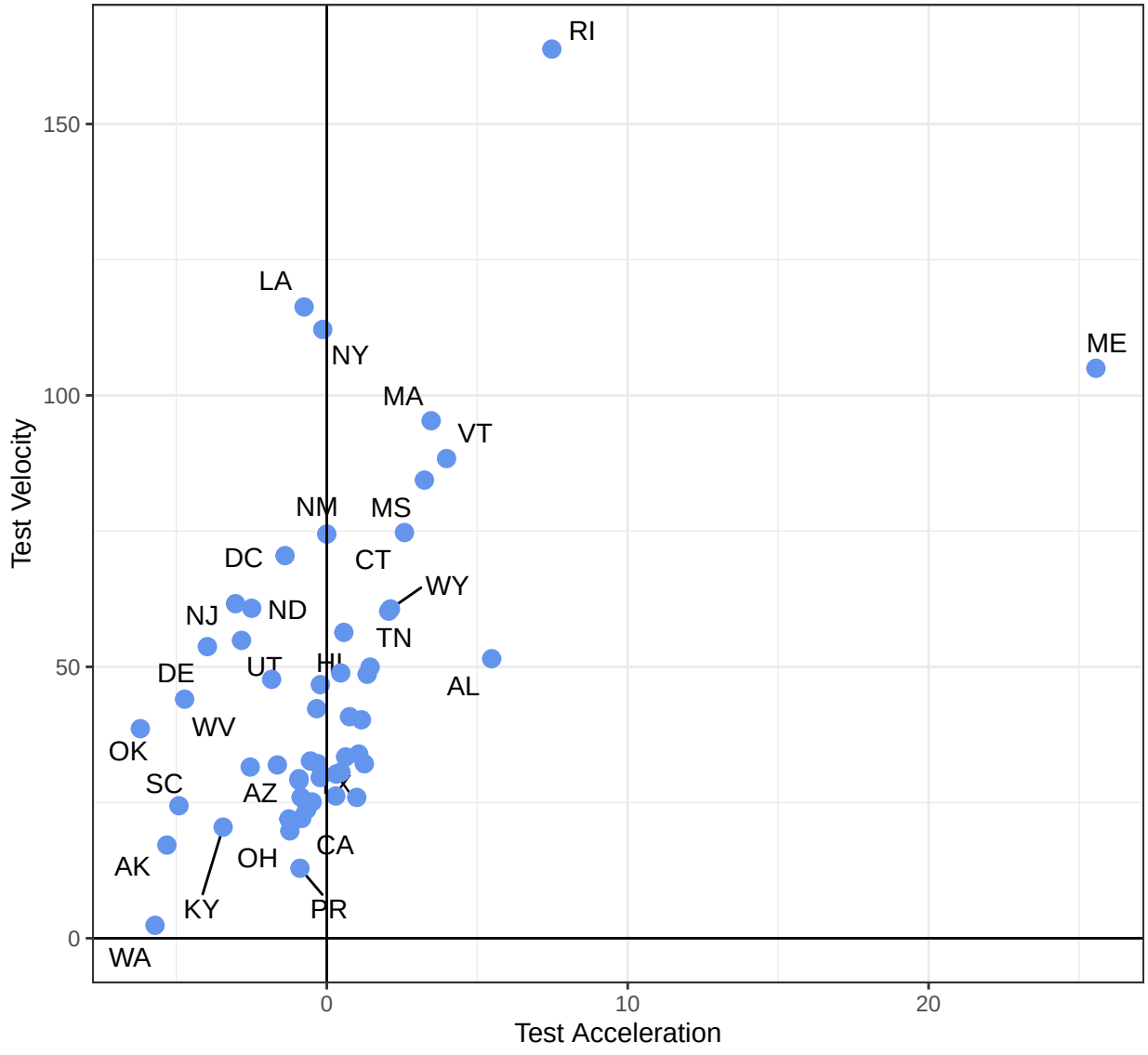


Figure 9: Test Acceleration and Velocity

Cases

For cases, New England stands out as continuing to go through a growth phase. We can see many of those states going through a period of high acceleration in cases. NJ and NY recently started decelerating, indicating that they are starting to get things under control.

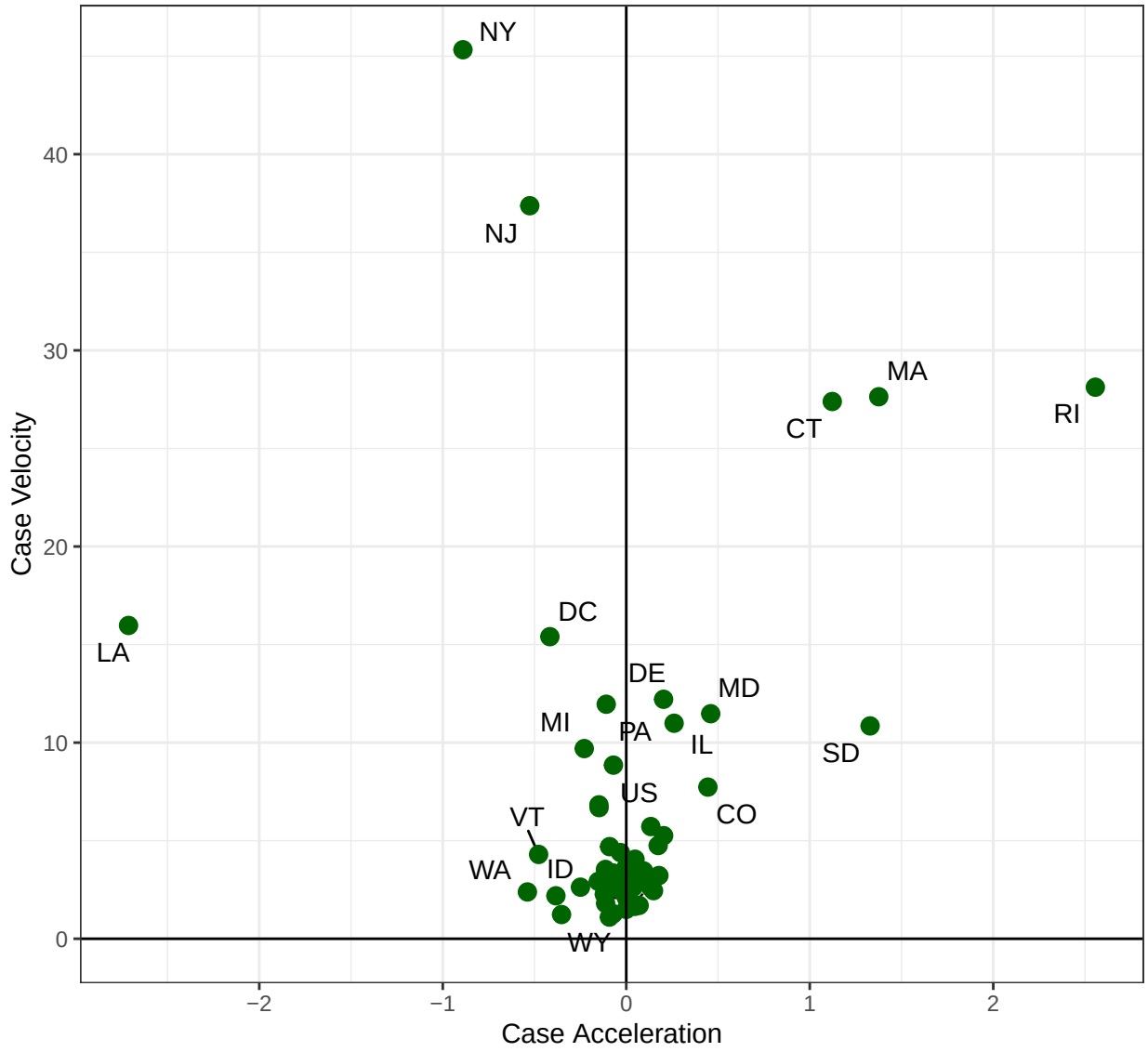


Figure 10: Case Acceleration and Velocity

Deaths

NY and NJ are still experiencing accelerations in deaths. Even though Case Velocities are dropping, we would expect a peak in Death Velocities to come 5-7 days following peaks in Case Velocities. CT, MA and RI look to be close behind.

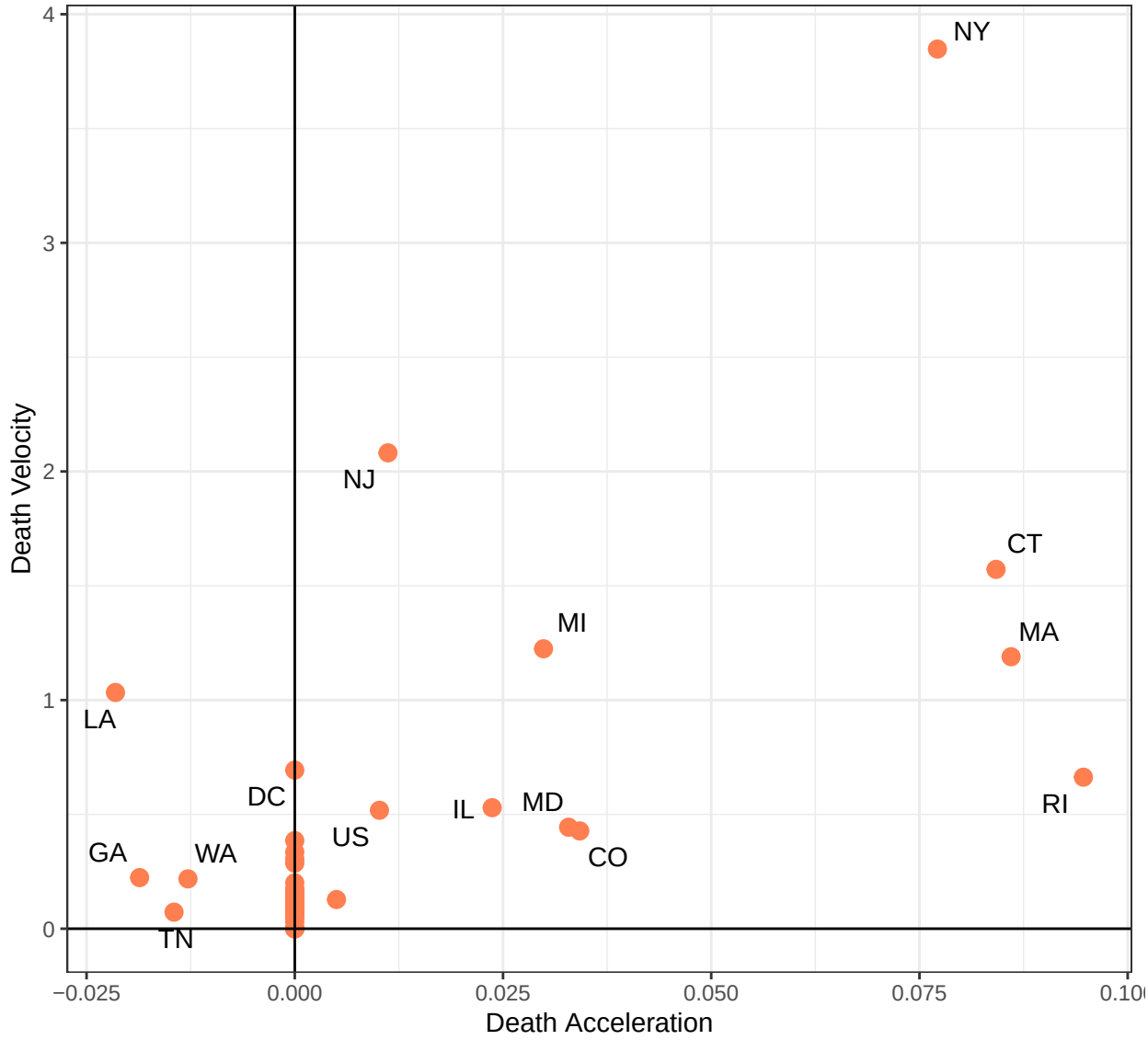


Figure 11: Death Acceleration and Velocity

Conclusions

- All states are currently either in the Exponential or Linear growth stages in terms of cases, although New York and New Jersey Case Accelerations have started to turn negative, pointing to a peak in those states. Other New England states are in earlier stages but appear to be following similar trajectories.
- We are seeing significant success in applying lock-downs and social distancing at early stages.

- Louisiana was in rough shape but has started to normalize. They had the highest death rate over a week ago but has since had a slow down in reported cases and deaths have leveled off. Testing has also increased significantly, most likely in response to the high death rates.
- California and Washington are experiencing remarkable early success in flattening the curve, with slower growth rates per-capita in cases and deaths. We will be monitoring this trend closely to see how it develops over time.

Next Steps

Here are some future developments for this report:

- Refine scope to county level
- Predict future velocities and accelerations using simple exponential smoothing and regression techniques
- Cluster states in terms of "success" (with success defined by those reaching containment) and measure variable importance
- Ingest and model weather data, including temperature and humidity

Appendix

State Data

The following graphs show how new tests, cases, and deaths are changing from day to day. They are smoothed using a Weighted Moving Averaged of 7 days for the velocity and 7 days for the acceleration. The fourth plot shows change in mobility from pre-COVID to today. This data expresses how movement in each state have decreased or increased post-COVID. In general, traffic is down across the board except for the Parks and Residential categories. Finally, we show the most recent cumulative and differenced data for each state.

AK

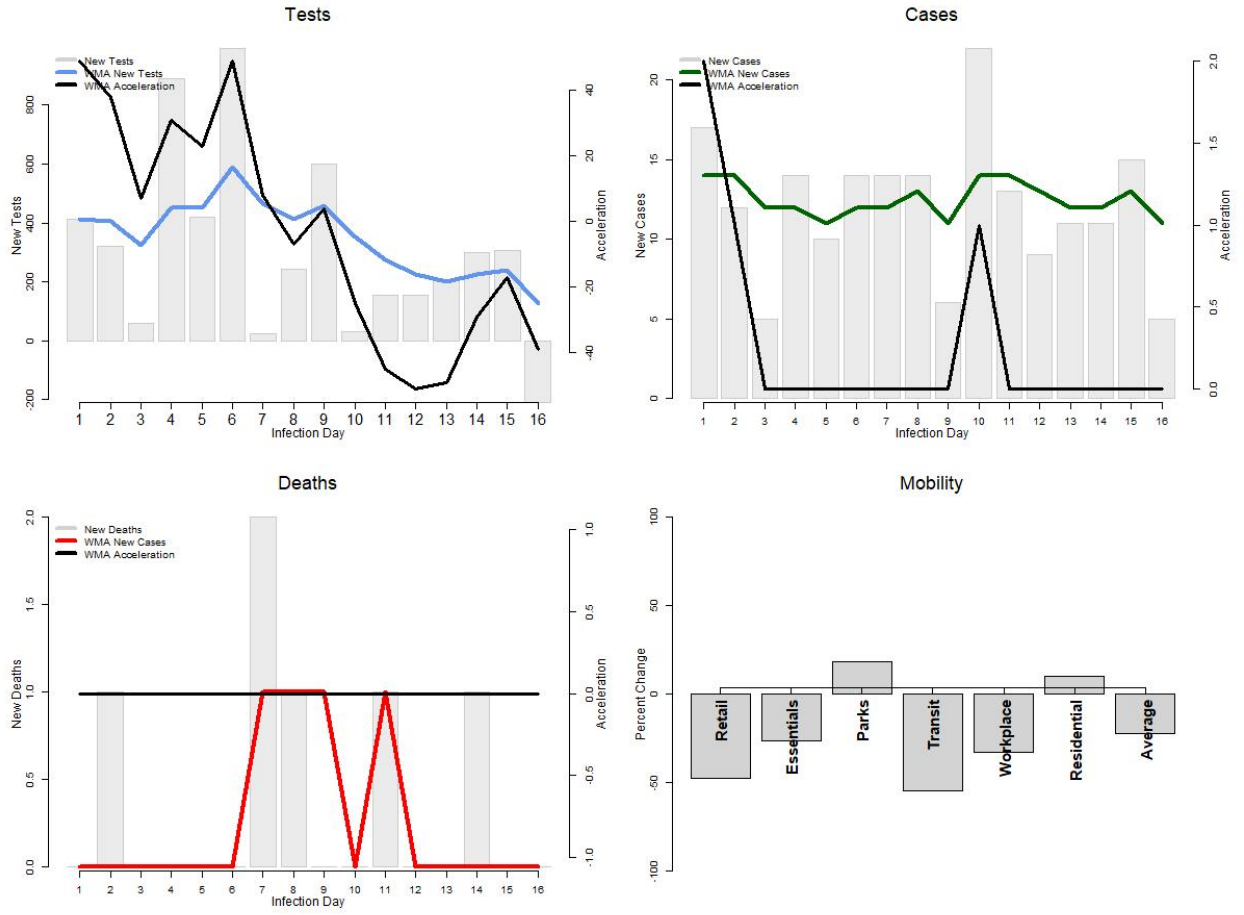


Table 1: Metrics as of 2020-04-14

State	Infected Date	Tests	Positive	Deaths	Pos Rate (%)	Death Rate (%)	New Cases	New Deaths
AK	2020-03-28	7830	277	8	3.5	2.9	5	0

AL

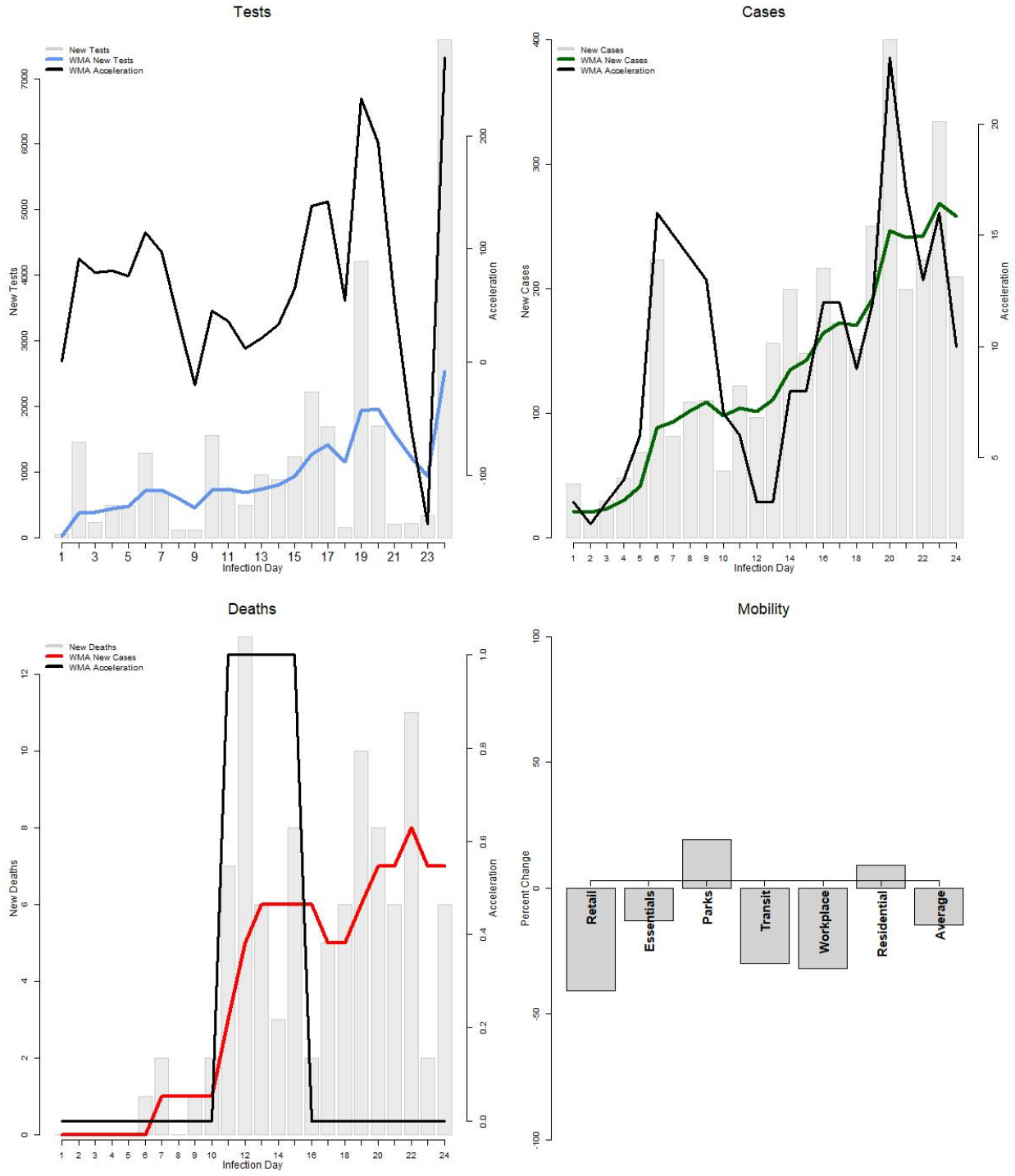


Table 2: Metrics as of 2020-04-14

State	Infected Date	Tests	Positive	Deaths	Pos Rate (%)	Death Rate (%)	New Cases	New Deaths
AL	2020-03-20	29182	3734	99	12.8	2.7	209	6

AR

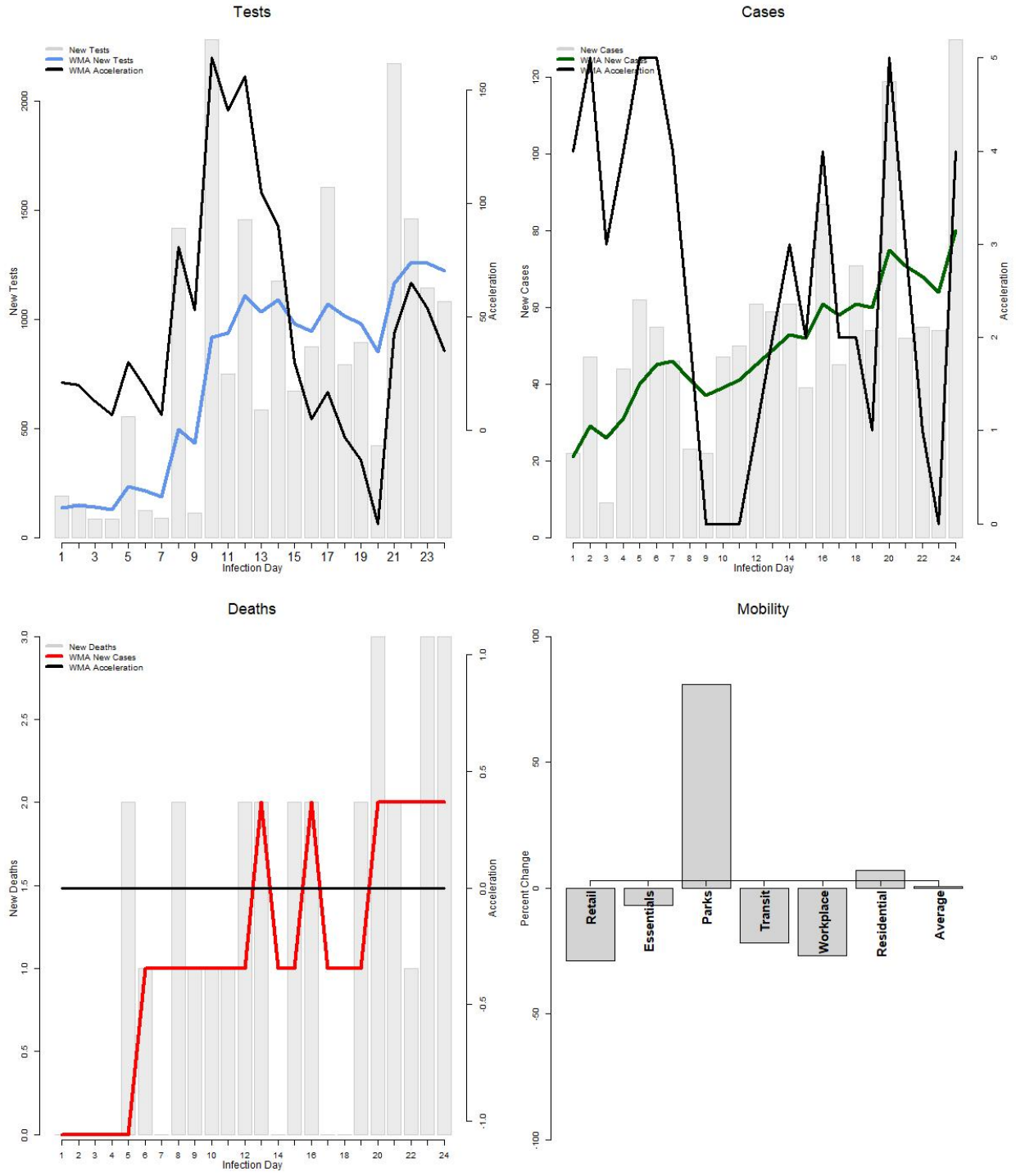


Table 3: Metrics as of 2020-04-14

State	Infected Date	Tests	Positive	Deaths	Pos Rate (%)	Death Rate (%)	New Cases	New Deaths
AR	2020-03-20	20804	1410	30	6.8	2.1	130	3

AZ

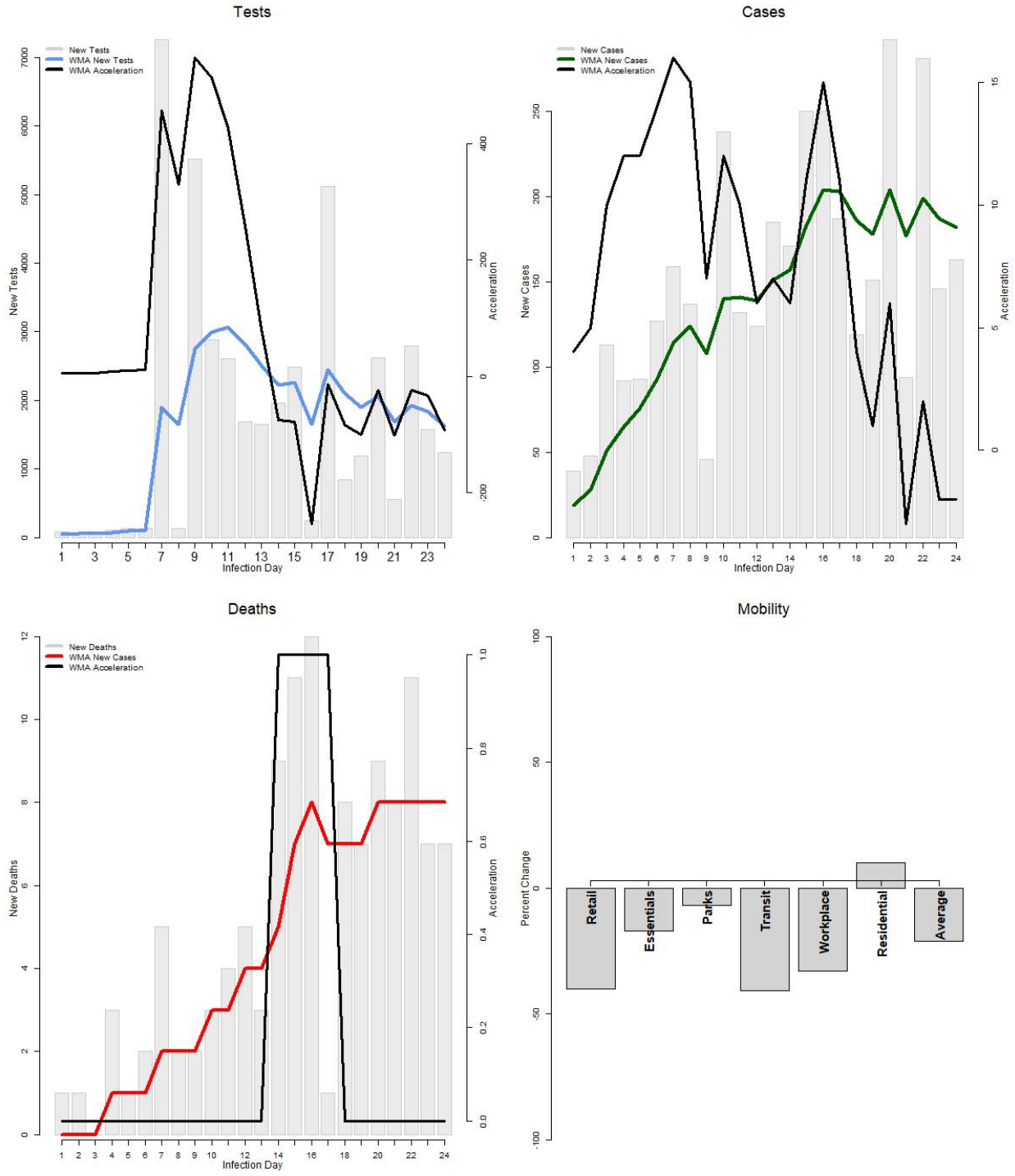


Table 4: Metrics as of 2020-04-14

State	Infected Date	Tests	Positive	Deaths	Pos Rate (%)	Death Rate (%)	New Cases	New Deaths
AZ	2020-03-20	43347	3702	122	8.5	3.3	163	7

CA

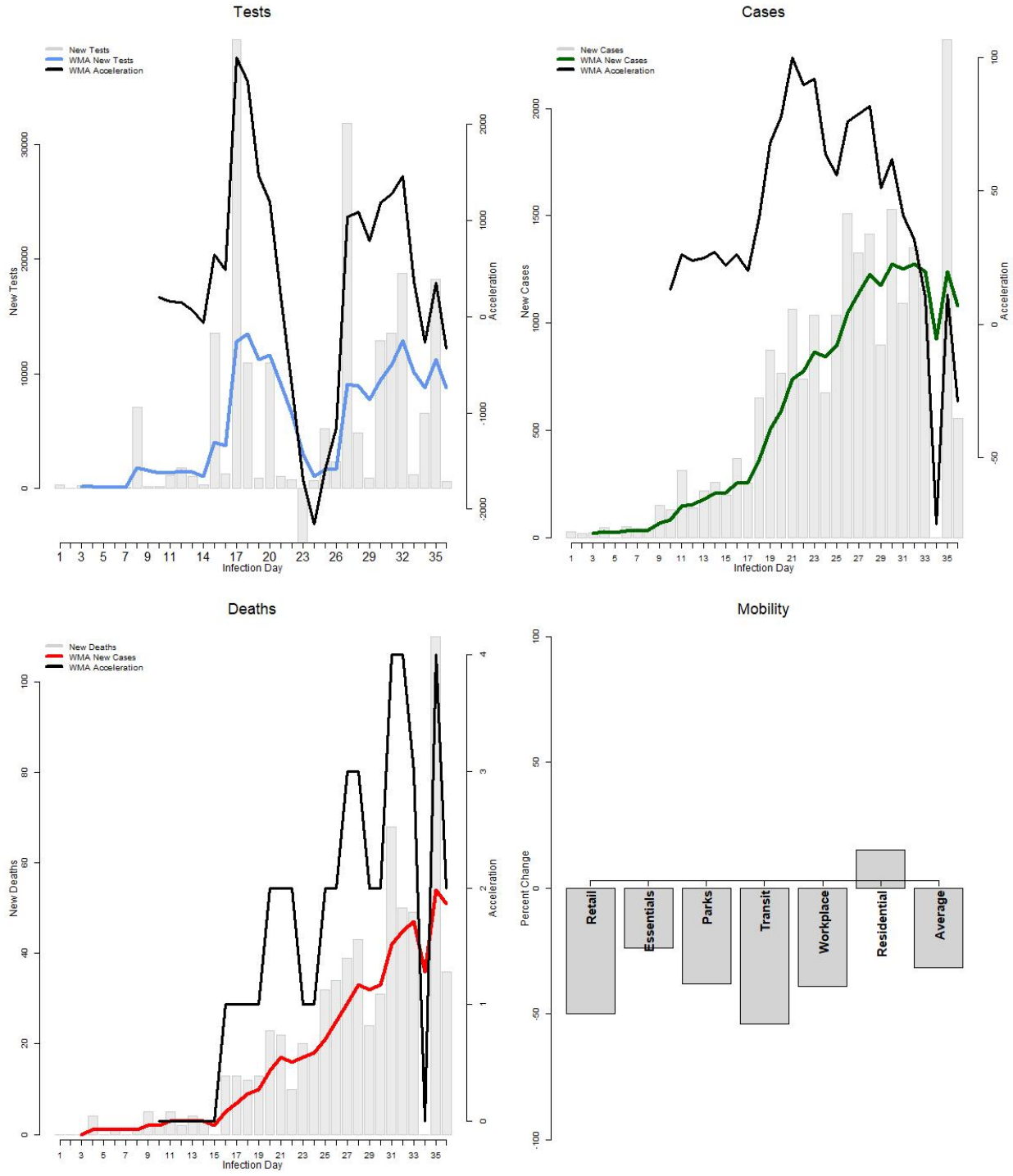


Table 5: Metrics as of 2020-04-14

State	Infected Date	Tests	Positive	Deaths	Pos Rate (%)	Death Rate (%)	New Cases	New Deaths
CA	2020-03-08	204082	22348	687	11	3.1	554	36

CO

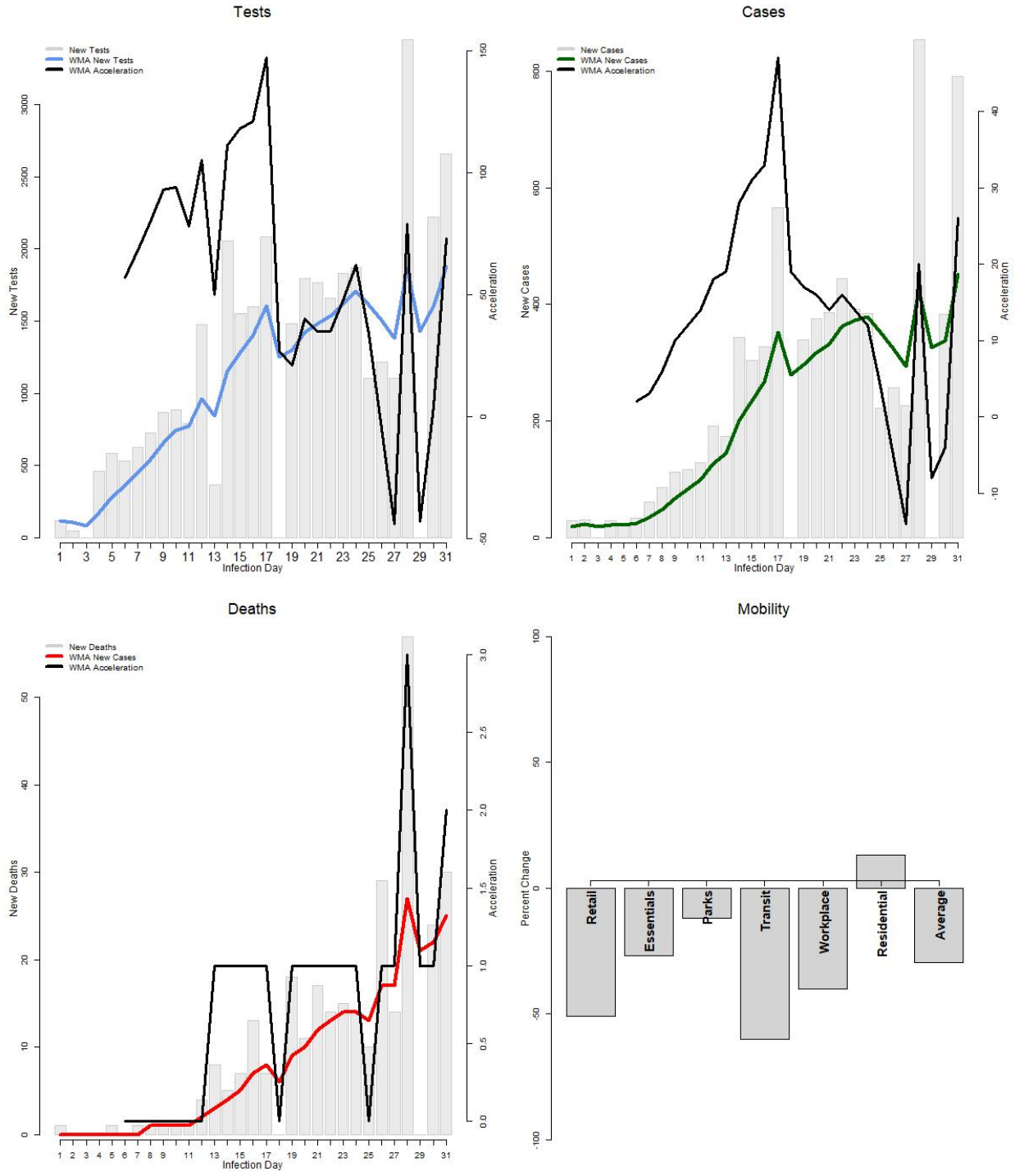


Table 6: Metrics as of 2020-04-14

State	Infected Date	Tests	Positive	Deaths	Pos Rate (%)	Death Rate (%)	New Cases	New Deaths
CO	2020-03-13	37534	7684	304	20.5	4	791	30

CT

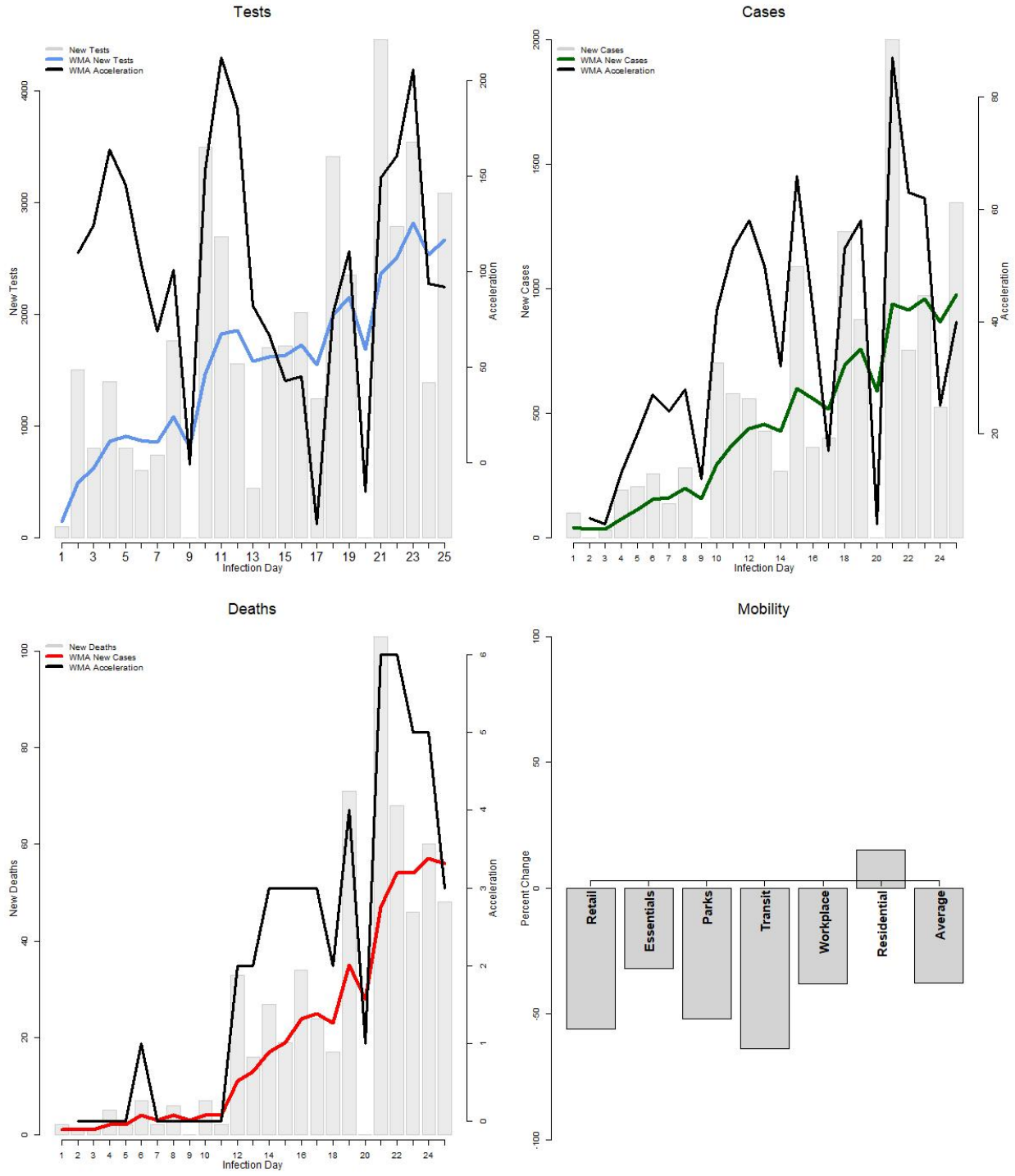


Table 7: Metrics as of 2020-04-14

State	Infected Date	Tests	Positive	Deaths	Pos Rate (%)	Death Rate (%)	New Cases	New Deaths
CT	2020-03-19	44309	13381	602	30.2	4.5	1346	48

DC

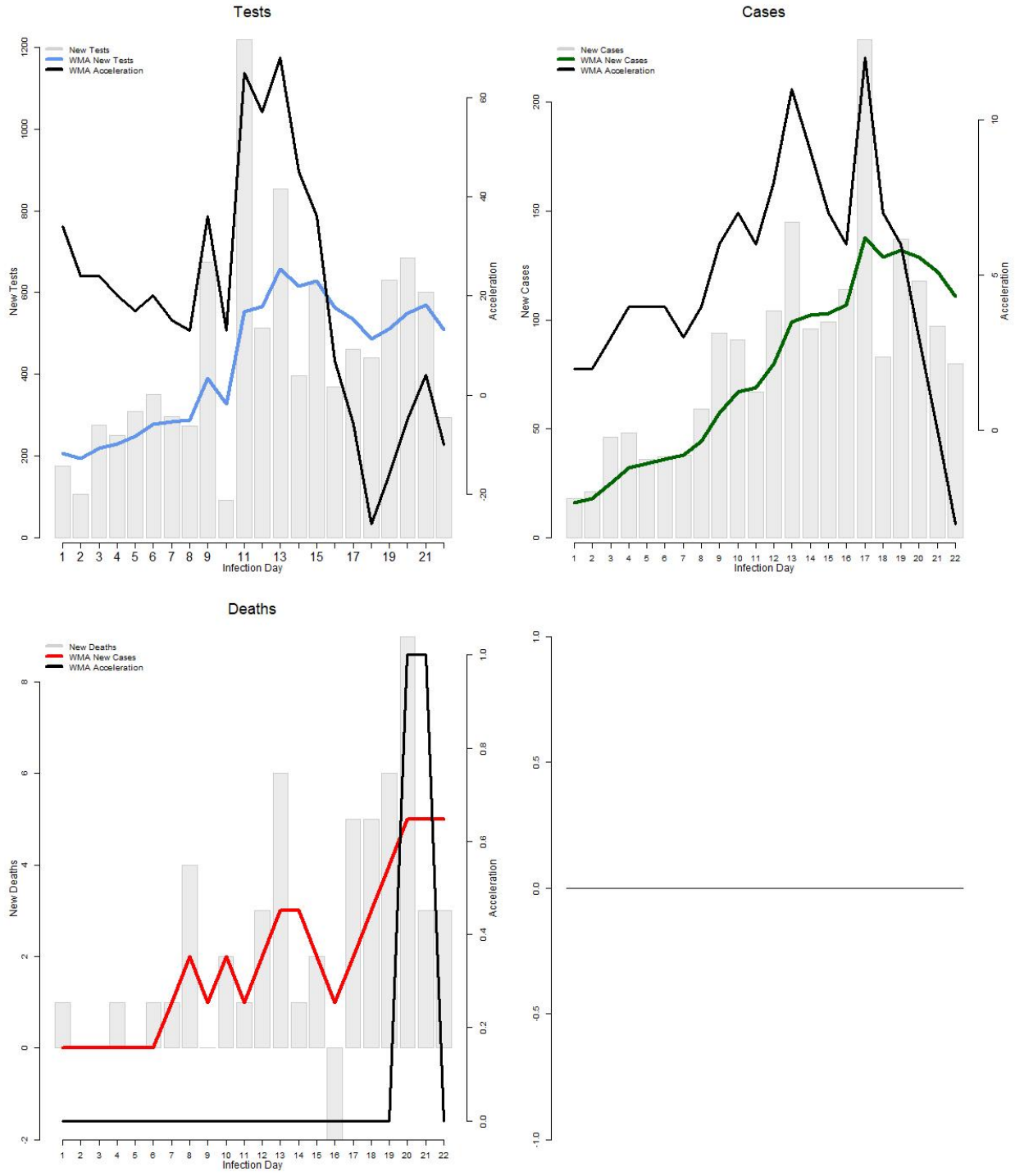


Table 8: Metrics as of 2020-04-14

State	Infected Date	Tests	Positive	Deaths	Pos Rate (%)	Death Rate (%)	New Cases	New Deaths
DC	2020-03-22	10934	1955	53	17.9	2.7	80	3

DE

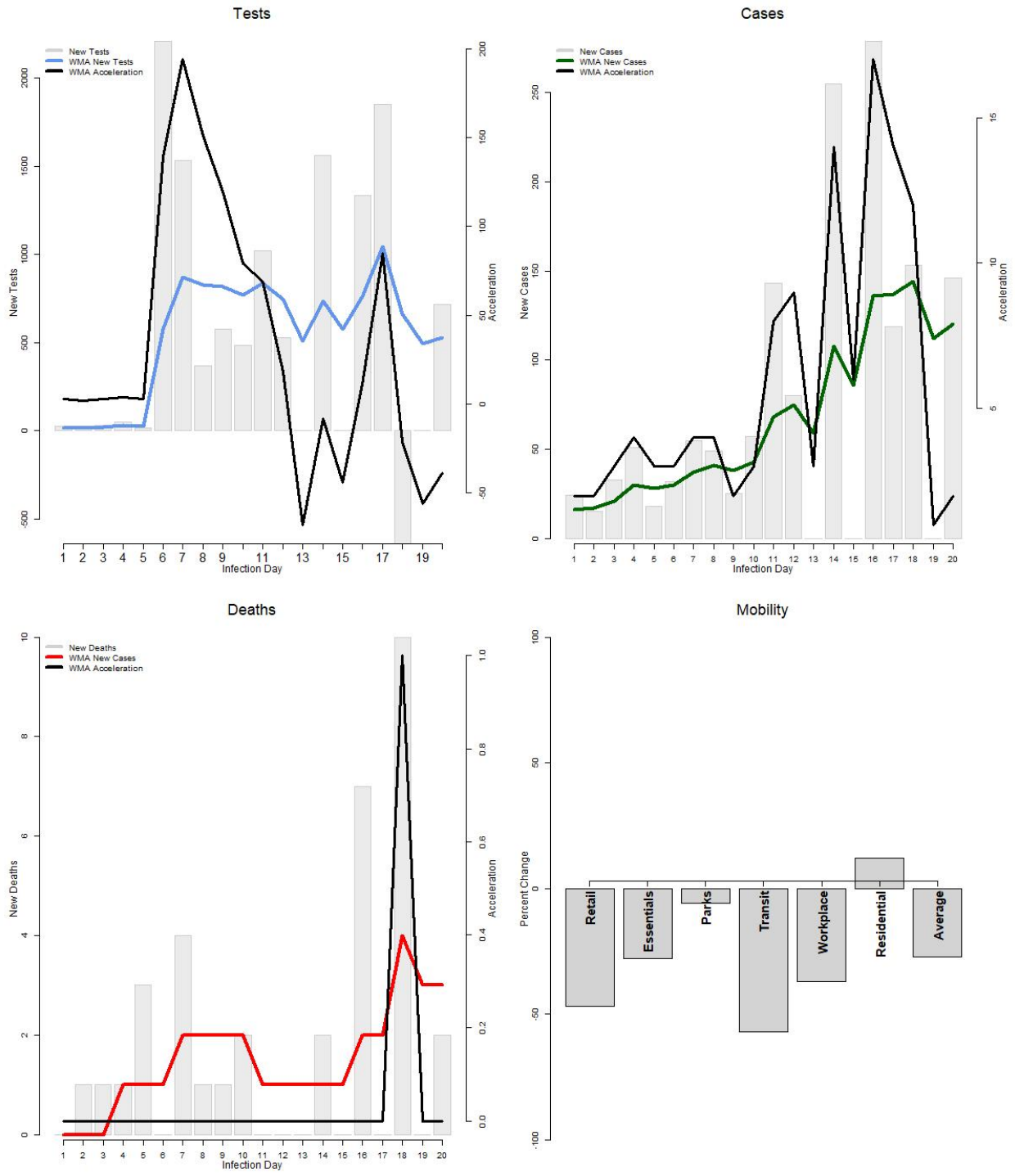


Table 9: Metrics as of 2020-04-14

State	Infected Date	Tests	Positive	Deaths	Pos Rate (%)	Death Rate (%)	New Cases	New Deaths
DE	2020-03-24	11820	1625	35	13.7	2.2	146	2

FL

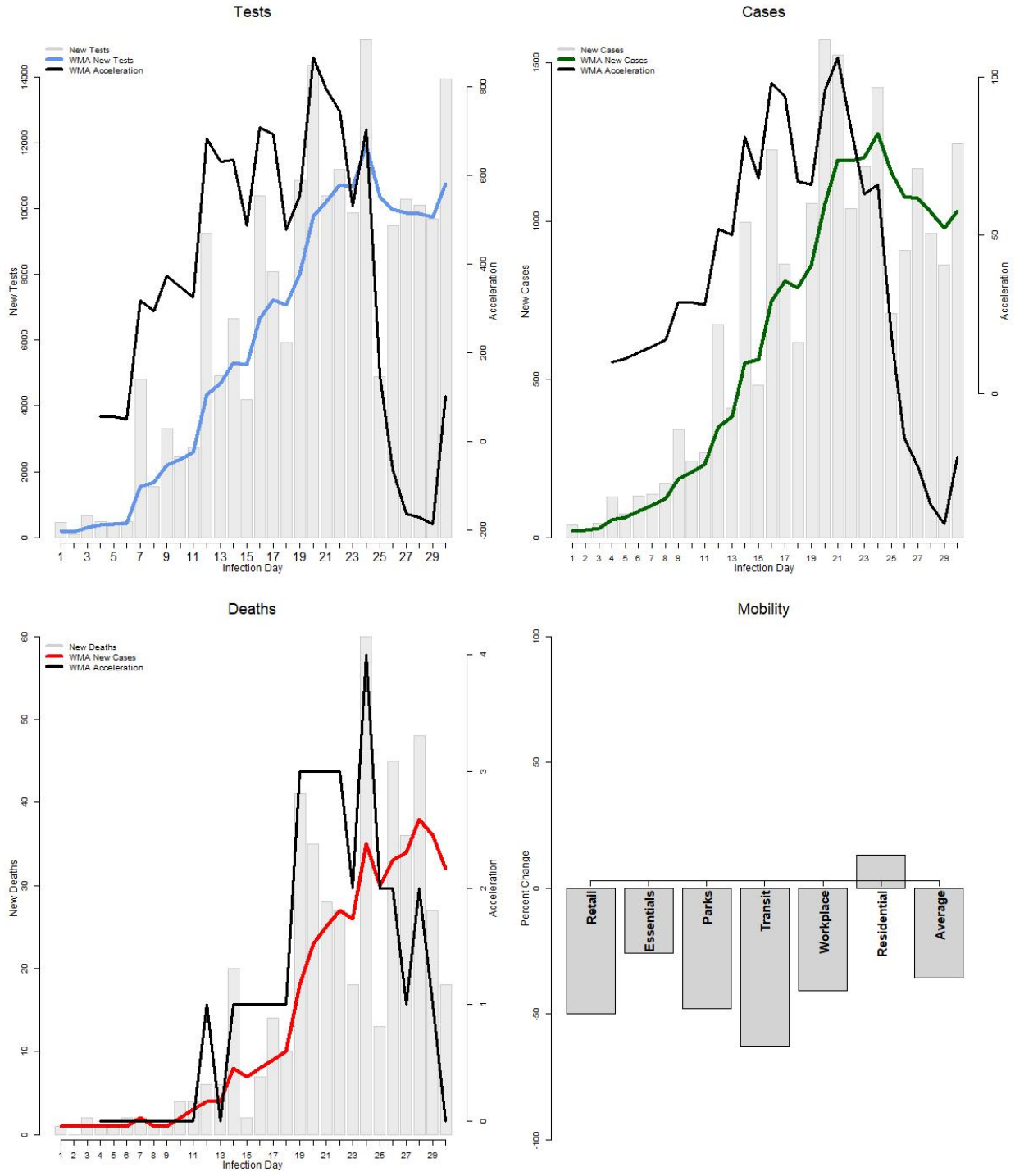


Table 10: Metrics as of 2020-04-14

State	Infected Date	Tests	Positive	Deaths	Pos Rate (%)	Death Rate (%)	New Cases	New Deaths
FL	2020-03-14	197996	20601	483	10.4	2.3	1246	18

GA

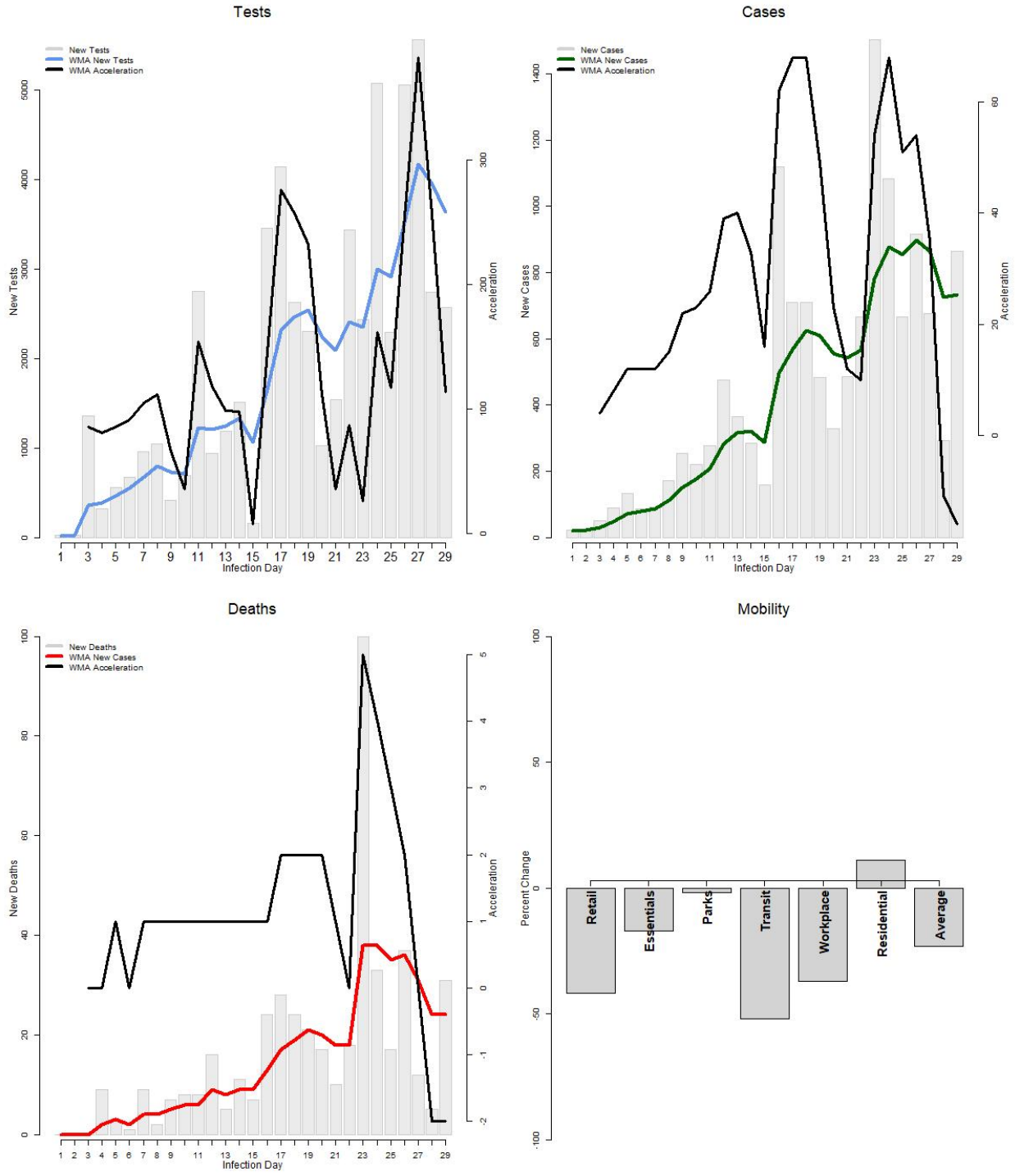


Table 11: Metrics as of 2020-04-14

State	Infected Date	Tests	Positive	Deaths	Pos Rate (%)	Death Rate (%)	New Cases	New Deaths
GA	2020-03-15	57021	13315	464	23.4	3.5	863	31

HI

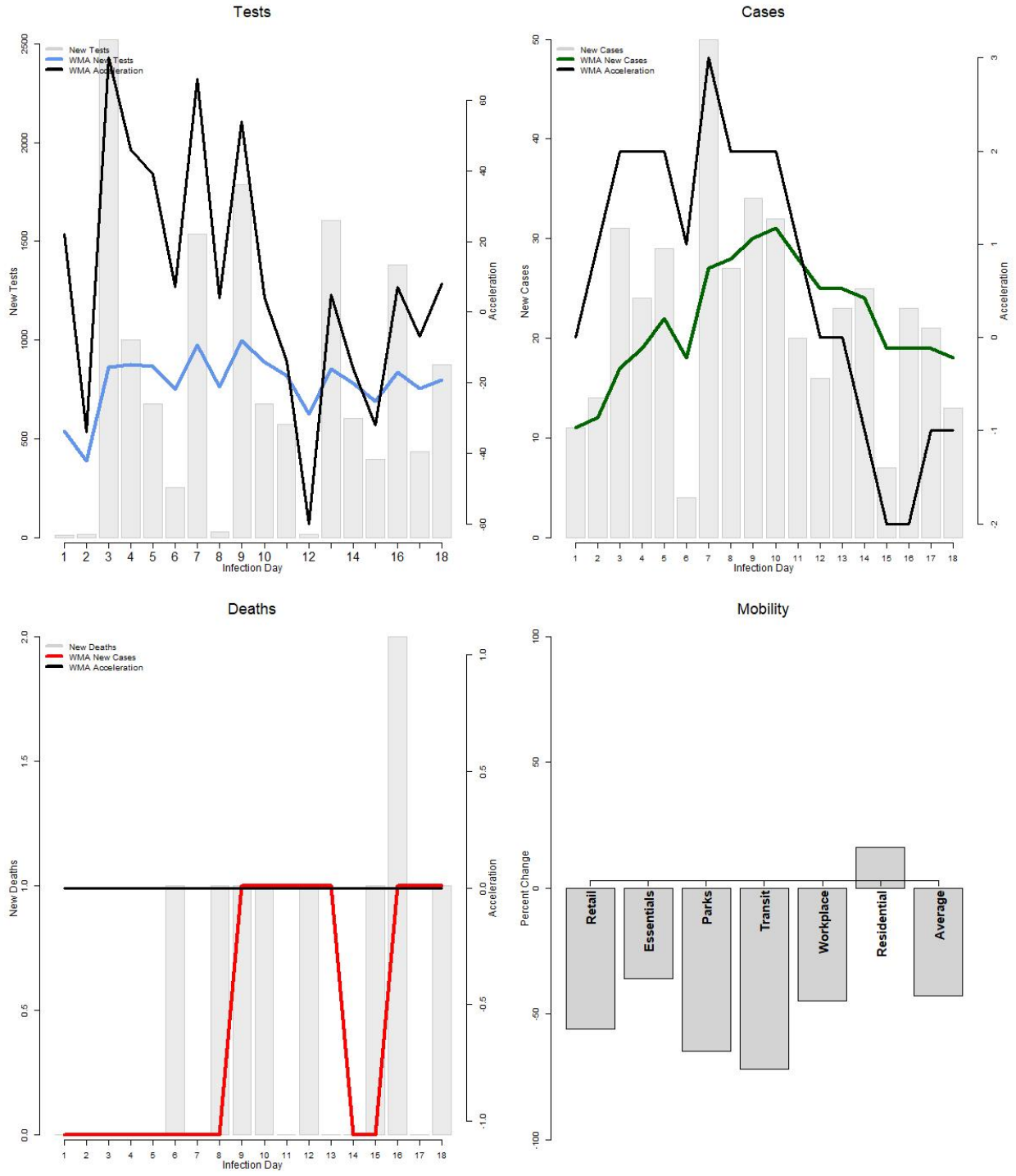


Table 12: Metrics as of 2020-04-14

State	Infected Date	Tests	Positive	Deaths	Pos Rate (%)	Death Rate (%)	New Cases	New Deaths
HI	2020-03-26	18844	499	9	2.6	1.8	13	1

IA

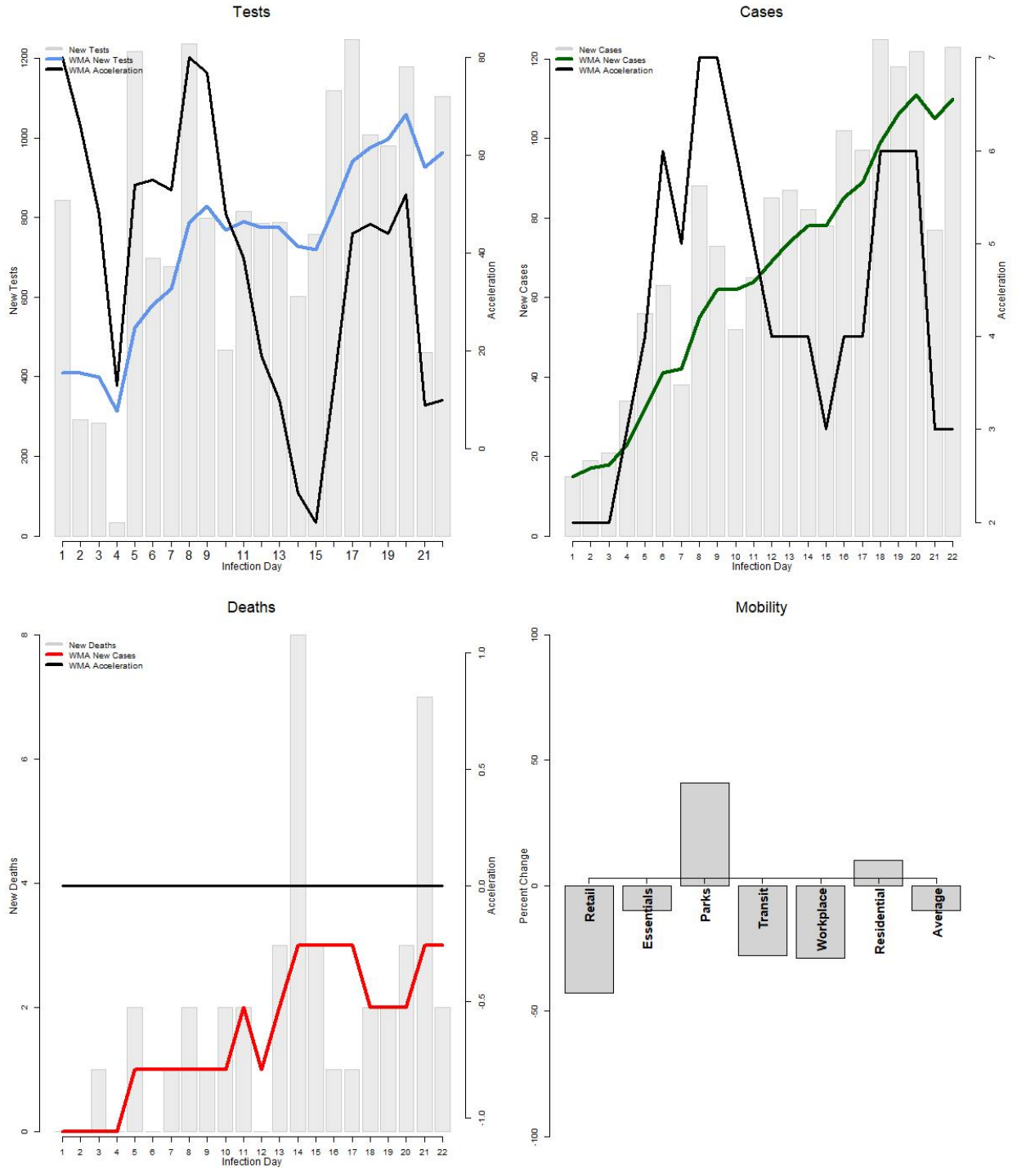


Table 13: Metrics as of 2020-04-14

State	Infected Date	Tests	Positive	Deaths	Pos Rate (%)	Death Rate (%)	New Cases	New Deaths
IA	2020-03-22	18696	1710	43	9.1	2.5	123	2

ID

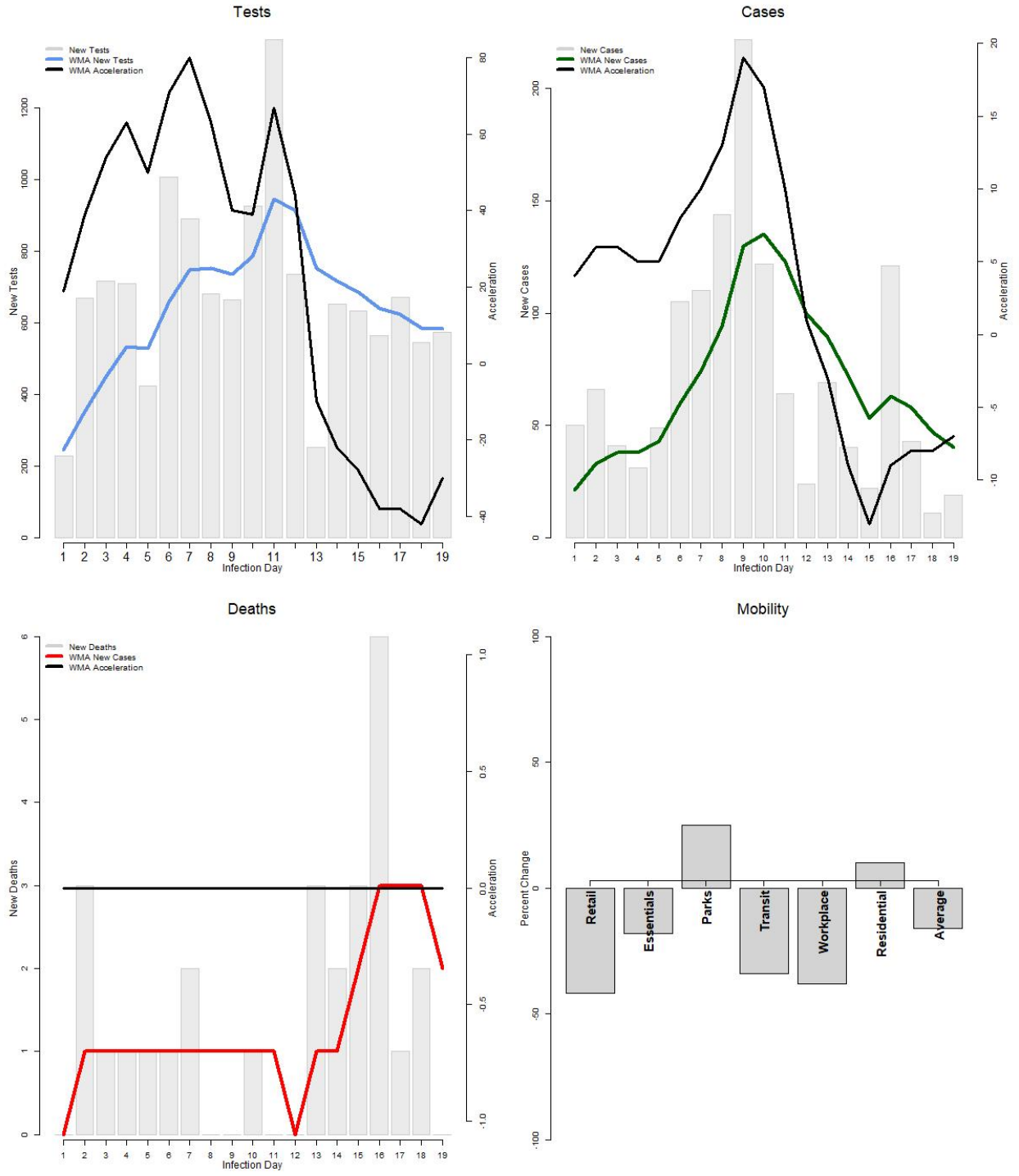


Table 14: Metrics as of 2020-04-14

State	Infected Date	Tests	Positive	Deaths	Pos Rate (%)	Death Rate (%)	New Cases	New Deaths
ID	2020-03-25	14881	1426	27	9.6	1.9	19	0

IL

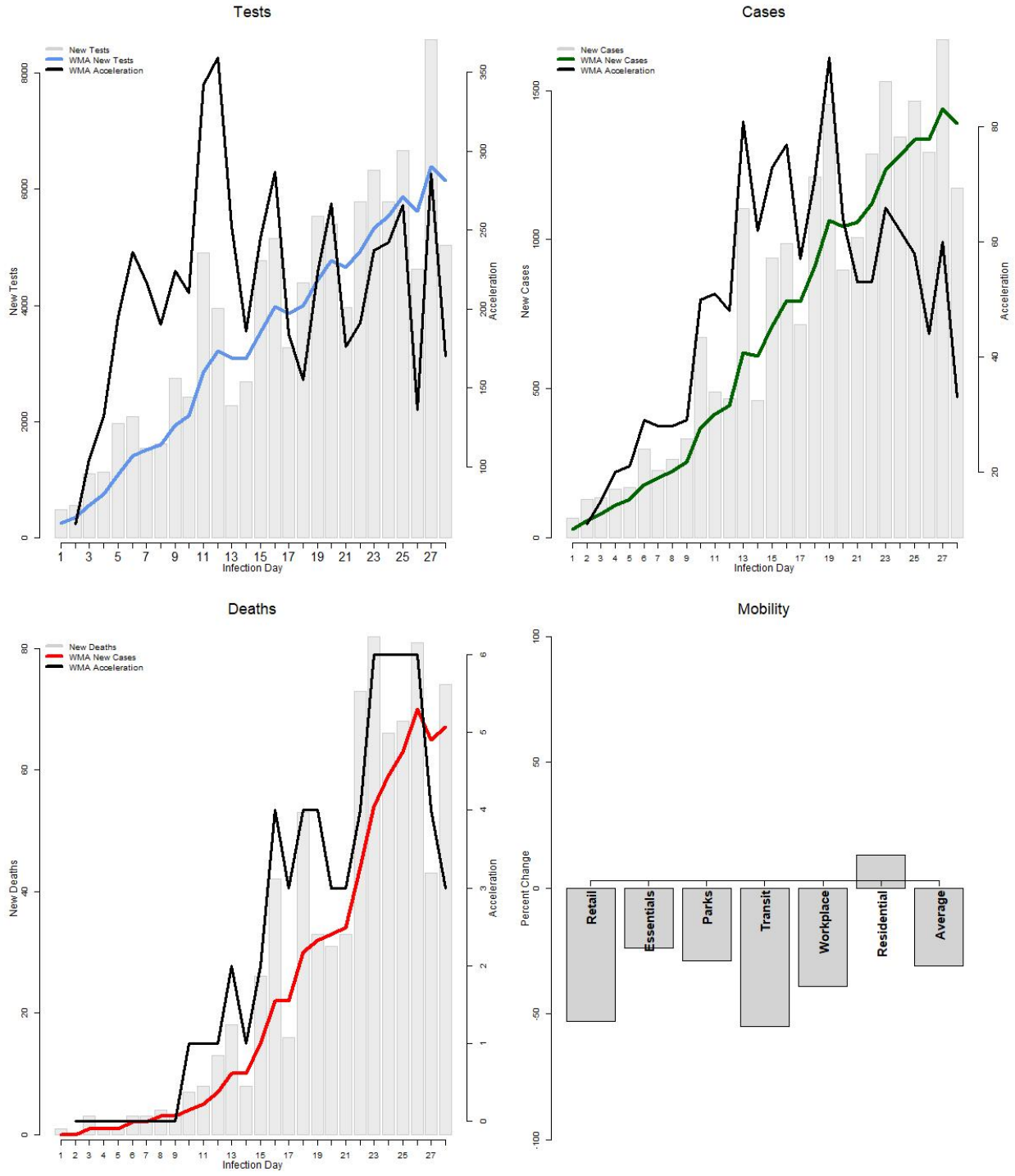


Table 15: Metrics as of 2020-04-14

State	Infected Date	Tests	Positive	Deaths	Pos Rate (%)	Death Rate (%)	New Cases	New Deaths
IL	2020-03-16	105768	22025	794	20.8	3.6	1173	74

IN

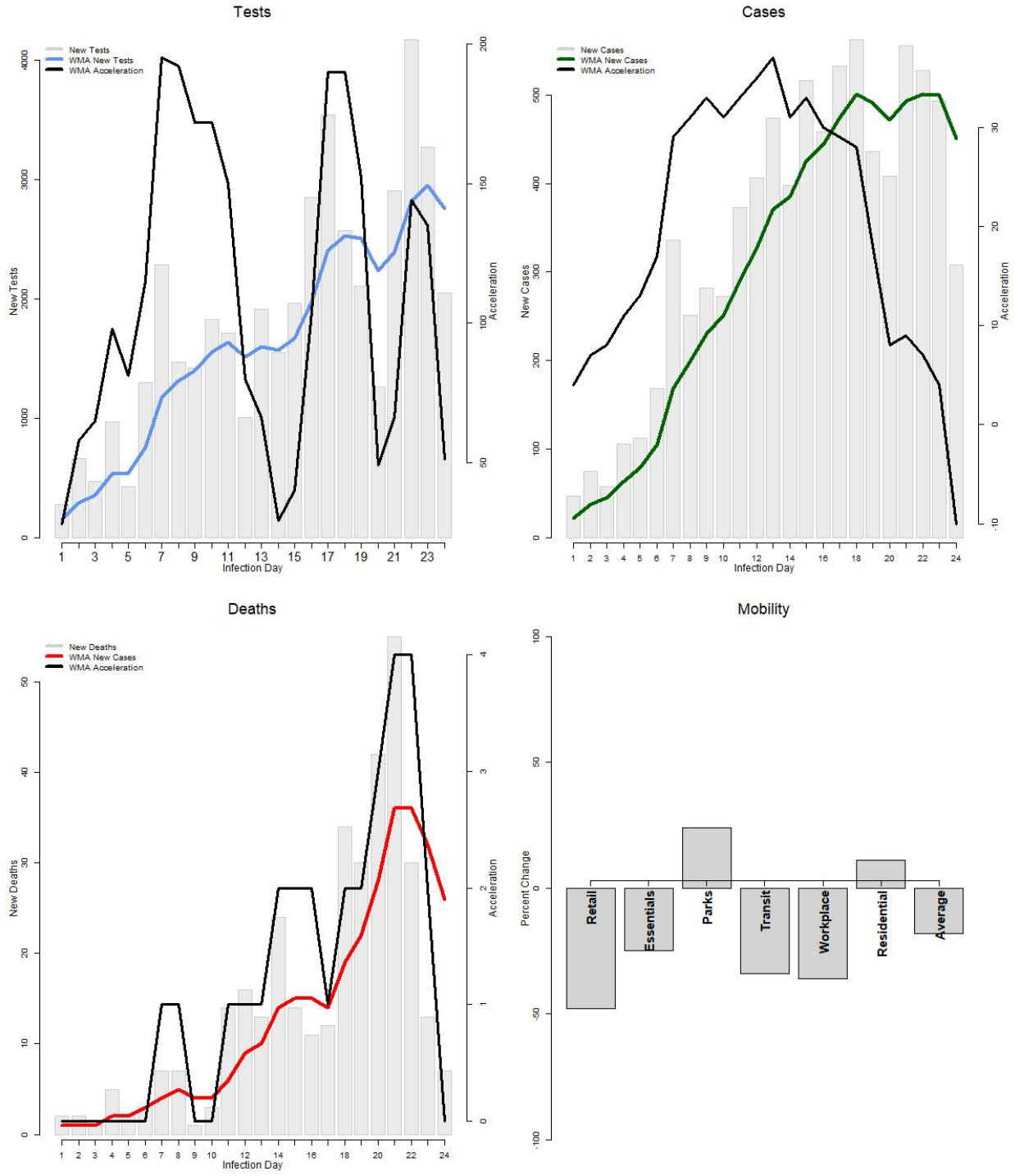


Table 16: Metrics as of 2020-04-14

State	Infected Date	Tests	Positive	Deaths	Pos Rate (%)	Death Rate (%)	New Cases	New Deaths
IN	2020-03-20	44539	8236	350	18.5	4.2	308	7

KS

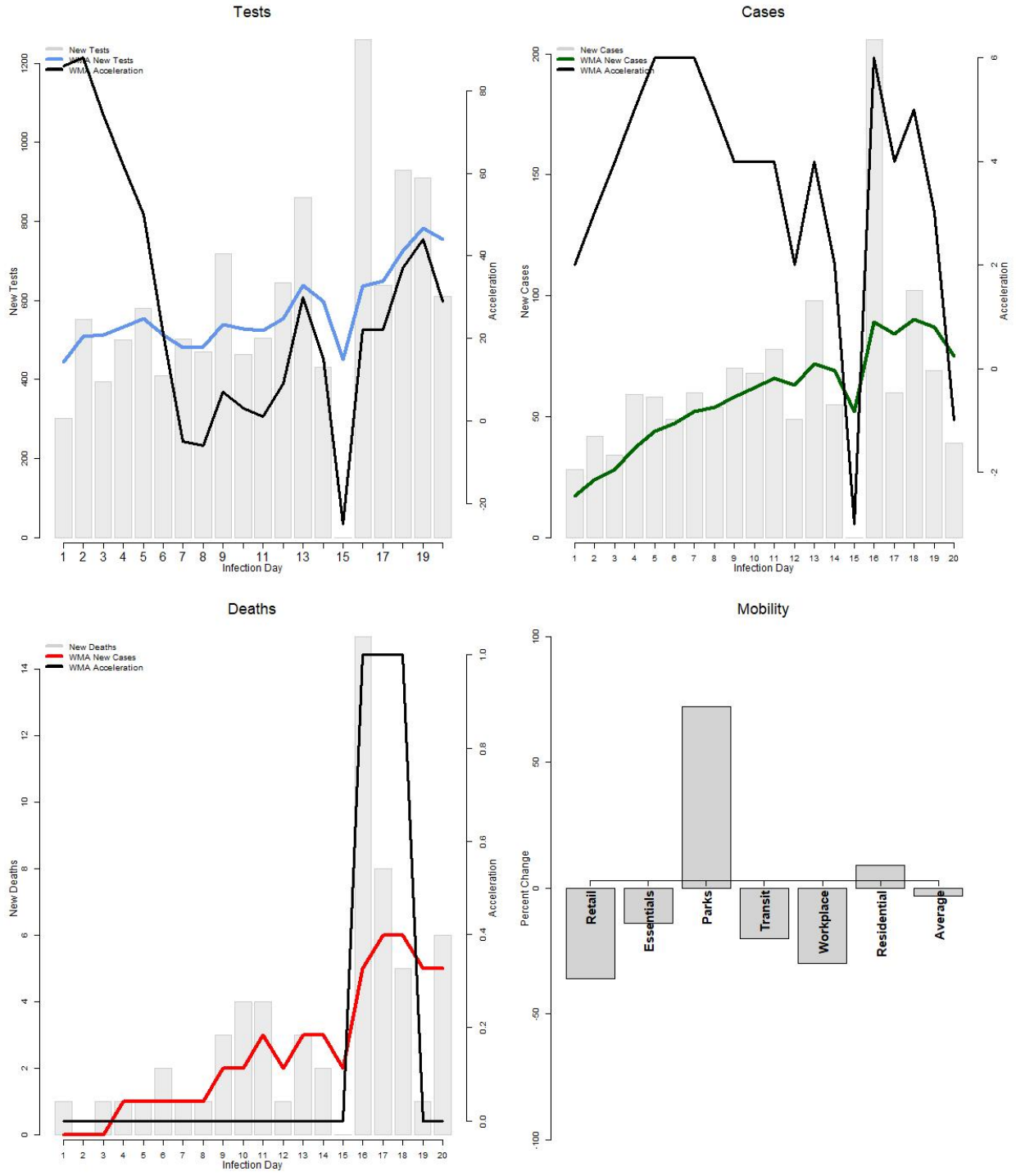


Table 17: Metrics as of 2020-04-14

State	Infected Date	Tests	Positive	Deaths	Pos Rate (%)	Death Rate (%)	New Cases	New Deaths
KS	2020-03-24	13864	1376	62	9.9	4.5	39	6

KY

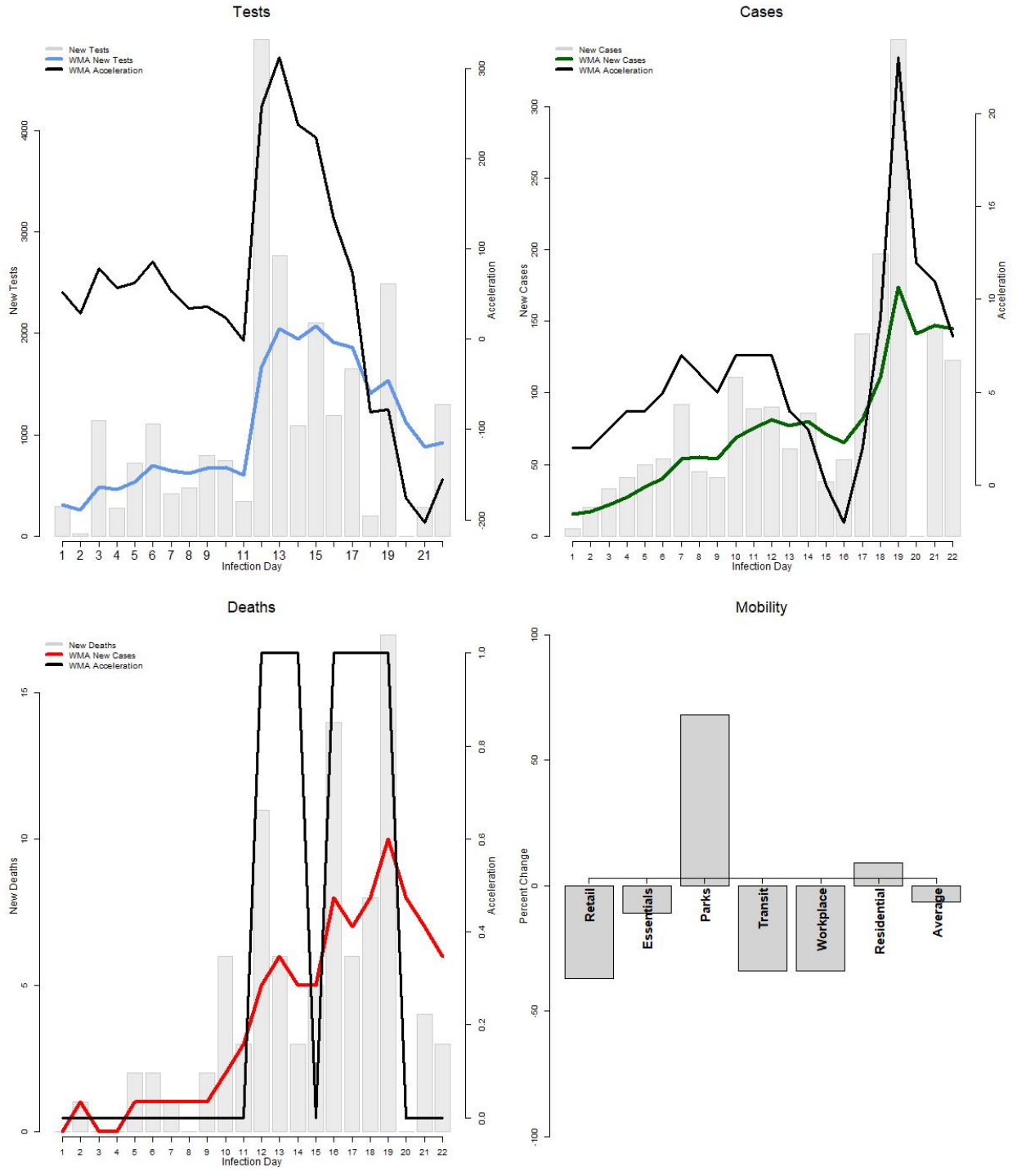


Table 18: Metrics as of 2020-04-14

State	Infected Date	Tests	Positive	Deaths	Pos Rate (%)	Death Rate (%)	New Cases	New Deaths
KY	2020-03-22	25866	1963	97	7.6	4.9	123	3

LA

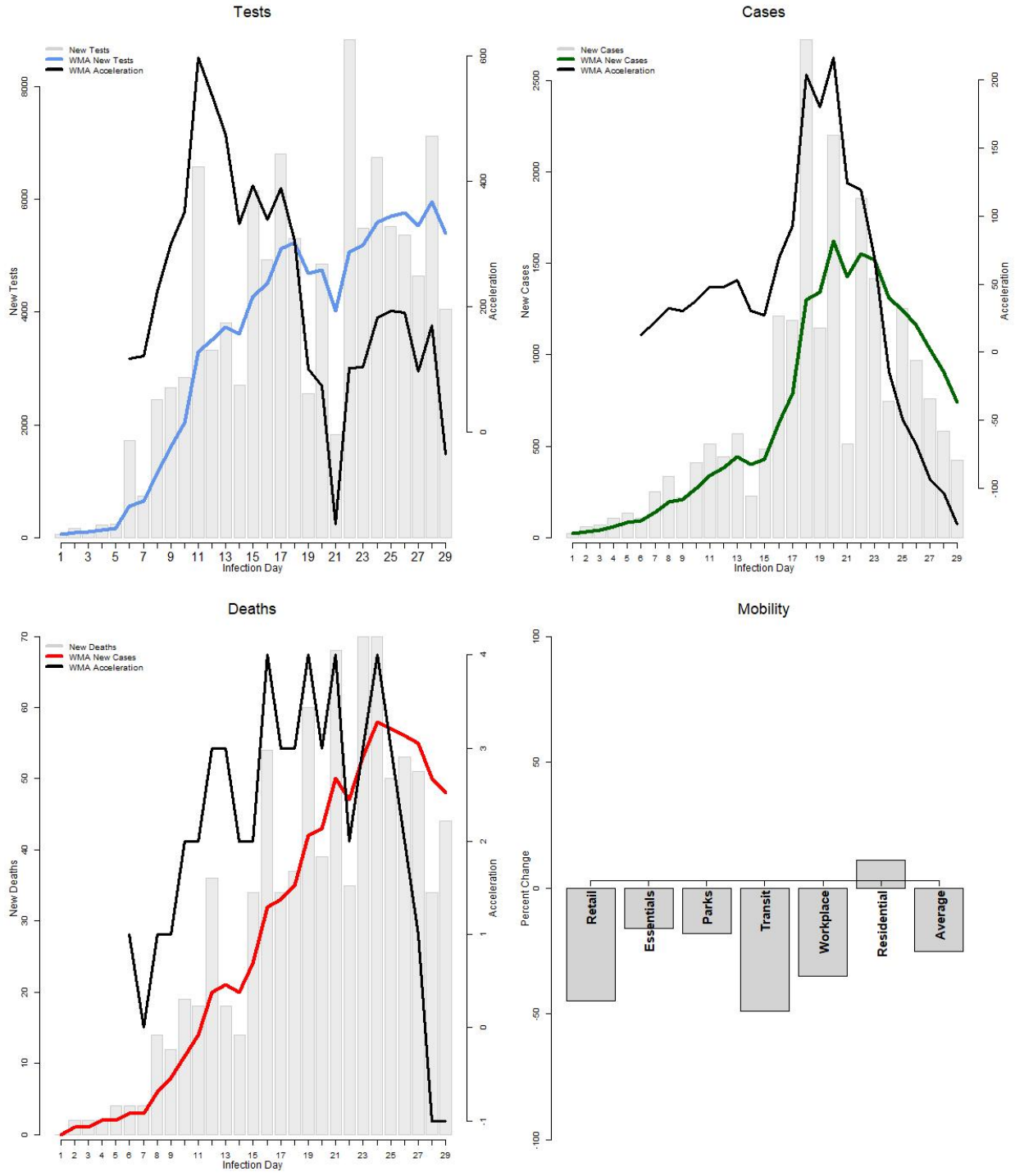


Table 19: Metrics as of 2020-04-14

State	Infected Date	Tests	Positive	Deaths	Pos Rate (%)	Death Rate (%)	New Cases	New Deaths
LA	2020-03-15	108091	21016	884	19.4	4.2	421	44

MA

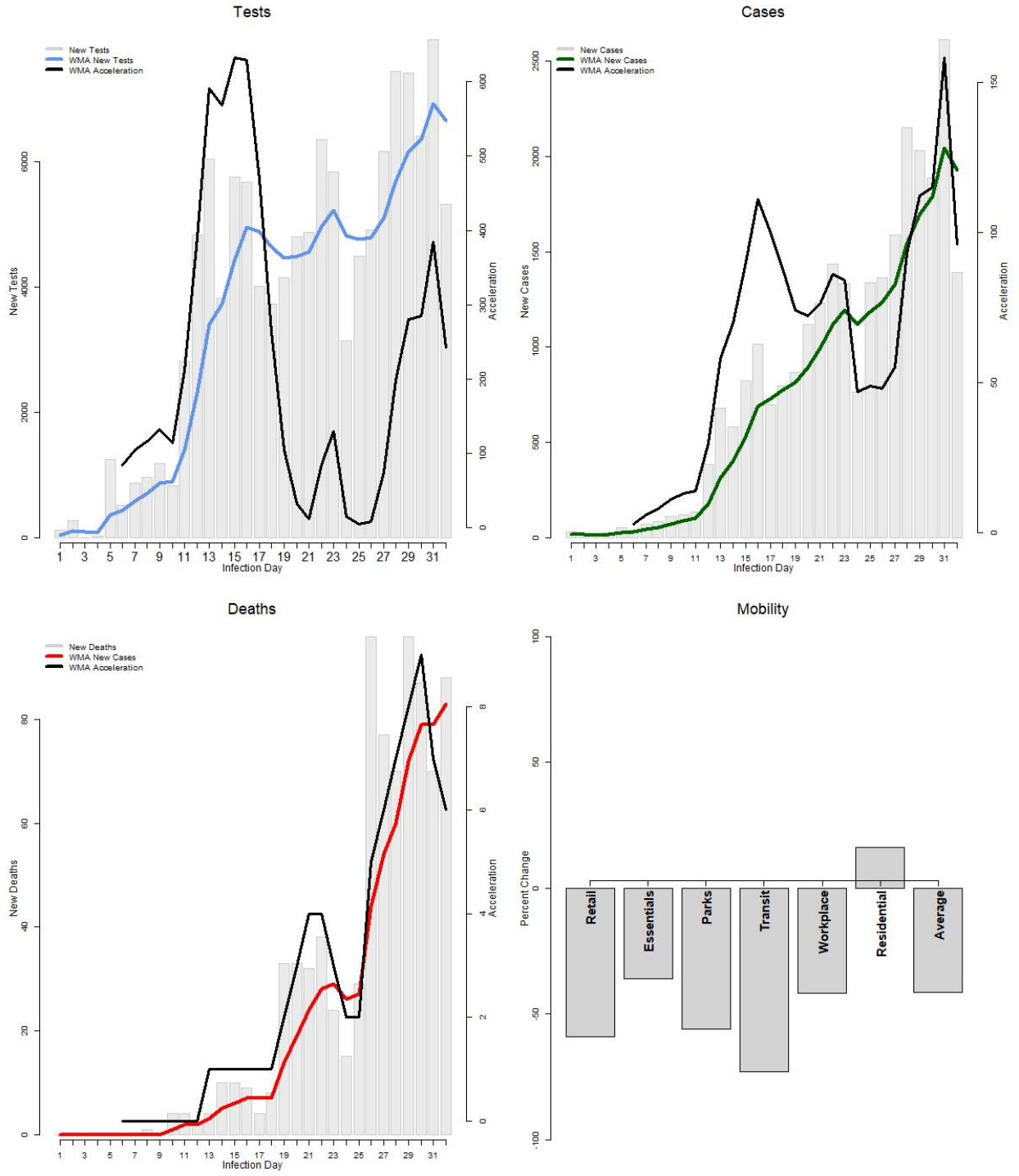


Table 20: Metrics as of 2020-04-14

State	Infected Date	Tests	Positive	Deaths	Pos Rate (%)	Death Rate (%)	New Cases	New Deaths
MA	2020-03-12	122049	26867	844	22	3.1	1392	88

MD

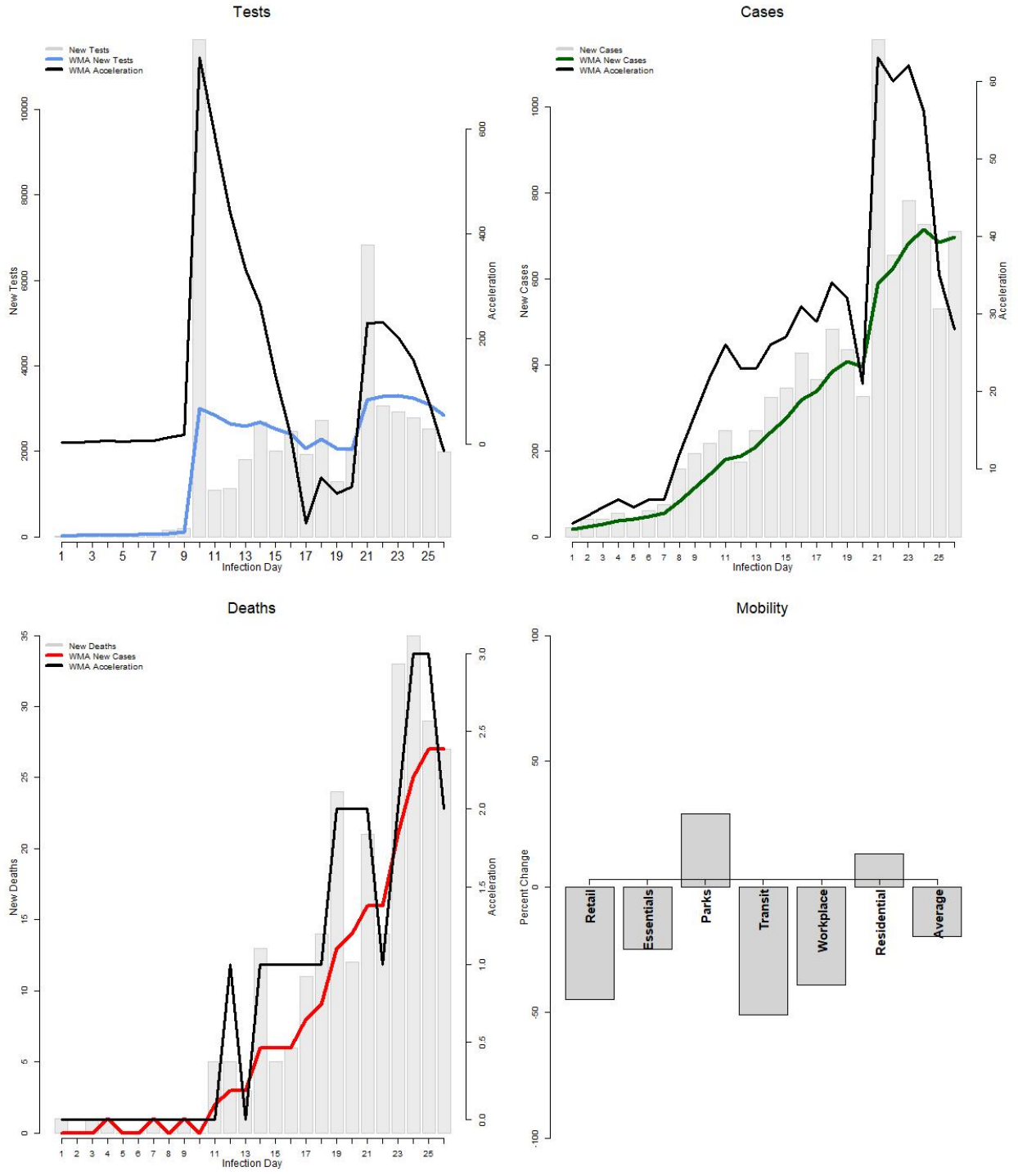


Table 21: Metrics as of 2020-04-14

State	Infected Date	Tests	Positive	Deaths	Pos Rate (%)	Death Rate (%)	New Cases	New Deaths
MD	2020-03-18	51751	8936	262	17.3	2.9	711	27

ME

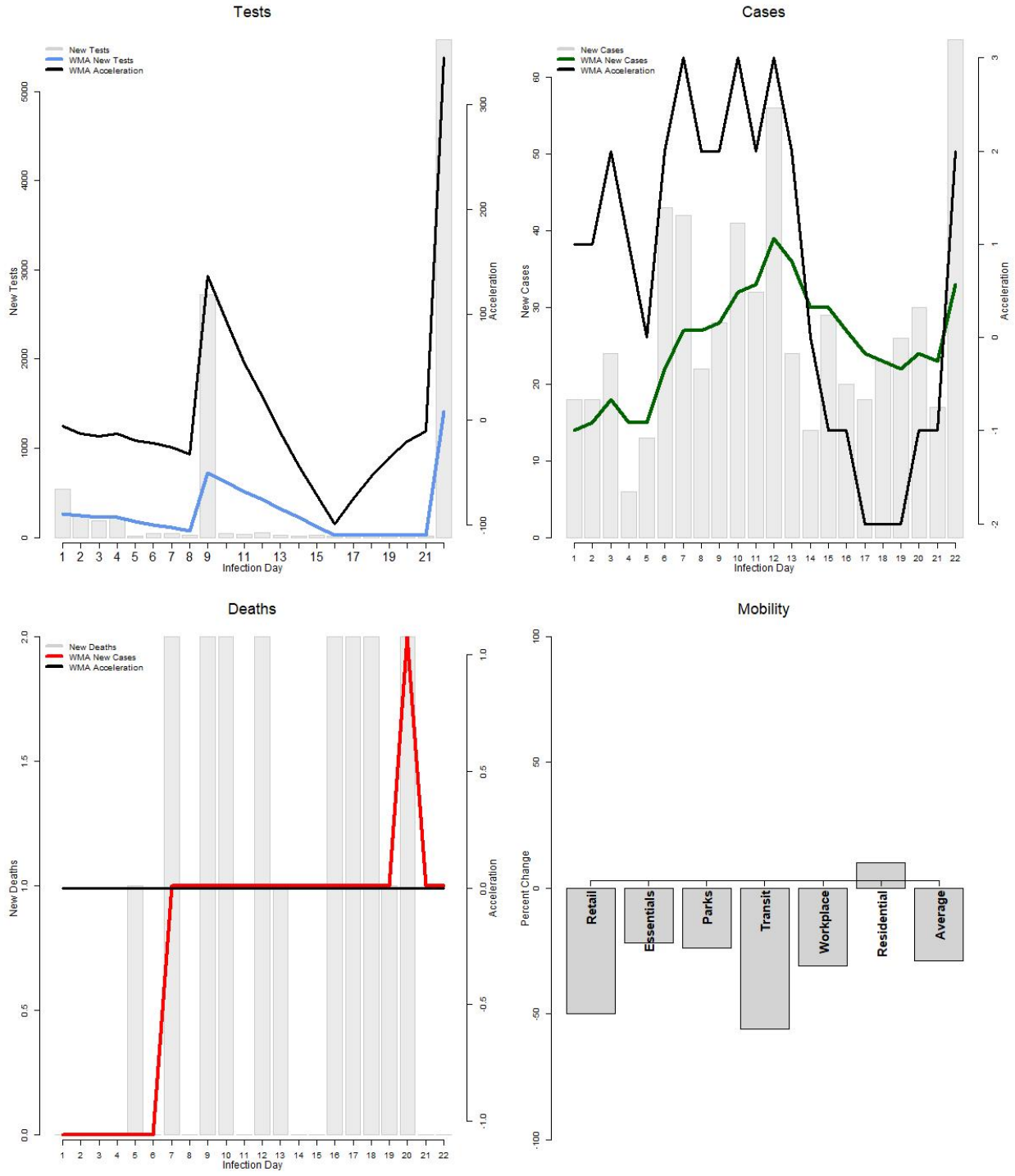


Table 22: Metrics as of 2020-04-14

State	Infected Date	Tests	Positive	Deaths	Pos Rate (%)	Death Rate (%)	New Cases	New Deaths
ME	2020-03-22	12306	698	19	5.7	2.7	65	0

MI

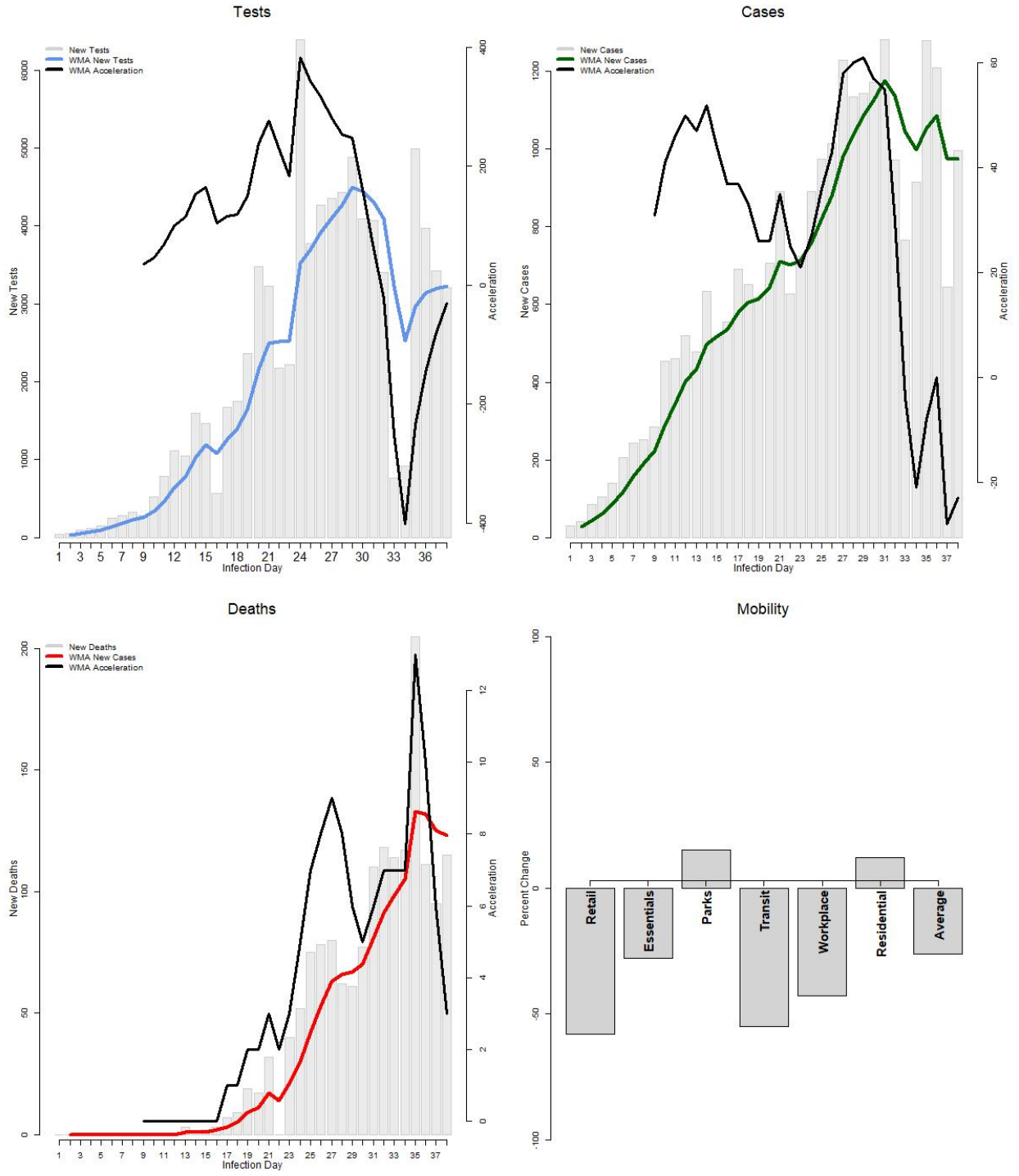


Table 23: Metrics as of 2020-04-14

State	Infected Date	Tests	Positive	Deaths	Pos Rate (%)	Death Rate (%)	New Cases	New Deaths
MI	2020-03-06	82644	25635	1602	31	6.2	997	115

MN

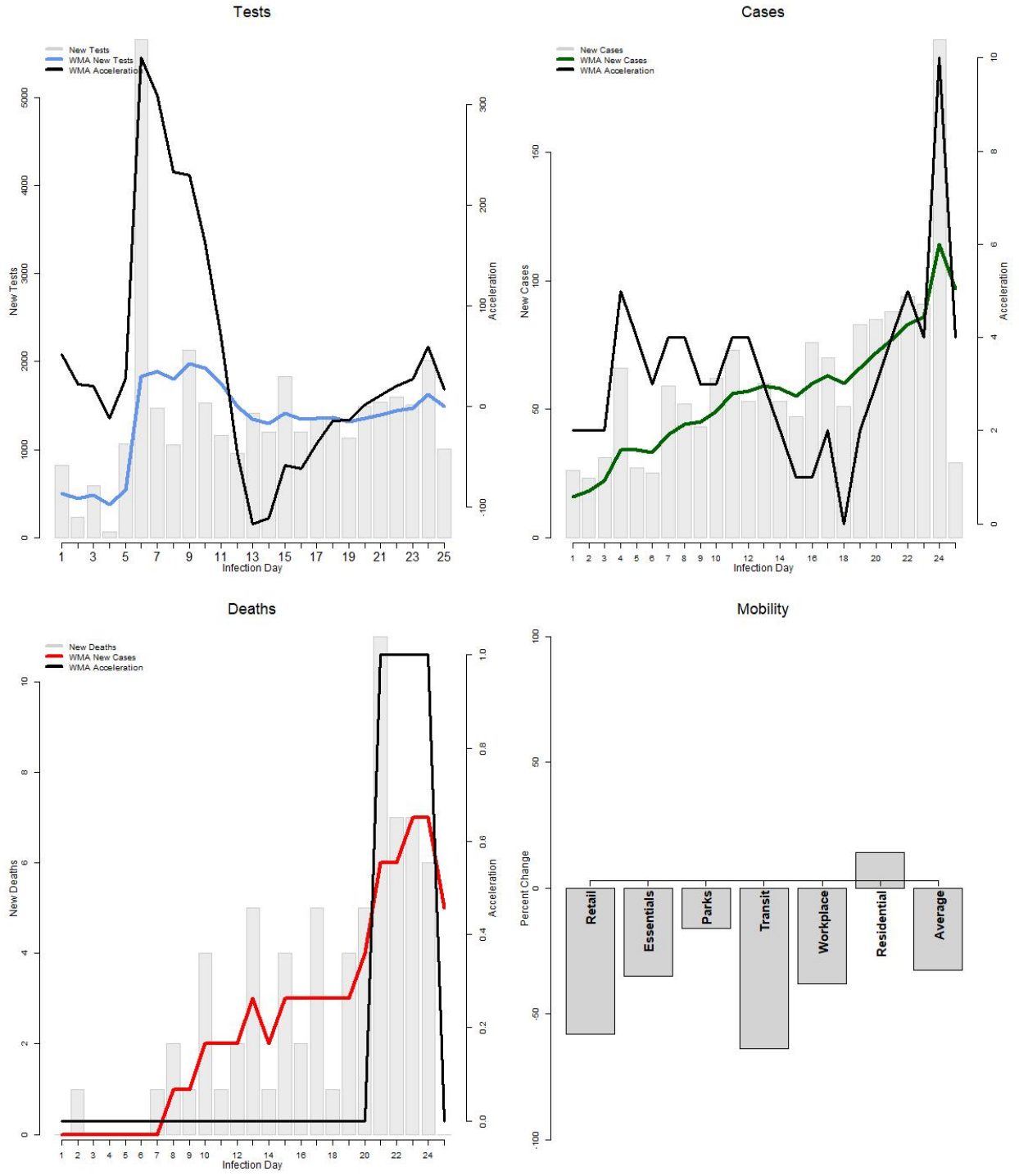


Table 24: Metrics as of 2020-04-14

State	Infected Date	Tests	Positive	Deaths	Pos Rate (%)	Death Rate (%)	New Cases	New Deaths
MN	2020-03-19	38427	1650	70	4.3	4.2	29	0

MO

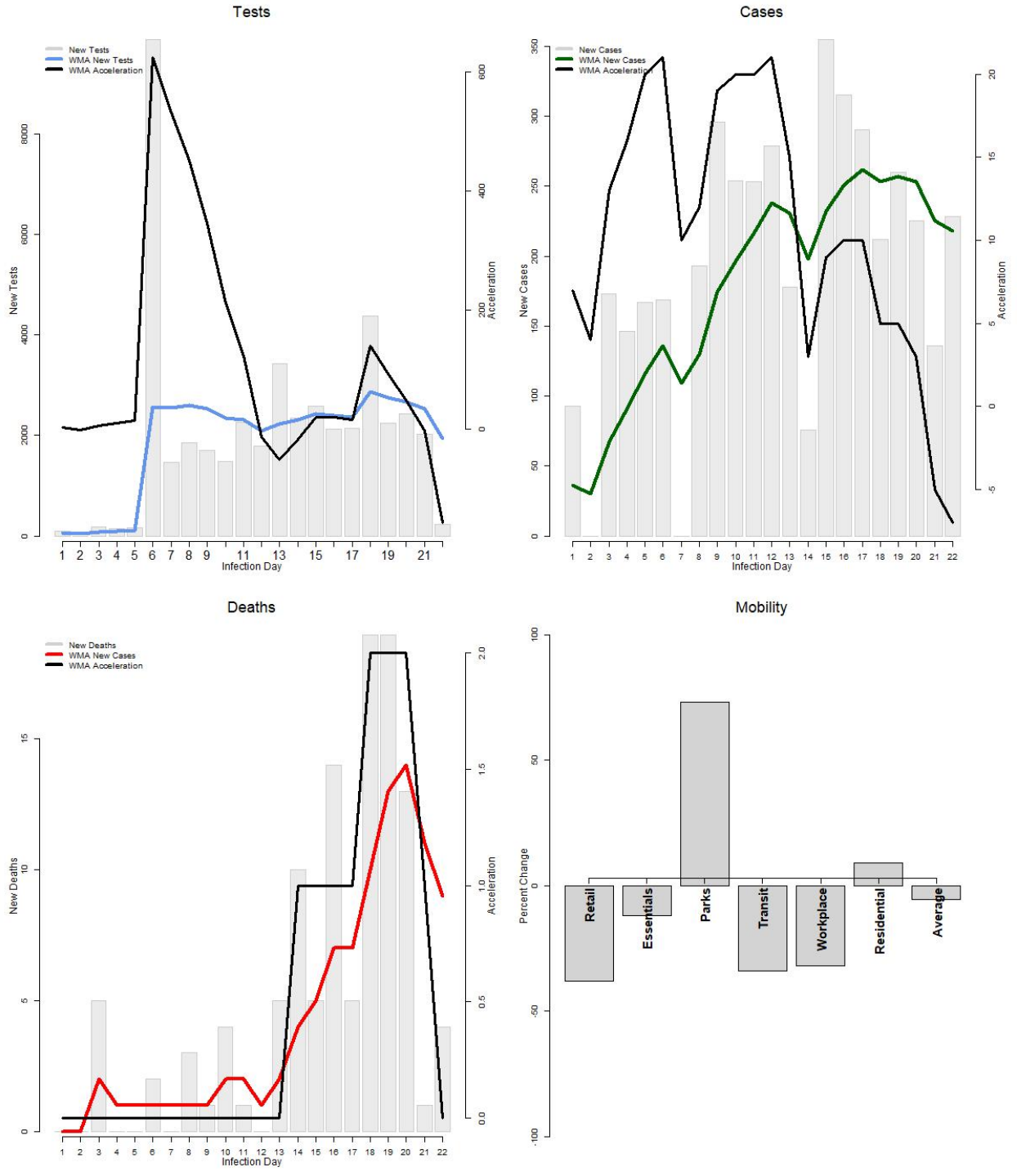


Table 25: Metrics as of 2020-04-14

State	Infected Date	Tests	Positive	Deaths	Pos Rate (%)	Death Rate (%)	New Cases	New Deaths
MO	2020-03-22	45428	4388	114	9.7	2.6	228	4

MS

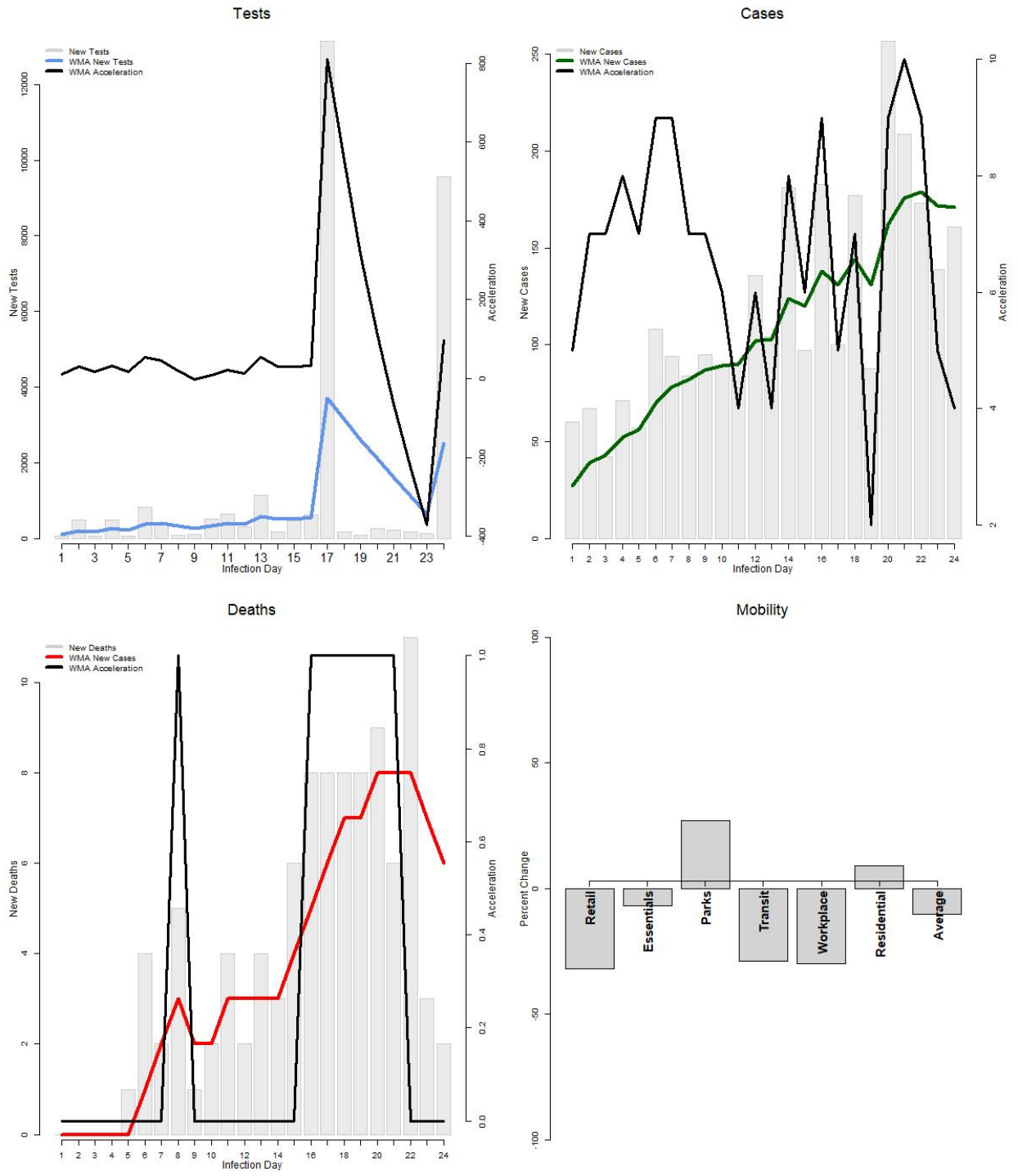


Table 26: Metrics as of 2020-04-14

State	Infected Date	Tests	Positive	Deaths	Pos Rate (%)	Death Rate (%)	New Cases	New Deaths
MS	2020-03-20	30984	2942	98	9.5	3.3	161	2

MT

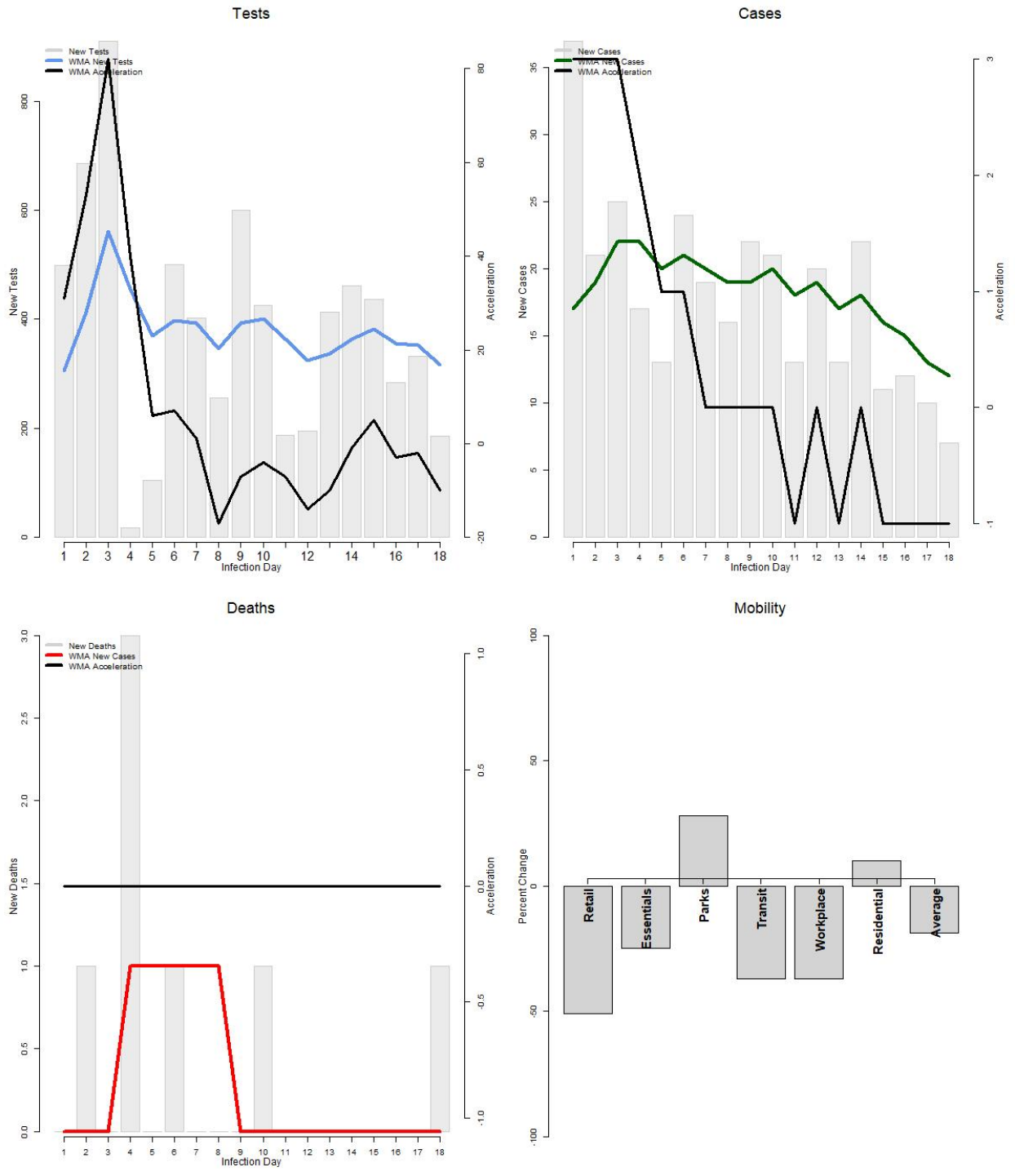


Table 27: Metrics as of 2020-04-14

State	Infected Date	Tests	Positive	Deaths	Pos Rate (%)	Death Rate (%)	New Cases	New Deaths
MT	2020-03-26	9098	394	7	4.3	1.8	7	1

NC

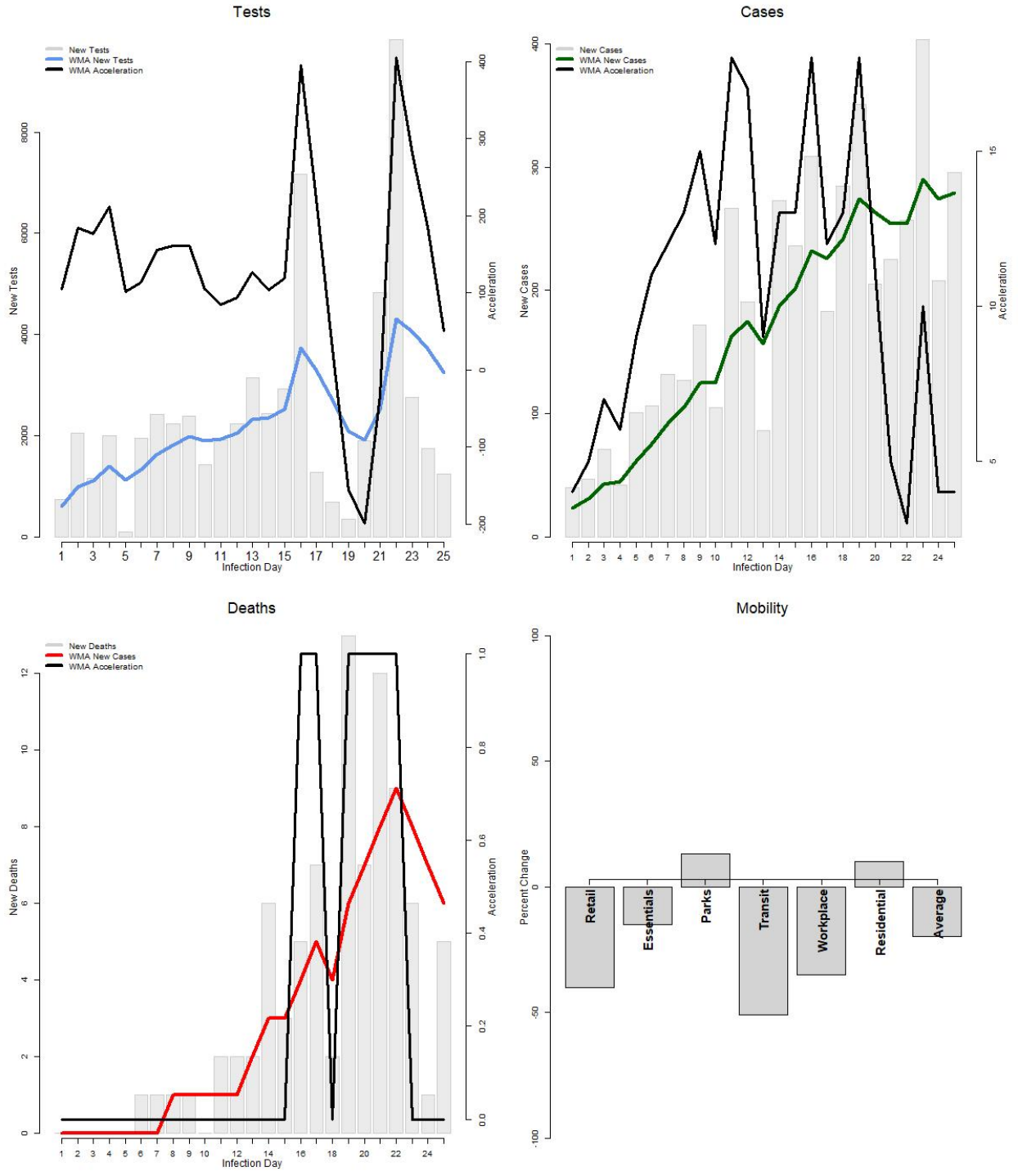


Table 28: Metrics as of 2020-04-14

State	Infected Date	Tests	Positive	Deaths	Pos Rate (%)	Death Rate (%)	New Cases	New Deaths
NC	2020-03-19	63388	4816	86	7.6	1.8	296	5

ND

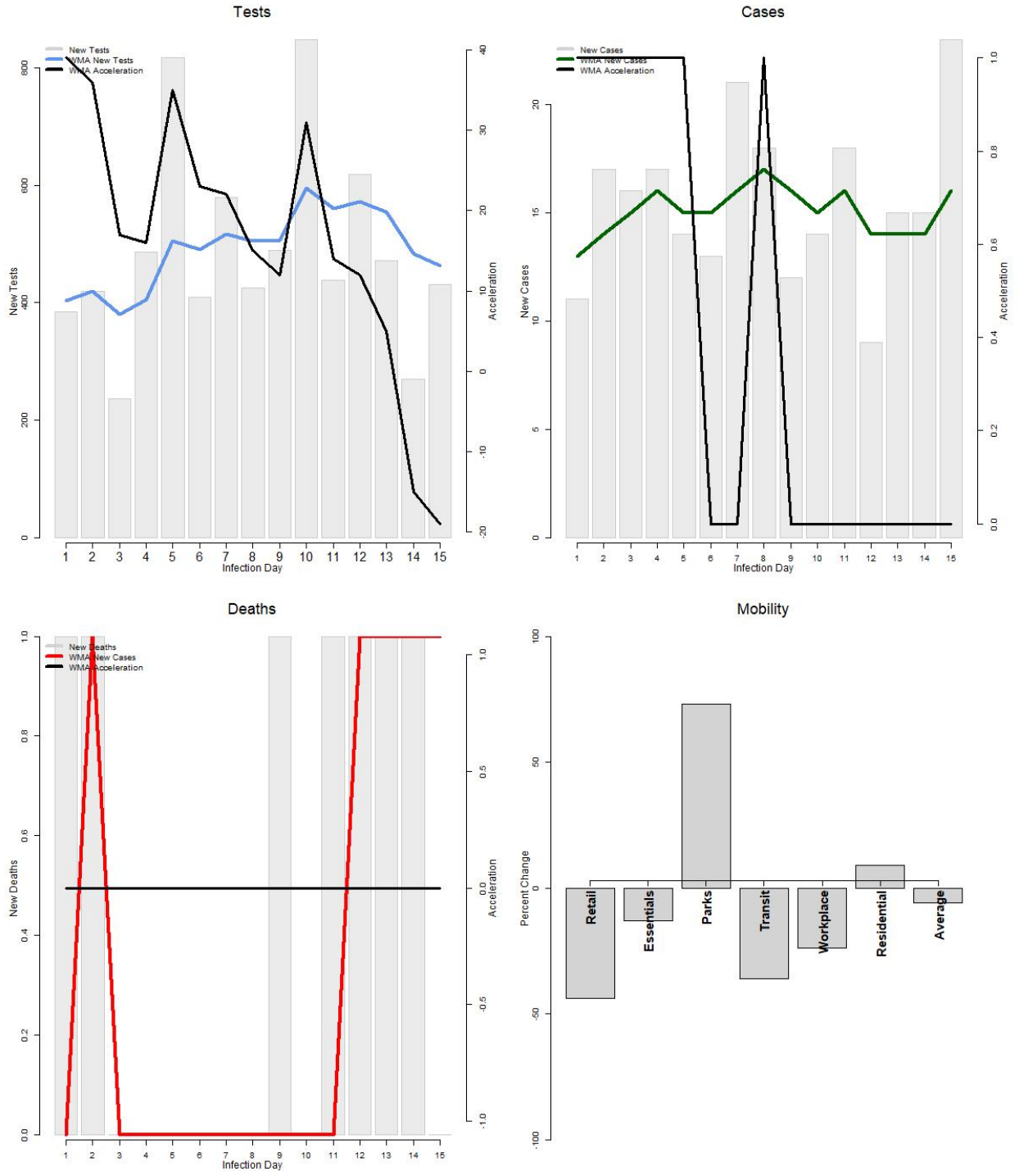


Table 29: Metrics as of 2020-04-14

State	Infected Date	Tests	Positive	Deaths	Pos Rate (%)	Death Rate (%)	New Cases	New Deaths
ND	2020-03-29	10781	331	8	3.1	2.4	23	0

NE

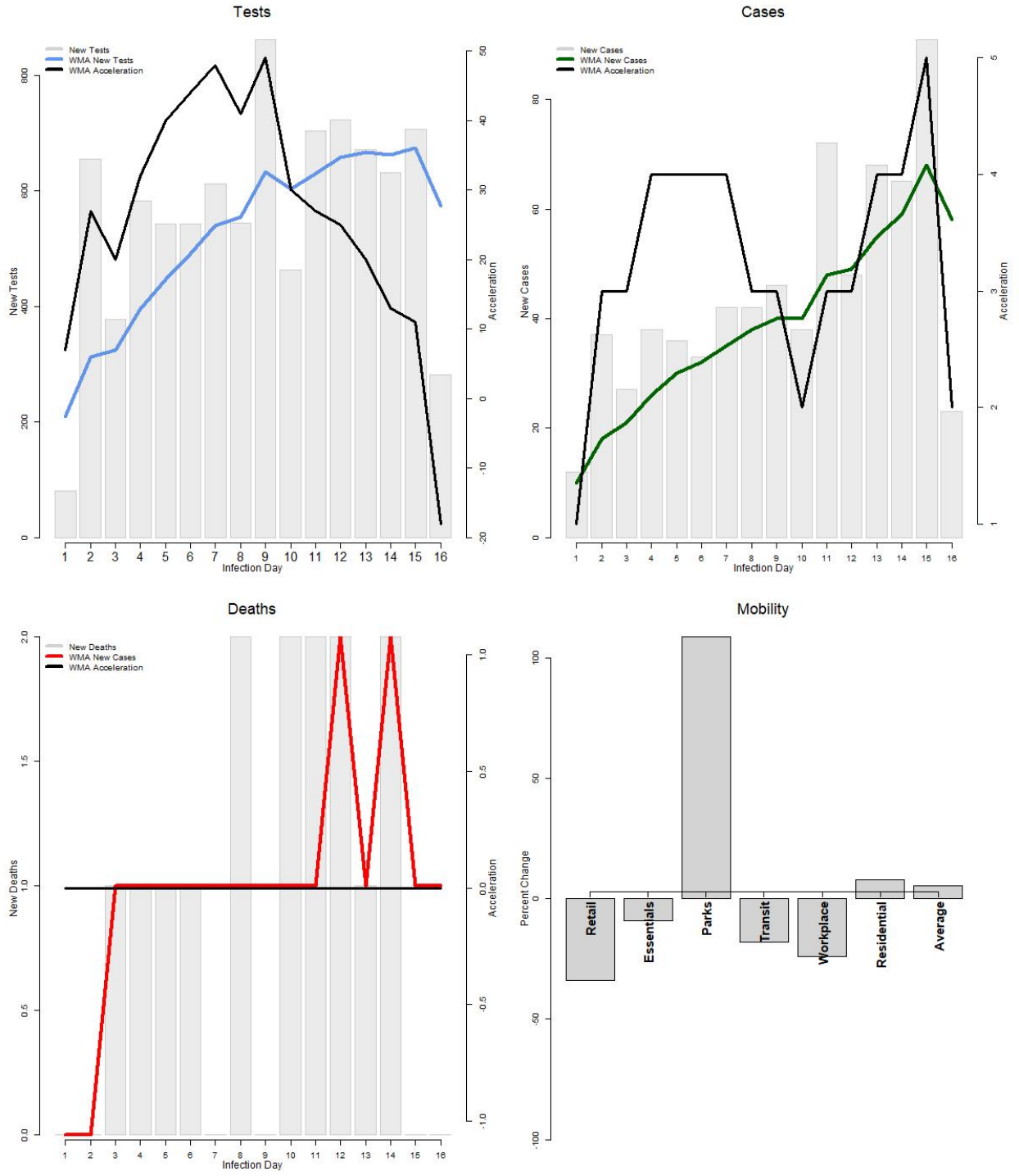


Table 30: Metrics as of 2020-04-14

State	Infected Date	Tests	Positive	Deaths	Pos Rate (%)	Death Rate (%)	New Cases	New Deaths
NE	2020-03-28	10972	814	17	7.4	2.1	23	0

NH

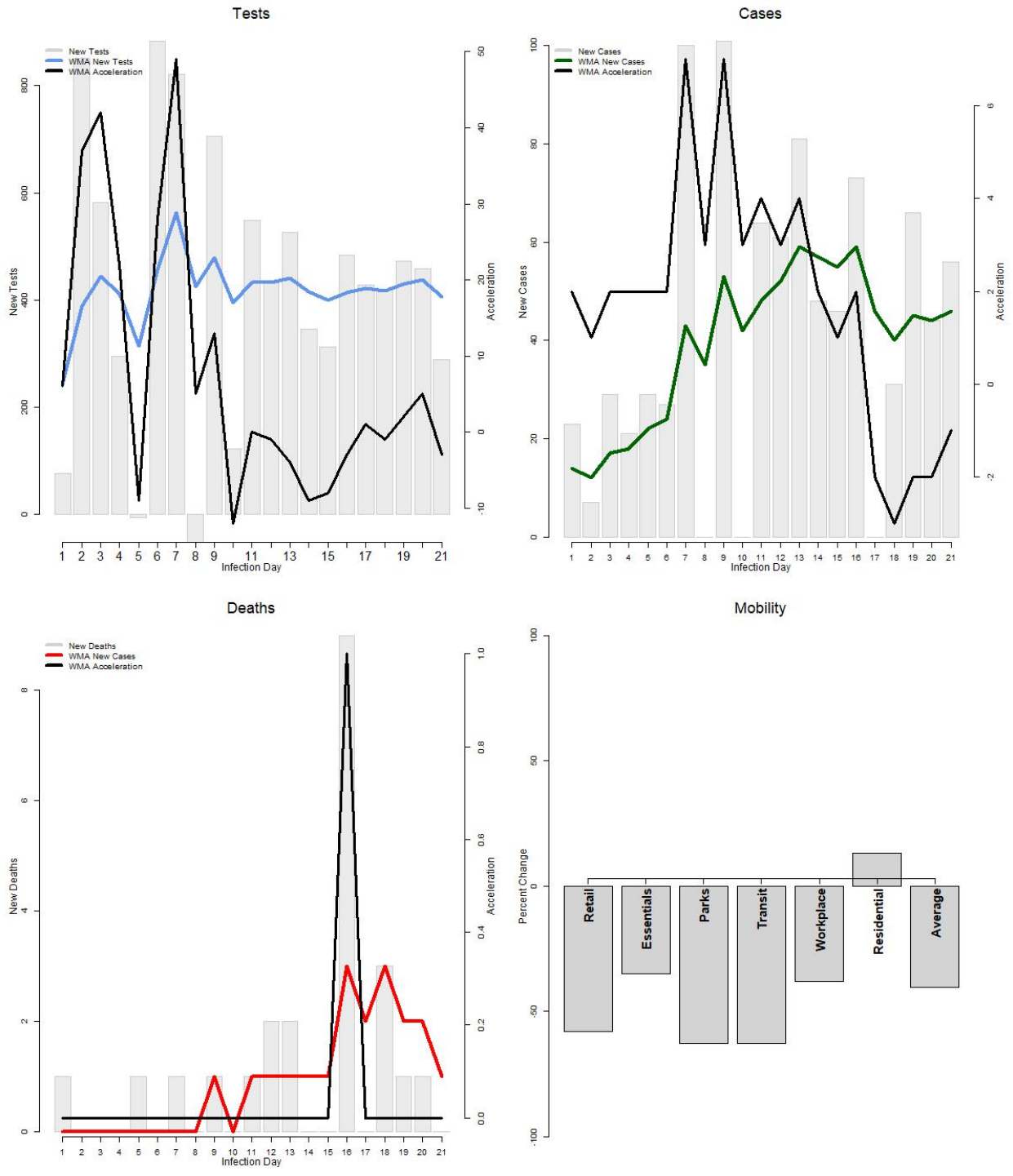


Table 31: Metrics as of 2020-04-14

State	Infected Date	Tests	Positive	Deaths	Pos Rate (%)	Death Rate (%)	New Cases	New Deaths
NH	2020-03-23	11332	985	23	8.7	2.3	56	0

NJ

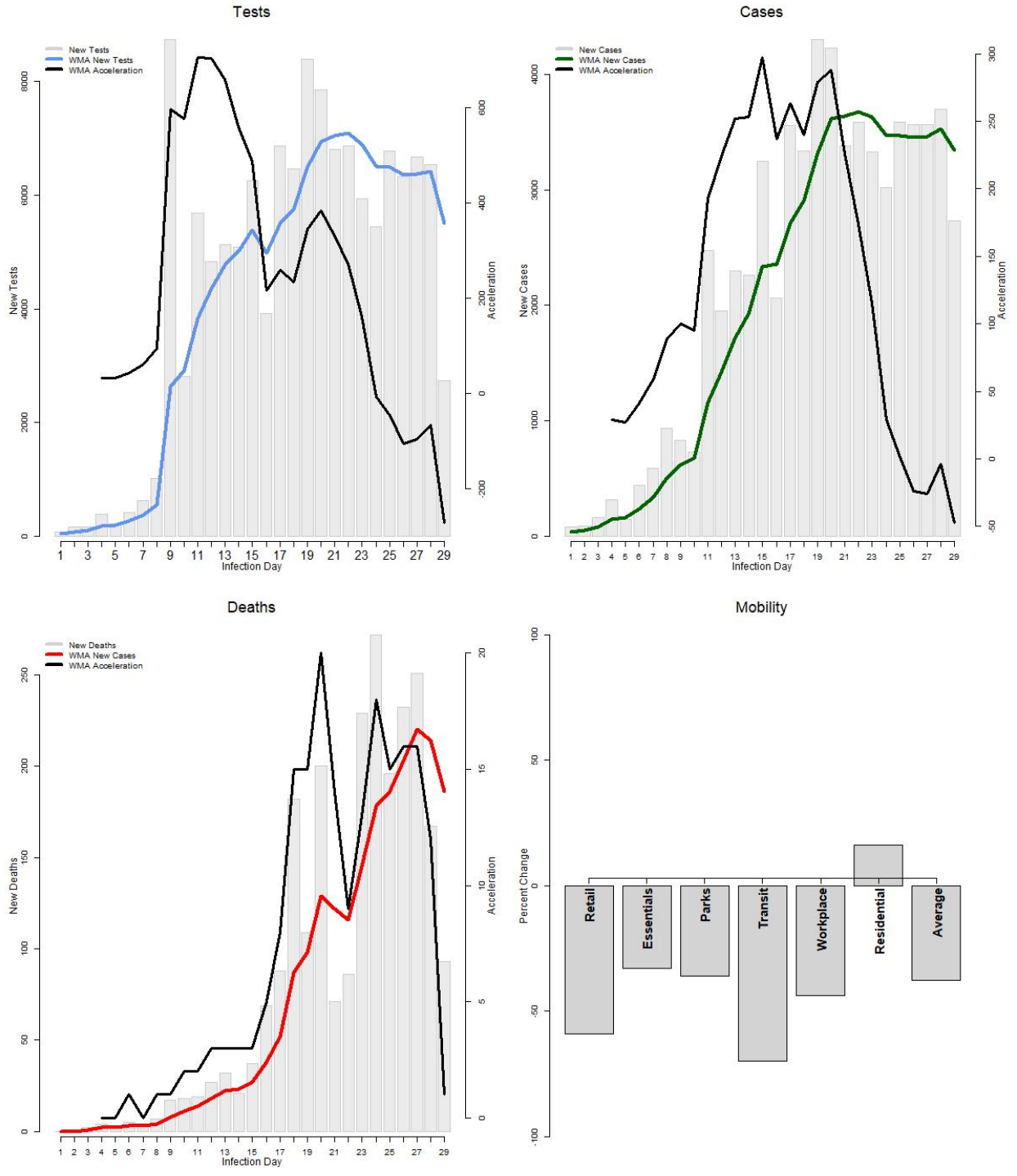


Table 32: Metrics as of 2020-04-14

State	Infected Date	Tests	Positive	Deaths	Pos Rate (%)	Death Rate (%)	New Cases	New Deaths
NJ	2020-03-15	129469	64584	2443	49.9	3.8	2734	93

NM

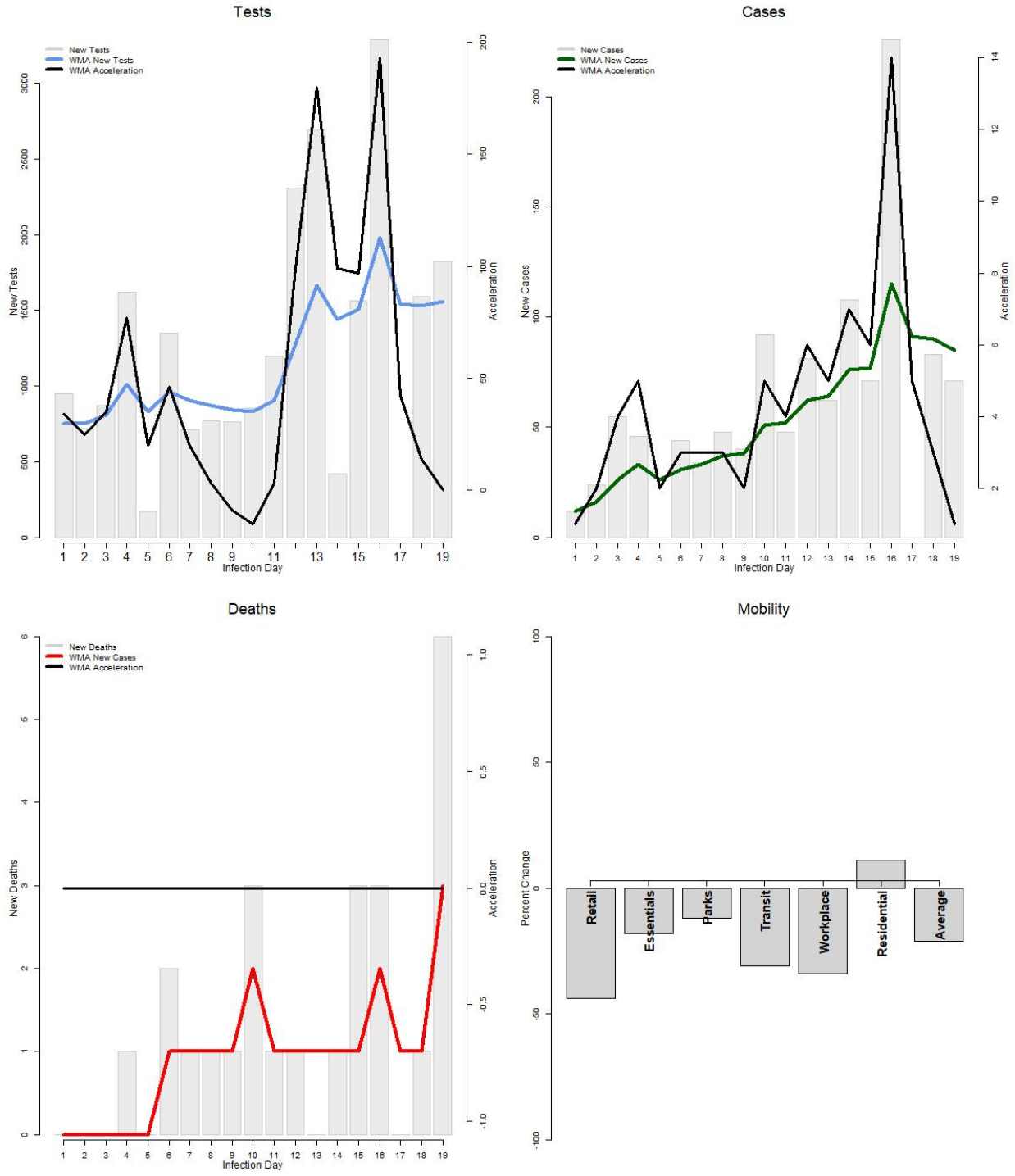


Table 33: Metrics as of 2020-04-14

State	Infected Date	Tests	Positive	Deaths	Pos Rate (%)	Death Rate (%)	New Cases	New Deaths
NM	2020-03-25	30515	1245	26	4.1	2.1	71	6

NV

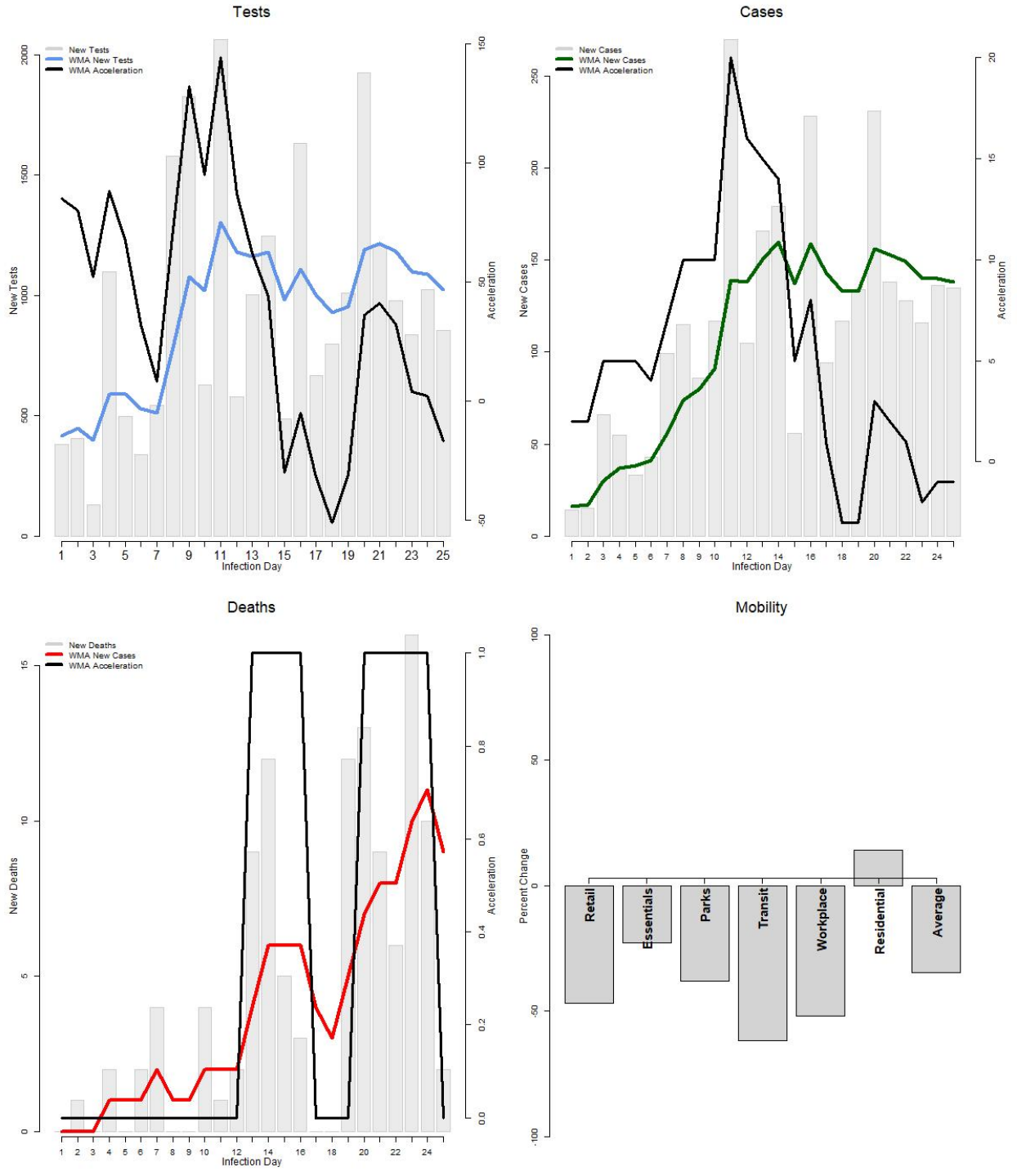


Table 34: Metrics as of 2020-04-14

State	Infected Date	Tests	Positive	Deaths	Pos Rate (%)	Death Rate (%)	New Cases	New Deaths
NV	2020-03-19	25464	2971	114	11.7	3.8	135	2

NY

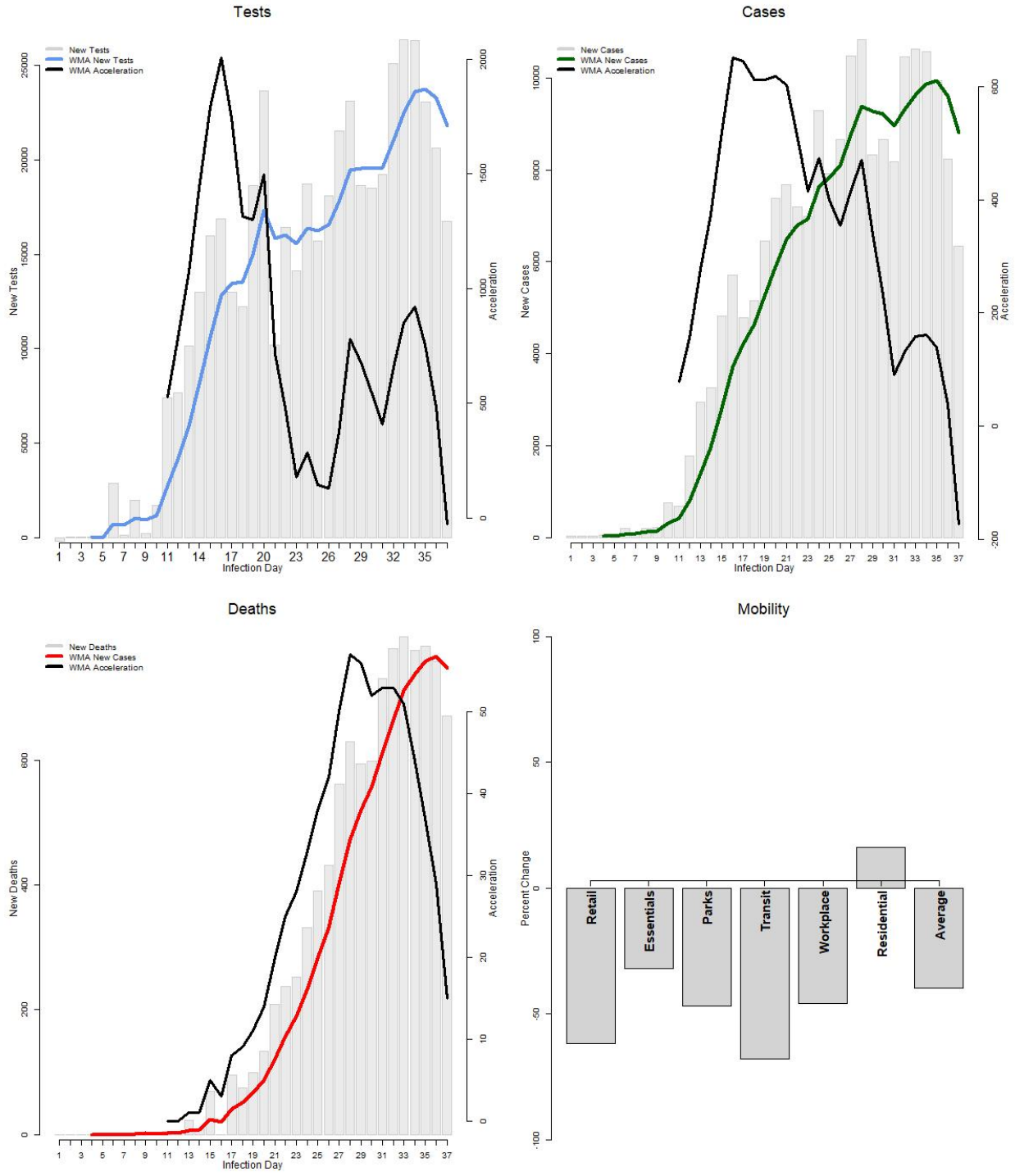


Table 35: Metrics as of 2020-04-14

State	Infected Date	Tests	Positive	Deaths	Pos Rate (%)	Death Rate (%)	New Cases	New Deaths
NY	2020-03-07	478357	195031	10056	40.8	5.2	6337	671

OH

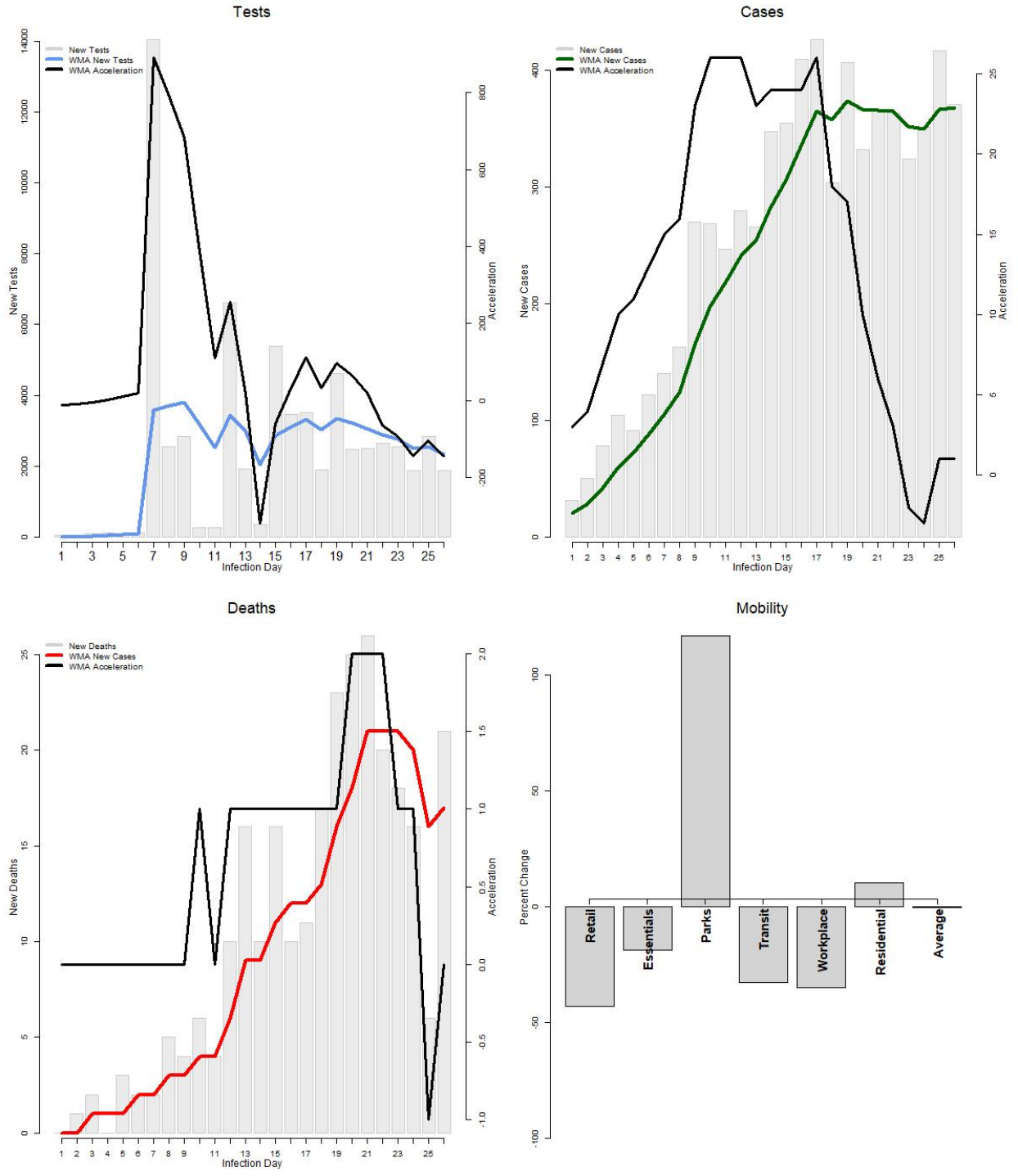


Table 36: Metrics as of 2020-04-14

State	Infected Date	Tests	Positive	Deaths	Pos Rate (%)	Death Rate (%)	New Cases	New Deaths
OH	2020-03-18	65112	6975	274	10.7	3.9	371	21

OK

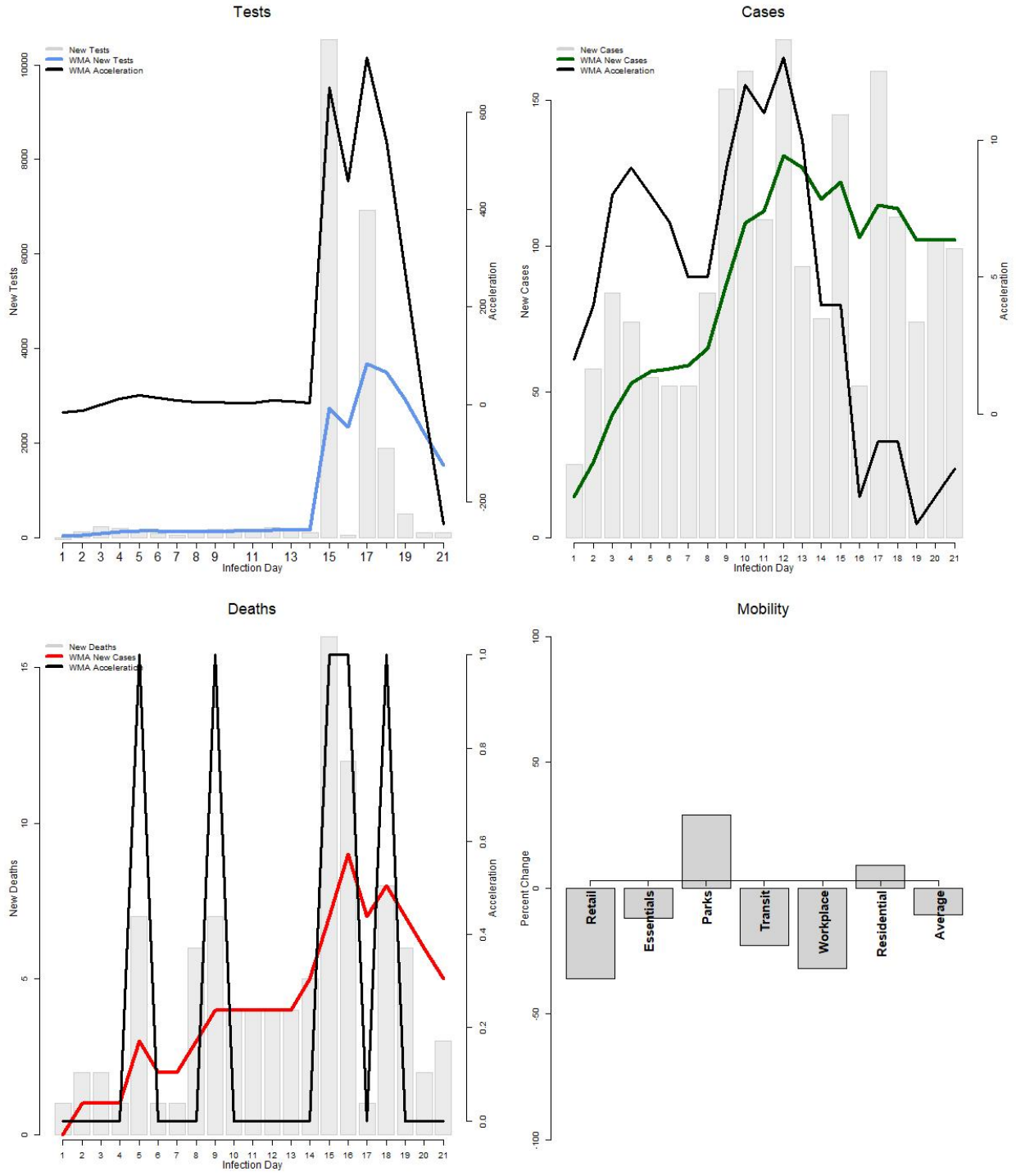


Table 37: Metrics as of 2020-04-14

State	Infected Date	Tests	Positive	Deaths	Pos Rate (%)	Death Rate (%)	New Cases	New Deaths
OK	2020-03-23	22859	2069	99	9.1	4.8	99	3

OR

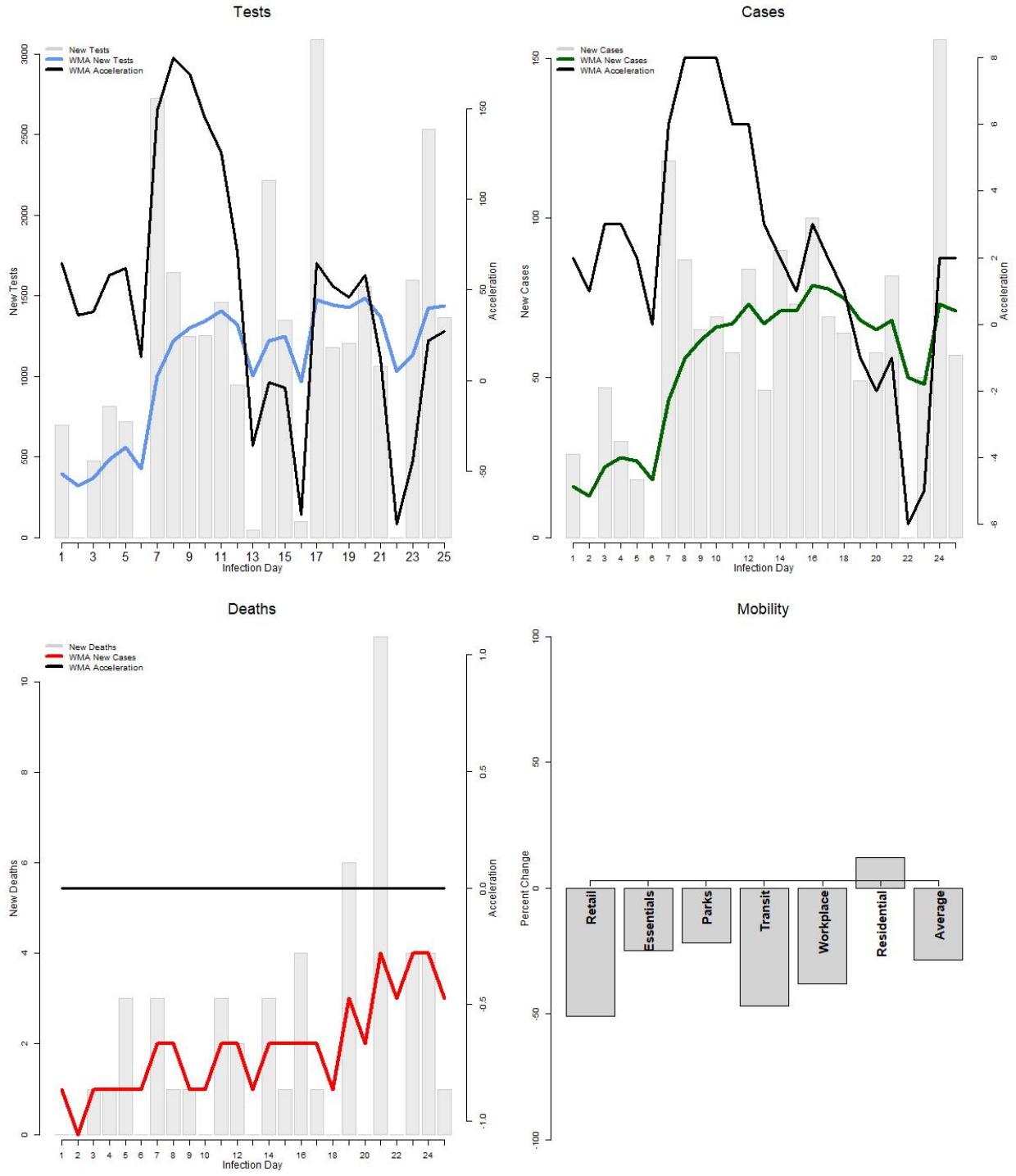


Table 38: Metrics as of 2020-04-14

State	Infected Date	Tests	Positive	Deaths	Pos Rate (%)	Death Rate (%)	New Cases	New Deaths
OR	2020-03-19	31121	1584	53	5.1	3.3	57	1

PA

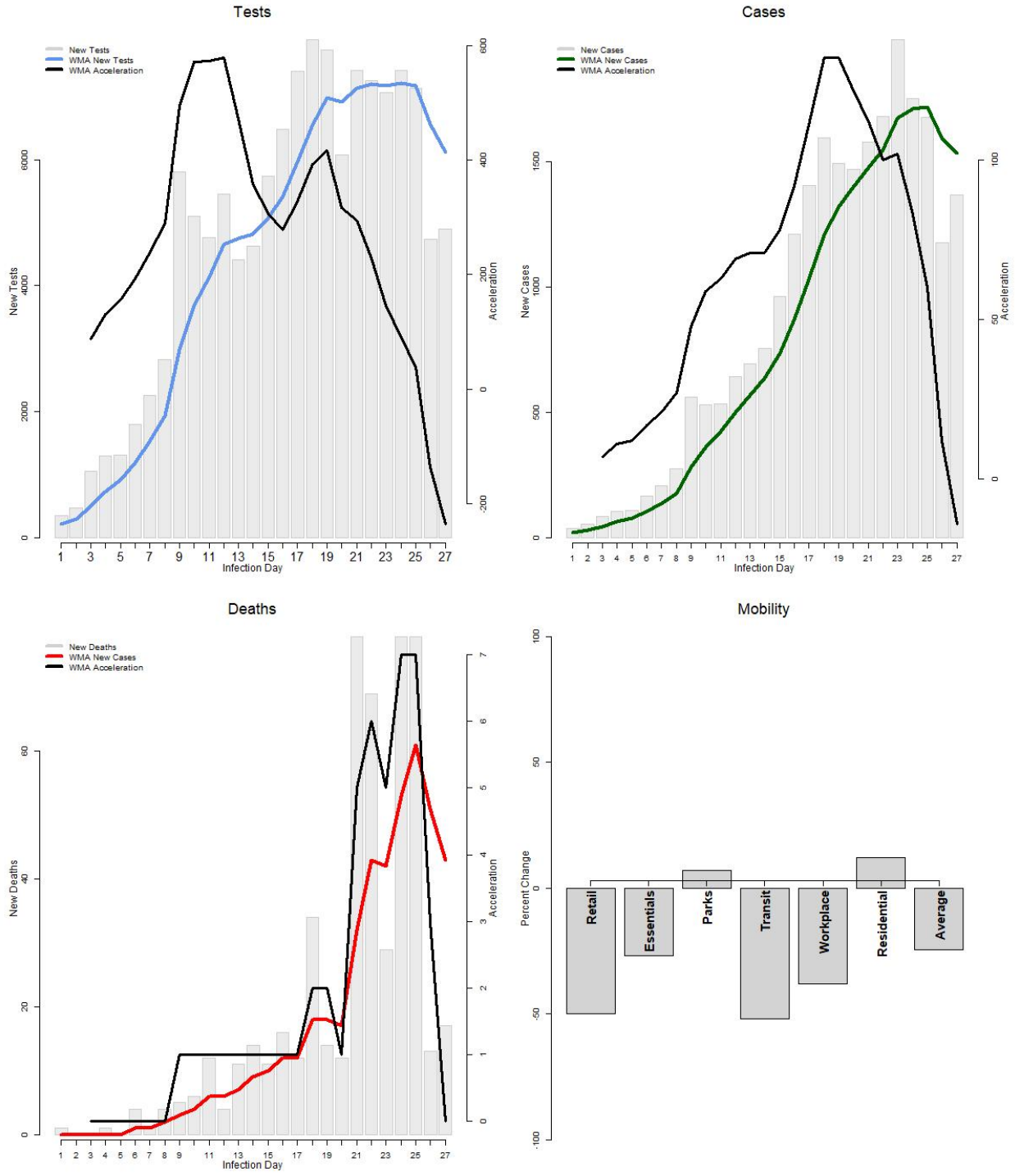


Table 39: Metrics as of 2020-04-14

State	Infected Date	Tests	Positive	Deaths	Pos Rate (%)	Death Rate (%)	New Cases	New Deaths
PA	2020-03-17	129792	24199	524	18.6	2.2	1366	17

PR

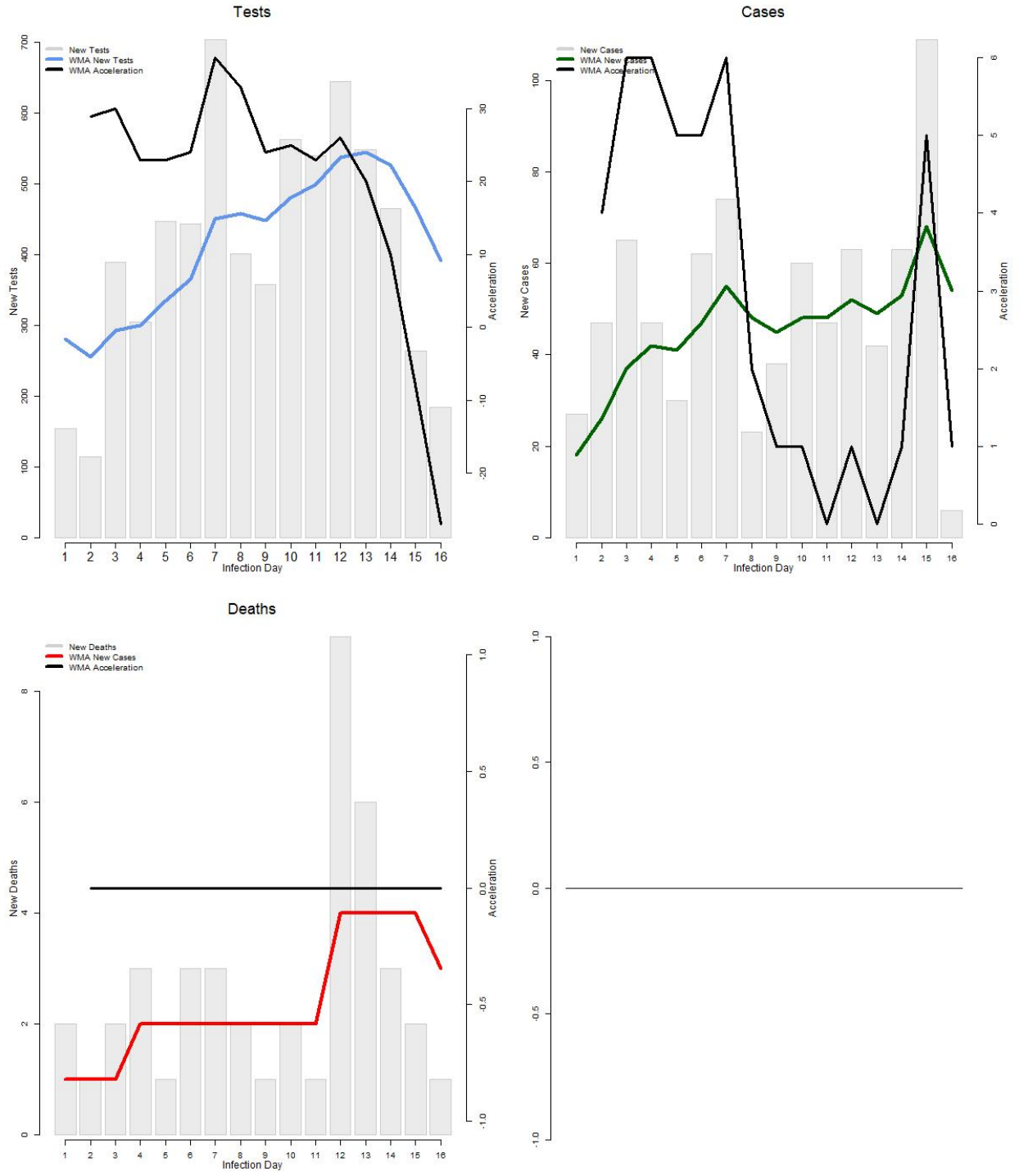


Table 40: Metrics as of 2020-04-14

State	Infected Date	Tests	Positive	Deaths	Pos Rate (%)	Death Rate (%)	New Cases	New Deaths
PR	2020-03-28	8151	903	45	11.1	5	6	1

RI

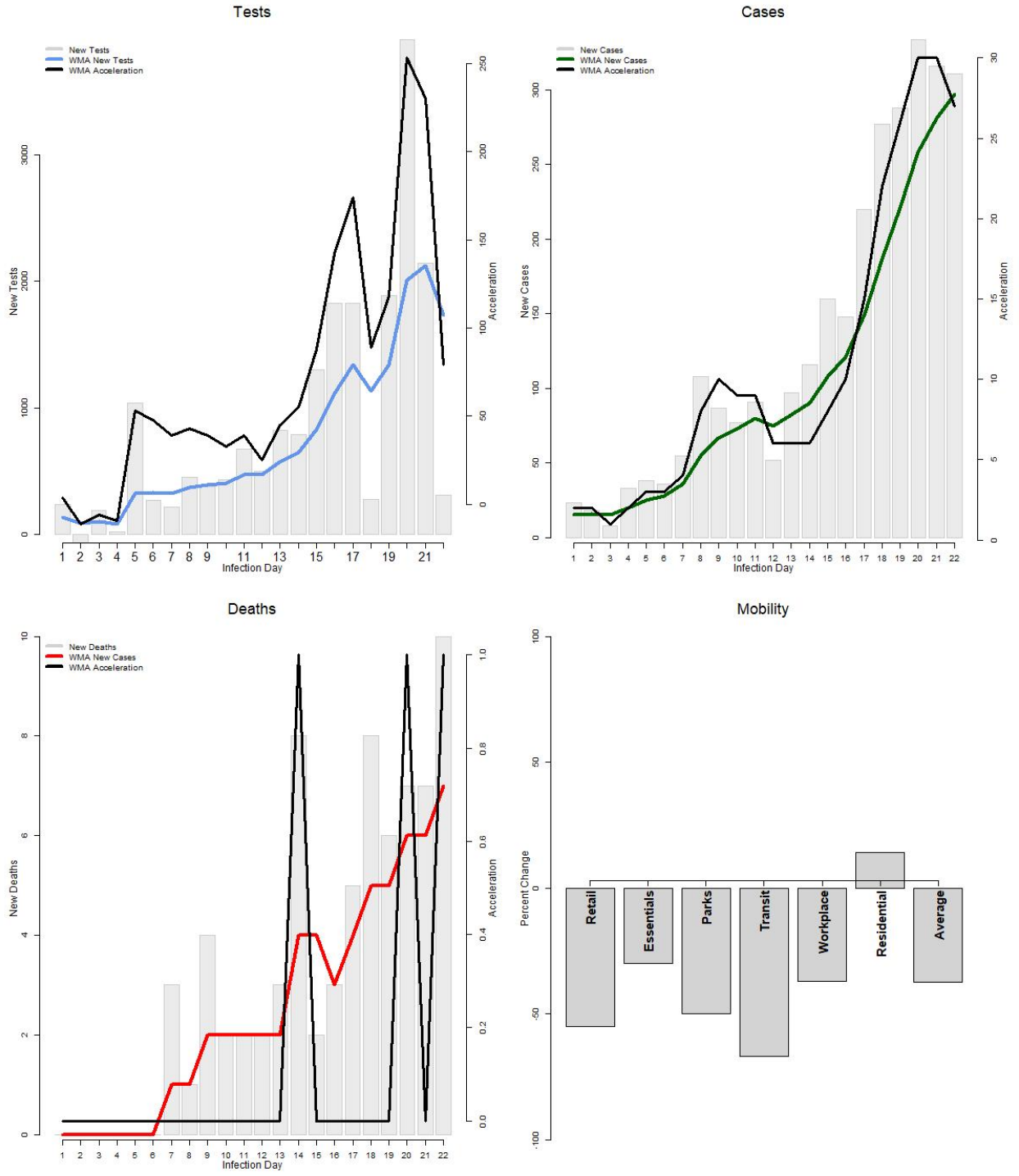


Table 41: Metrics as of 2020-04-14

State	Infected Date	Tests	Positive	Deaths	Pos Rate (%)	Death Rate (%)	New Cases	New Deaths
RI	2020-03-22	20661	2976	73	14.4	2.5	311	10

SC

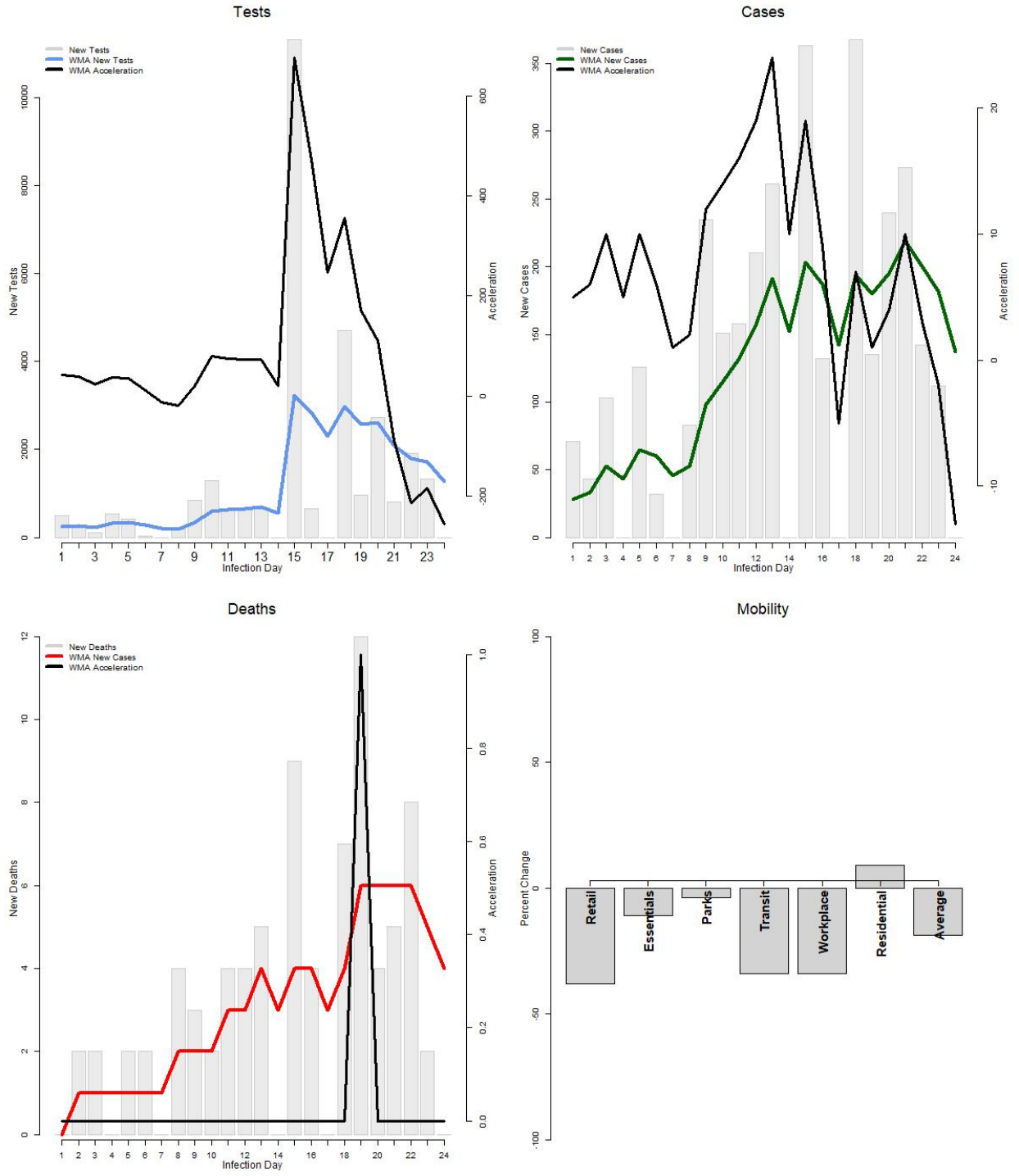


Table 42: Metrics as of 2020-04-14

State	Infected Date	Tests	Positive	Deaths	Pos Rate (%)	Death Rate (%)	New Cases	New Deaths
SC	2020-03-20	31425	3319	82	10.6	2.5	0	0

SD

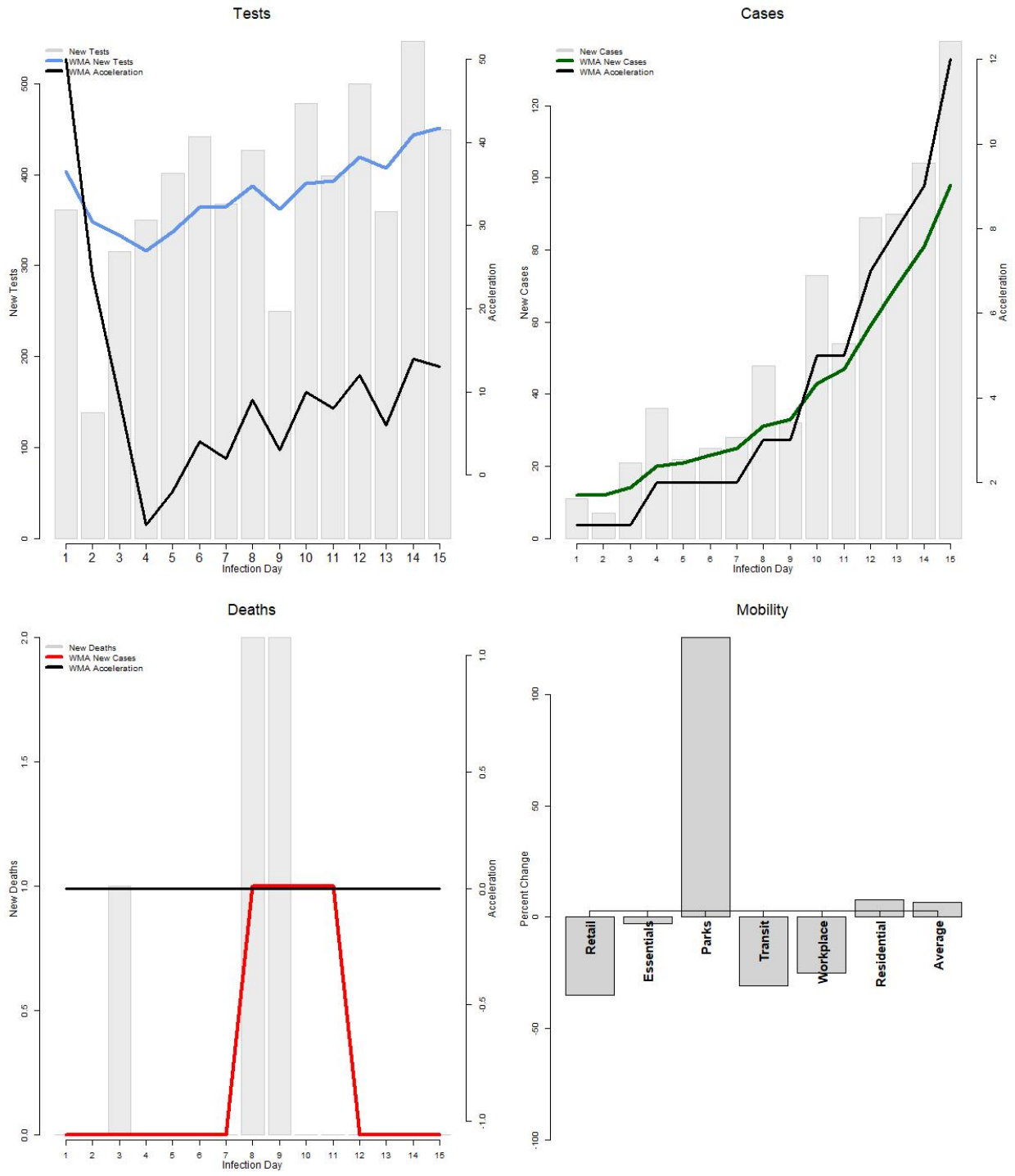


Table 43: Metrics as of 2020-04-14

State	Infected Date	Tests	Positive	Deaths	Pos Rate (%)	Death Rate (%)	New Cases	New Deaths
SD	2020-03-29	9002	868	6	9.6	0.7	138	0

TN

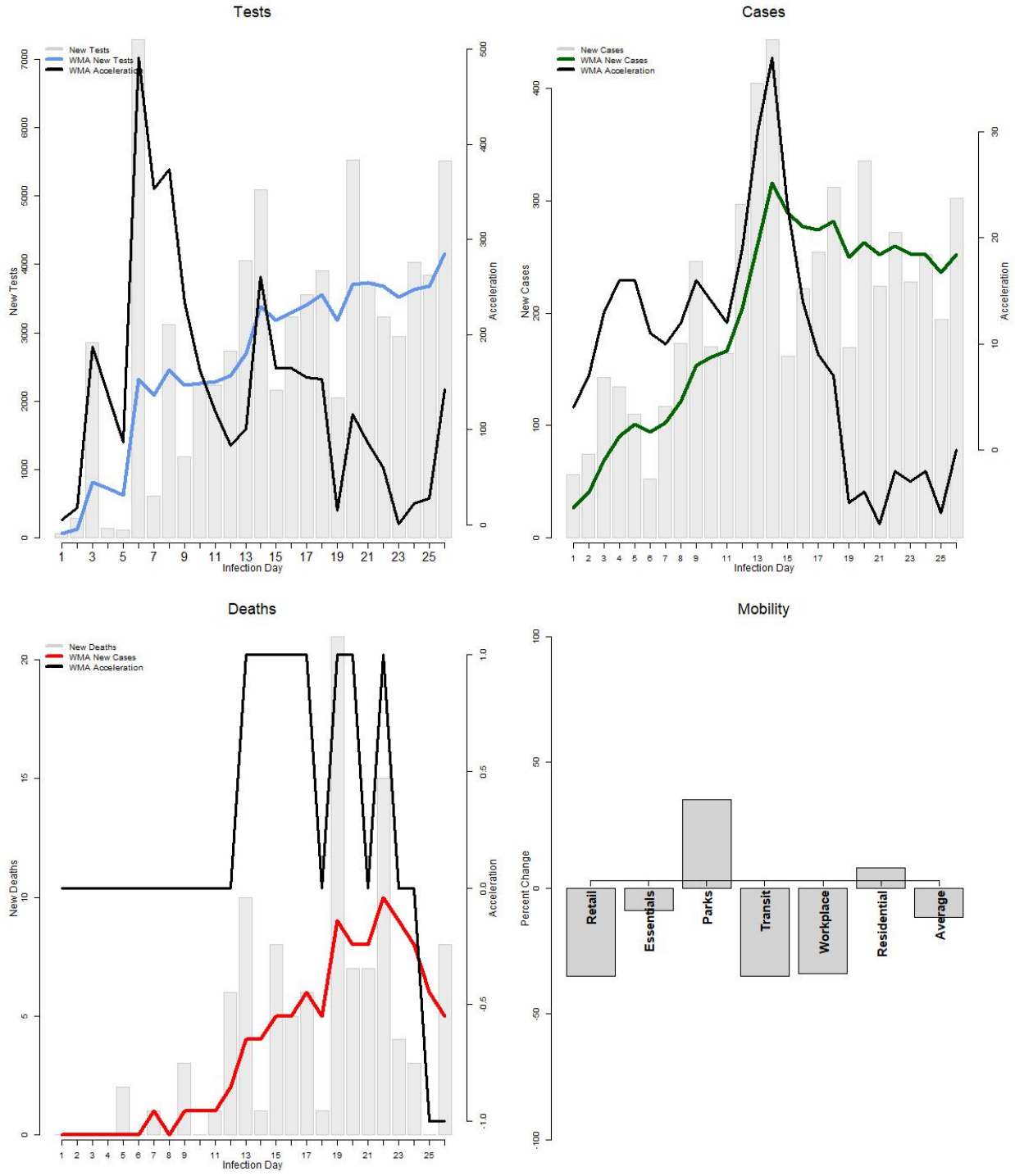


Table 44: Metrics as of 2020-04-14

State	Infected Date	Tests	Positive	Deaths	Pos Rate (%)	Death Rate (%)	New Cases	New Deaths
TN	2020-03-18	76195	5610	109	7.4	1.9	302	8

TX

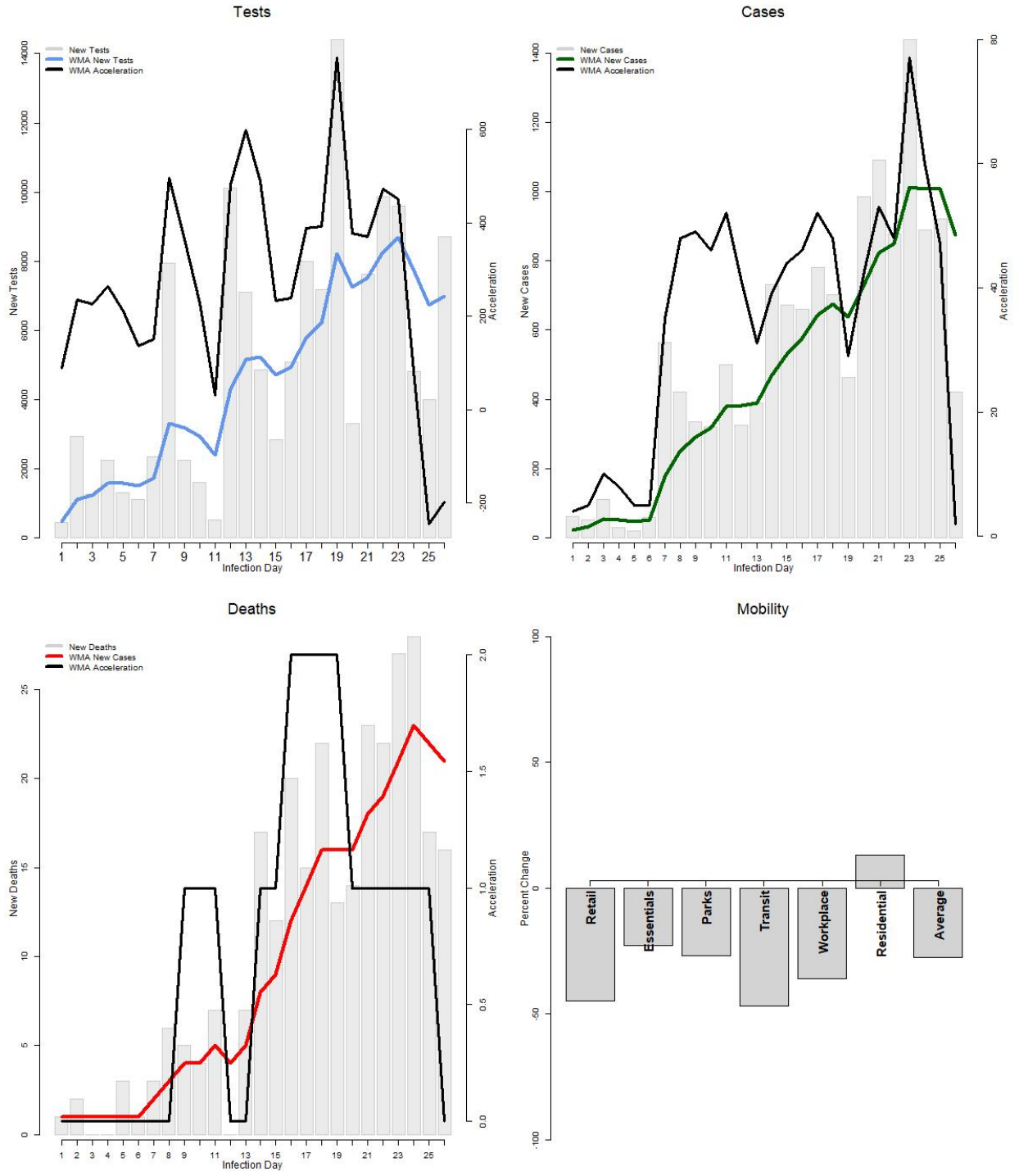


Table 45: Metrics as of 2020-04-14

State	Infected Date	Tests	Positive	Deaths	Pos Rate (%)	Death Rate (%)	New Cases	New Deaths
TX	2020-03-18	133226	13906	287	10.4	2.1	422	16

US

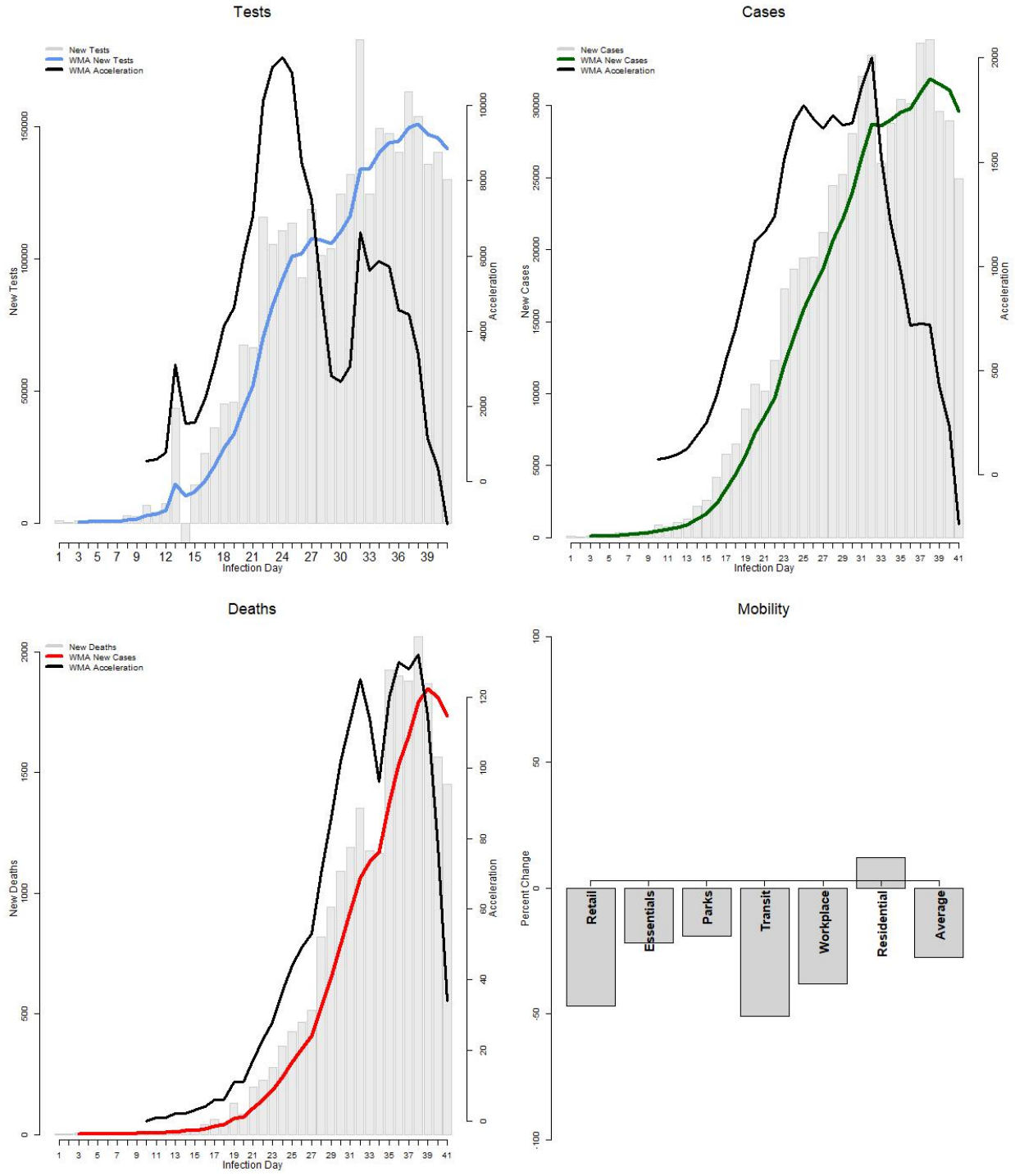


Table 46: Metrics as of 2020-04-14

State	Infected Date	Tests	Positive	Deaths	Pos Rate (%)	Death Rate (%)	New Cases	New Deaths
US	2020-03-03	2952165	576774	23369	19.5	4.1	24948	1450

UT

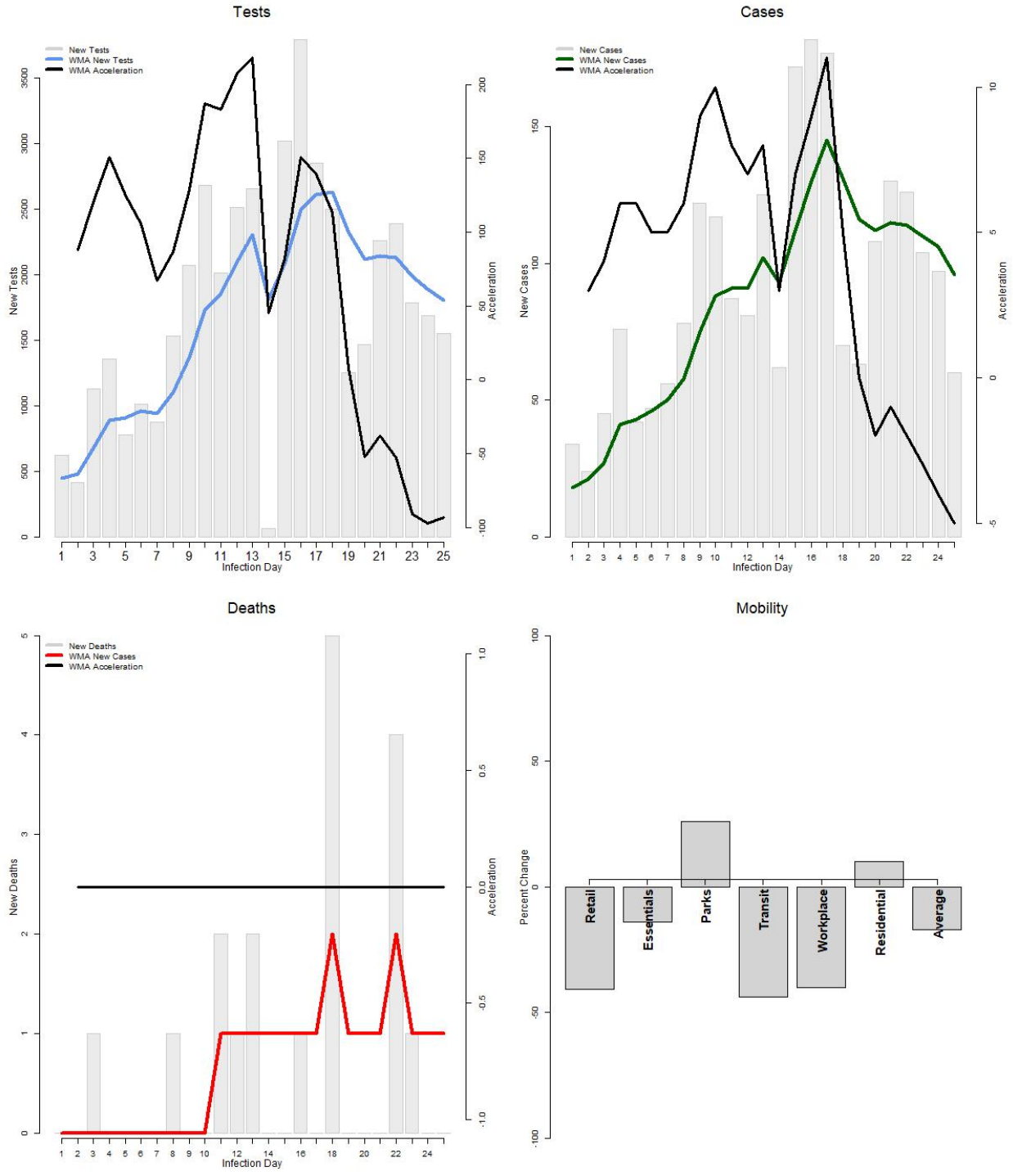


Table 47: Metrics as of 2020-04-14

State	Infected Date	Tests	Positive	Deaths	Pos Rate (%)	Death Rate (%)	New Cases	New Deaths
UT	2020-03-19	45787	2363	18	5.2	0.8	60	0

VA

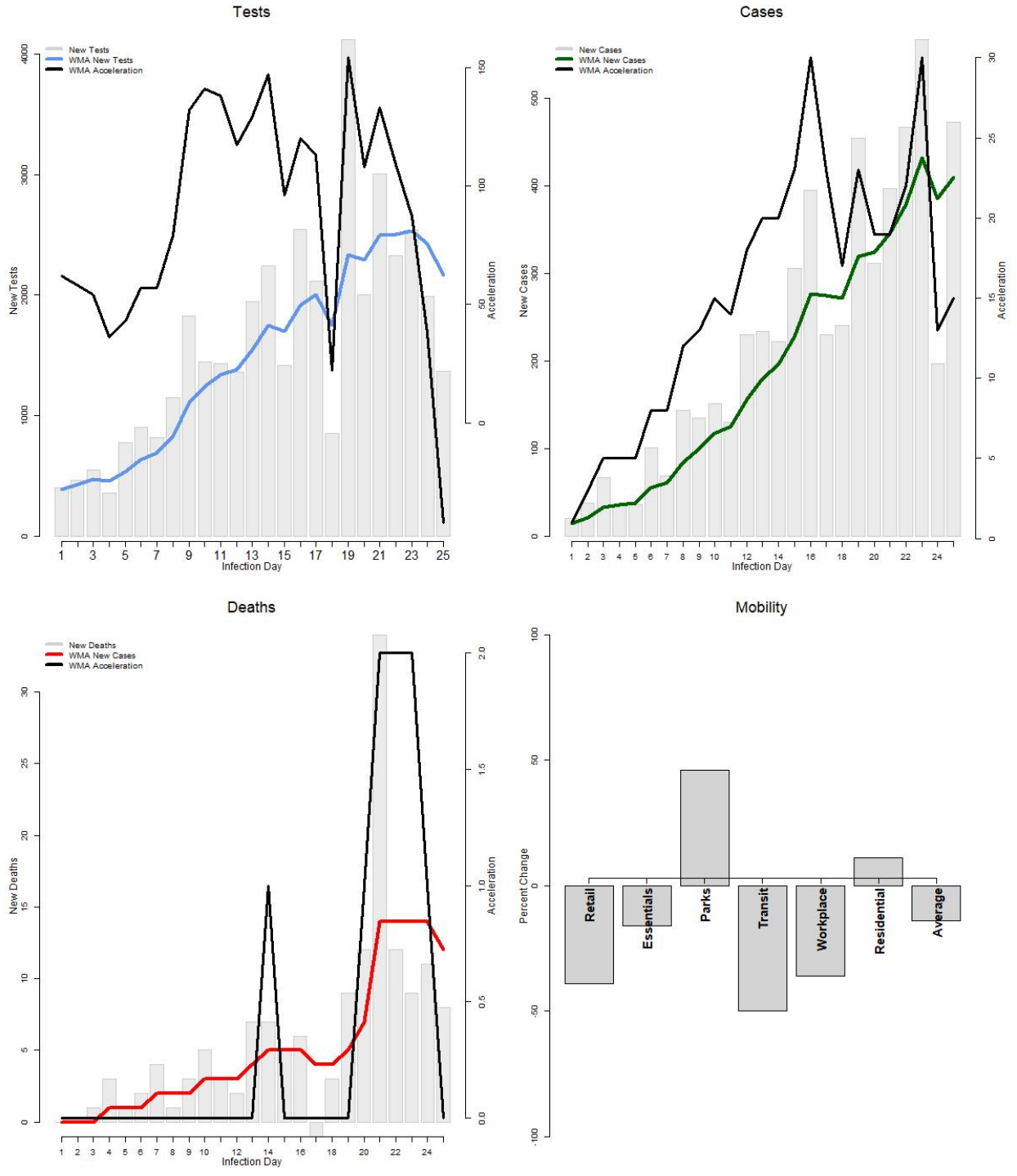


Table 48: Metrics as of 2020-04-14

State	Infected Date	Tests	Positive	Deaths	Pos Rate (%)	Death Rate (%)	New Cases	New Deaths
VA	2020-03-19	41874	5747	149	13.7	2.6	473	8

VT

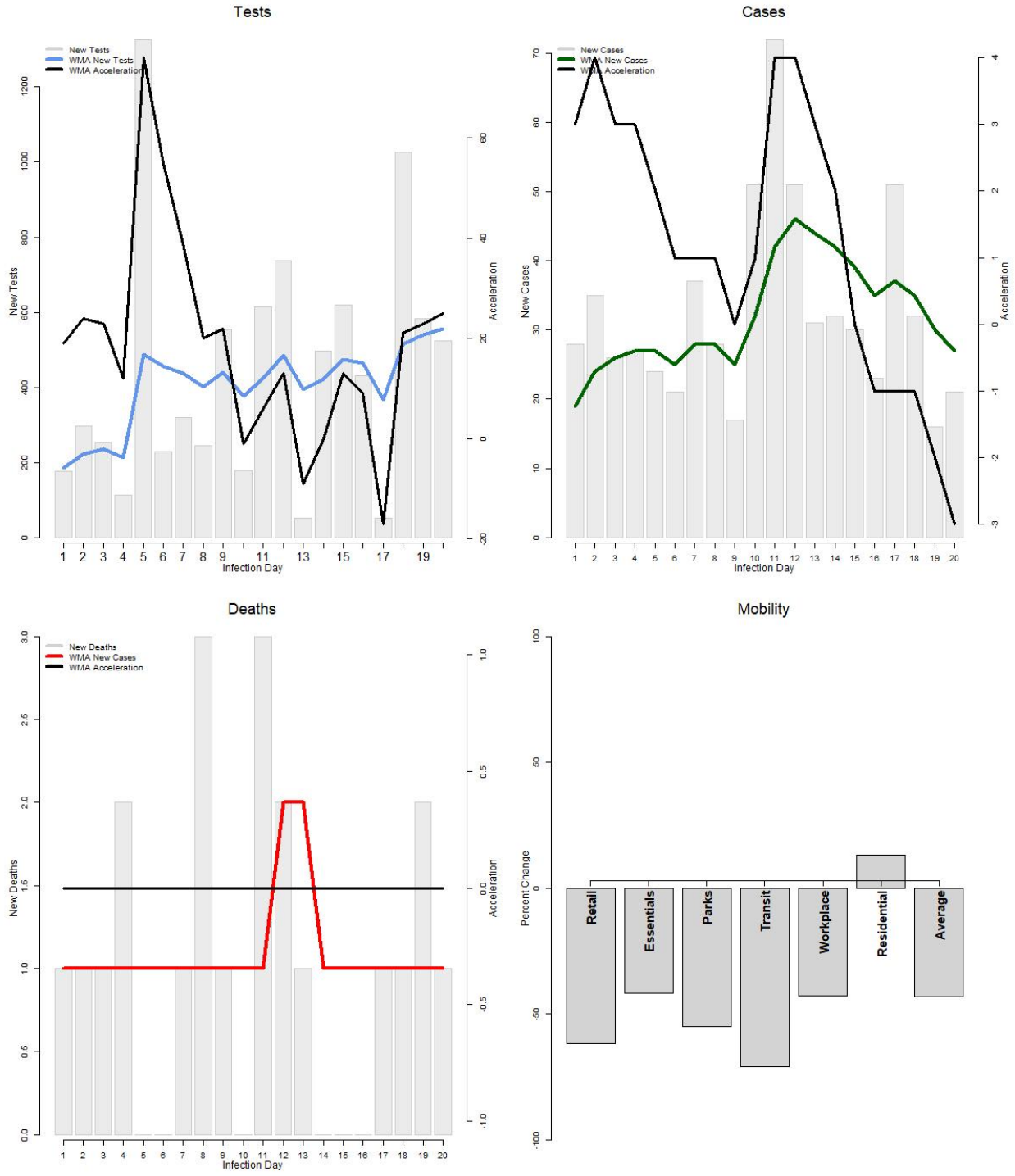


Table 49: Metrics as of 2020-04-14

State	Infected Date	Tests	Positive	Deaths	Pos Rate (%)	Death Rate (%)	New Cases	New Deaths
VT	2020-03-24	10366	748	28	7.2	3.7	21	1

WA

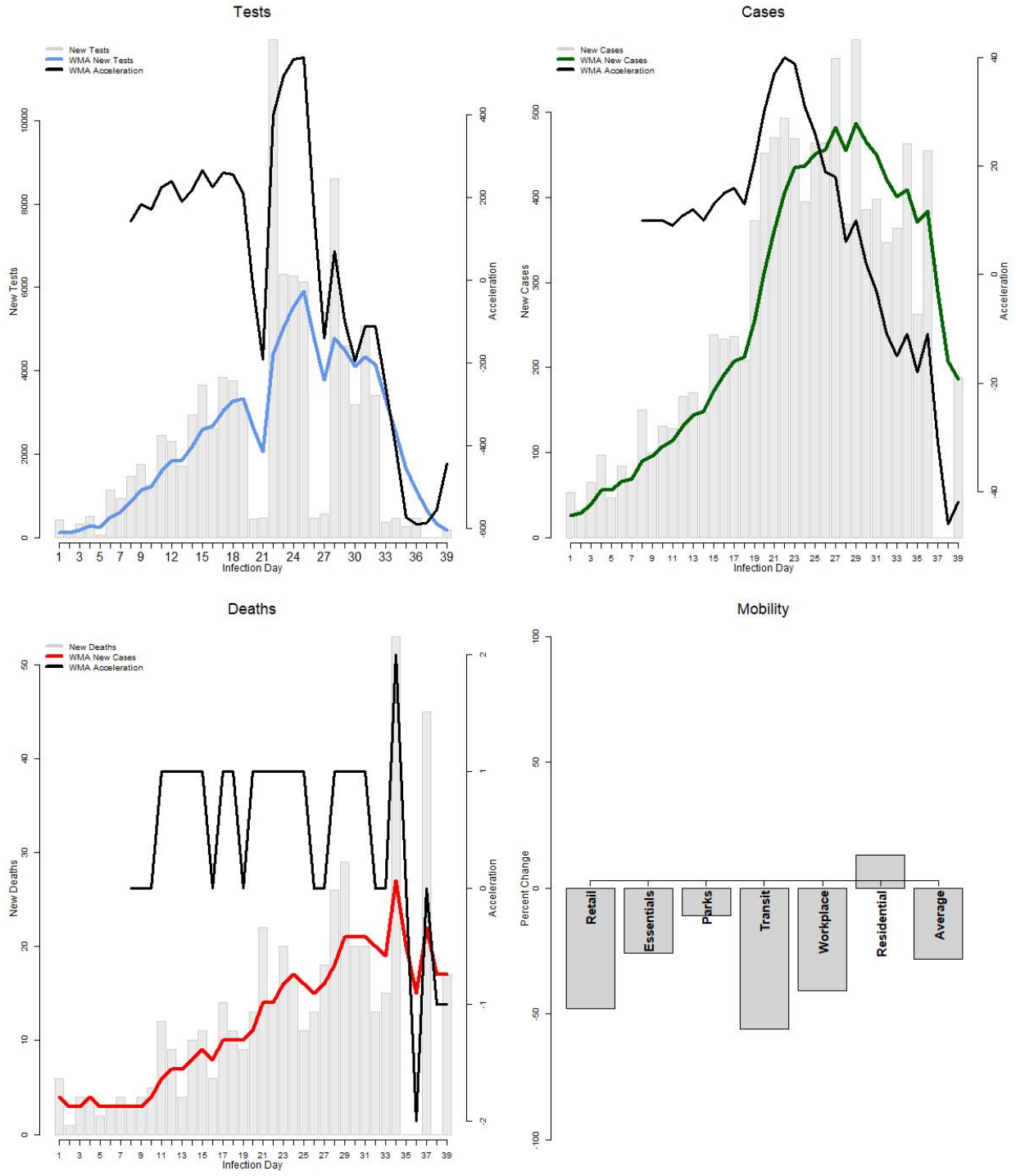


Table 50: Metrics as of 2020-04-14

State	Infected Date	Tests	Positive	Deaths	Pos Rate (%)	Death Rate (%)	New Cases	New Deaths
WA	2020-03-05	93802	10411	508	11.1	4.9	187	17

WI

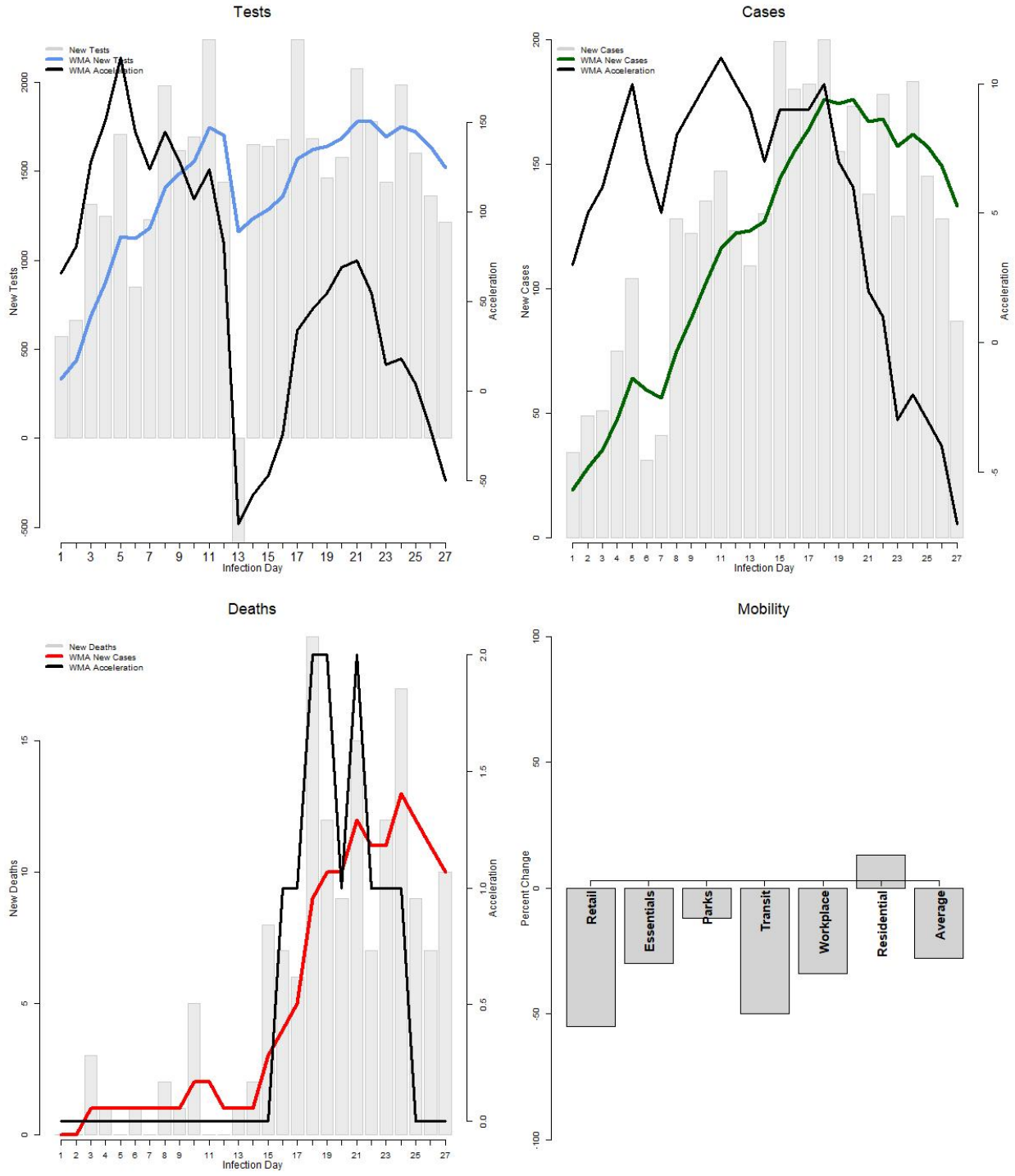


Table 51: Metrics as of 2020-04-14

State	Infected Date	Tests	Positive	Deaths	Pos Rate (%)	Death Rate (%)	New Cases	New Deaths
WI	2020-03-17	40470	3428	154	8.5	4.5	87	10

WV

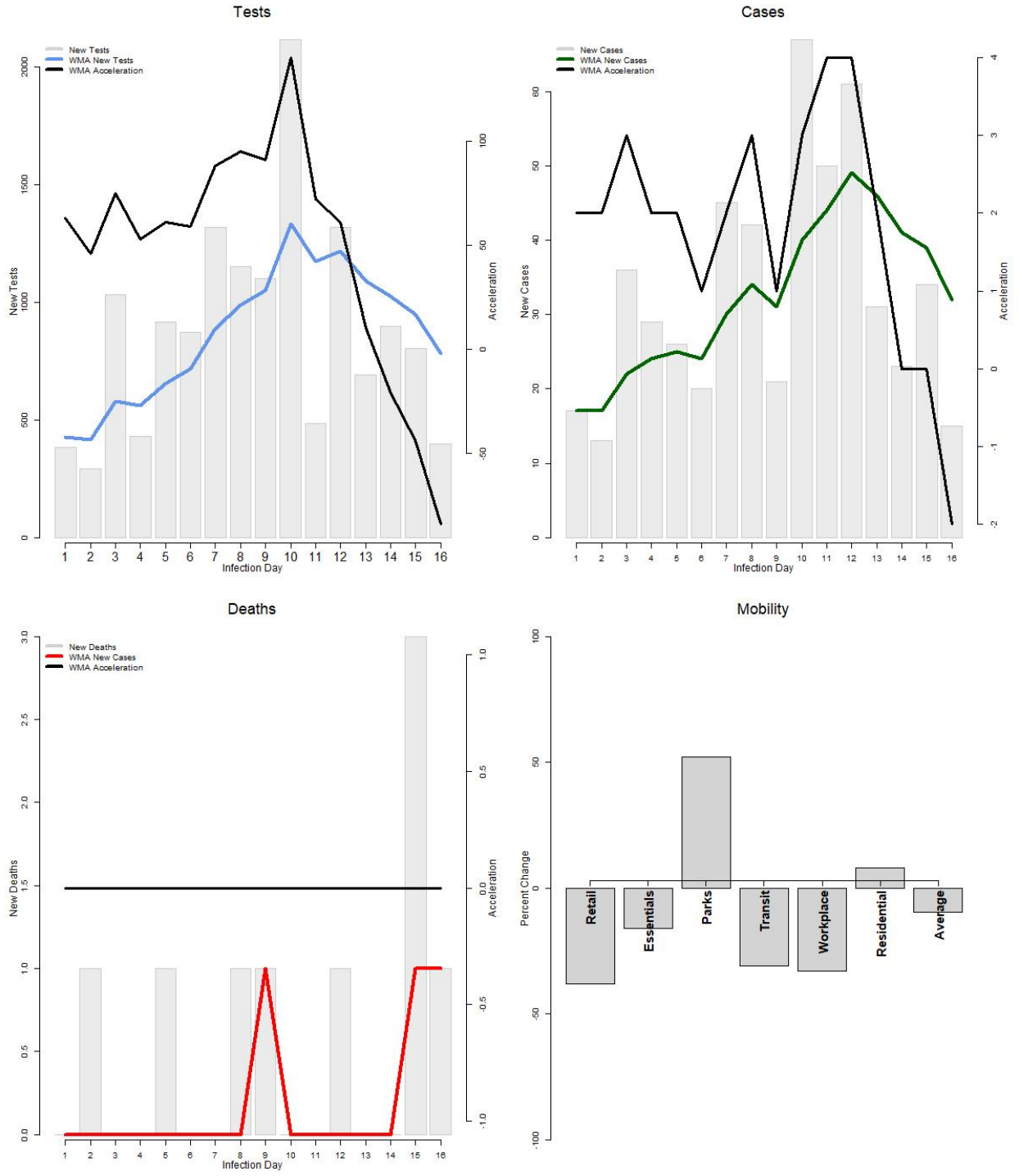


Table 52: Metrics as of 2020-04-14

State	Infected Date	Tests	Positive	Deaths	Pos Rate (%)	Death Rate (%)	New Cases	New Deaths
WV	2020-03-28	16655	626	9	3.8	1.4	15	1

WY

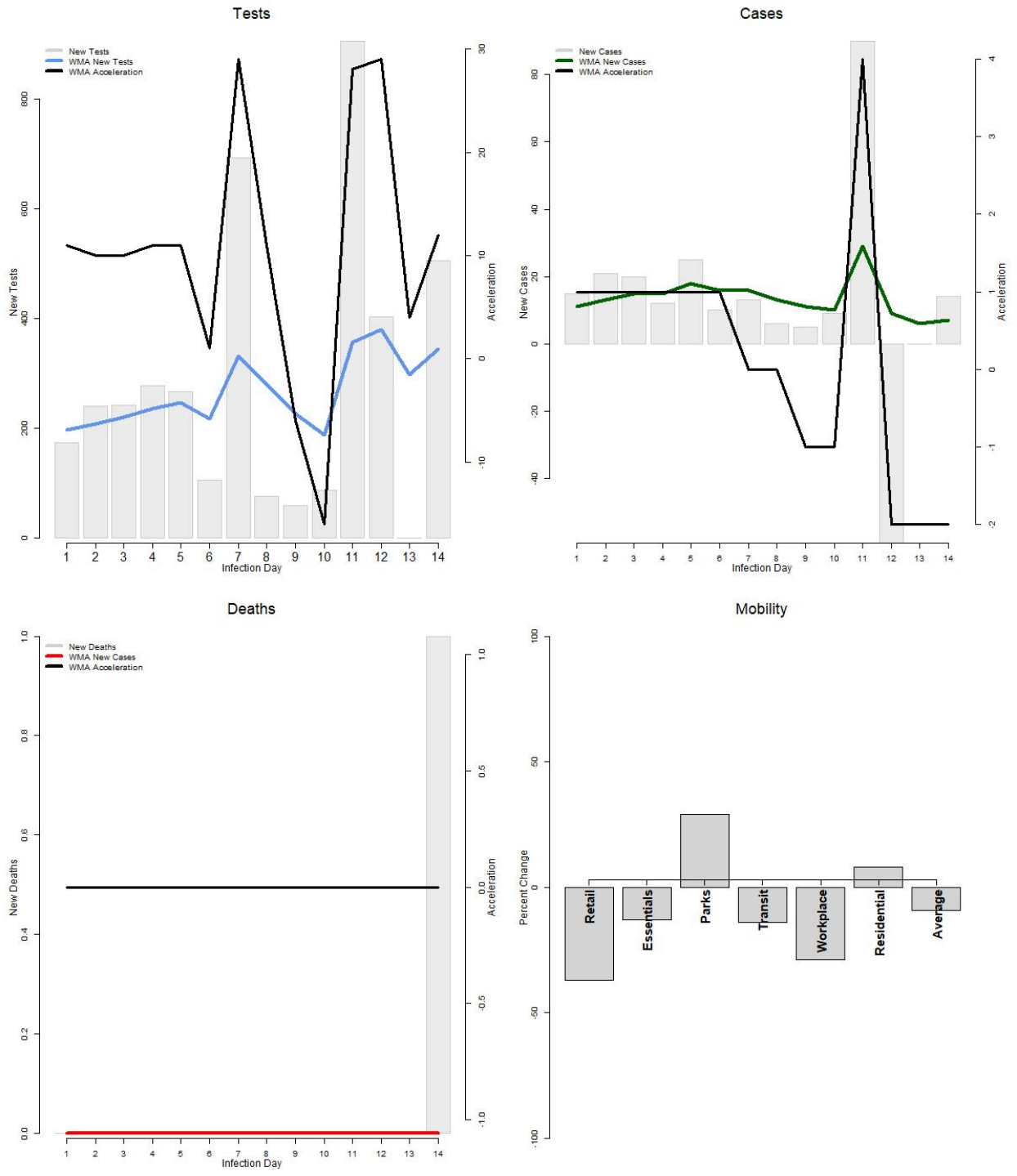


Table 53: Metrics as of 2020-04-14

State	Infected Date	Tests	Positive	Deaths	Pos Rate (%)	Death Rate (%)	New Cases	New Deaths
WY	2020-03-30	5964	275	1	4.6	0.4	14	1