

B.1.617.2 (Delta Variant) in Colorado

Colorado Department of Public Health and Environment

July 6, 2021

CMDA Meeting



COLORADO

Department of Public
Health & Environment

Characteristics of Delta Variant

- Increased transmissibility
 - Might be up to 50% more transmissible than B.1.1.7 (UK)
- Observed substantially higher growth rate than other variants in India (WHO)
- Potential reduction in neutralization by some EUA monoclonal antibody treatments (based on mutations; CDC, UK)
- Potential reduction in neutralization by post-vaccination sera (CDC, UK)
- Possible increased severity (including hospitalization) compared to B.1.1.7 (UK)

UK: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/986564/S1236_Eighty-nineth_SAGE_meeting.pdf
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/984274/Variants_of_Concern_VOC_Technical_Briefing_10_England.pdf

UK: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/992981/10_June_2021_Risk_assessment_for_SARS-CoV-2_variant_DELTA.pdf

WHO: <https://www.who.int/publications/m/item/weekly-epidemiological-update-on-covid-19---11-may-2021>

CDC: <https://www.cdc.gov/coronavirus/2019-ncov/variants/variant-info.html>

How well do vaccines work against Delta?

- Neutralizing titers (lab-based) compared to original strain
 - >5 fold reduction in ability of antibodies to neutralize virus for B.1.617.2

Vaccine effectiveness	Symptomatic		Hospitalization
	B.1.1.7	B.1.617.2	B.1.617.2
Pfizer	93.4%	87.9%	96%
AstraZeneca (not in US)	66.1%	59.8%	92%
Johnson & Johnson	85% against severe/critical disease + protection against hospitalization/death		

Overall:

- In the lab, antibodies seem to be less effective; unclear correlation with real world protection
- Possible decreased vaccine effectiveness; unclear clinical/population health impact
- Full vaccination still provides protection against B.1.617.2.

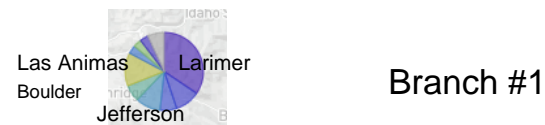
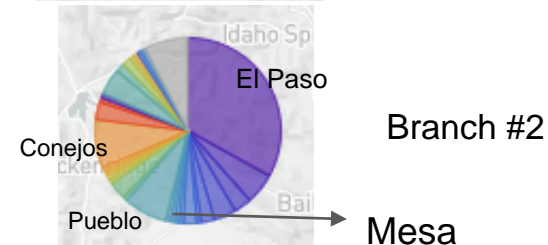
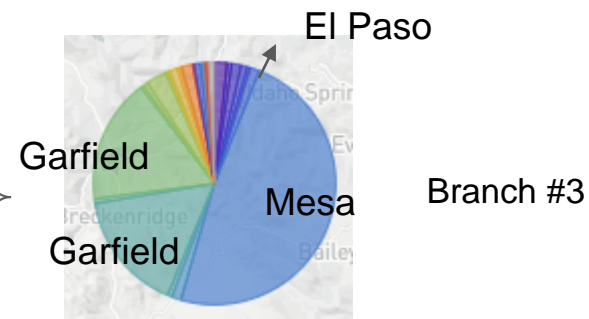
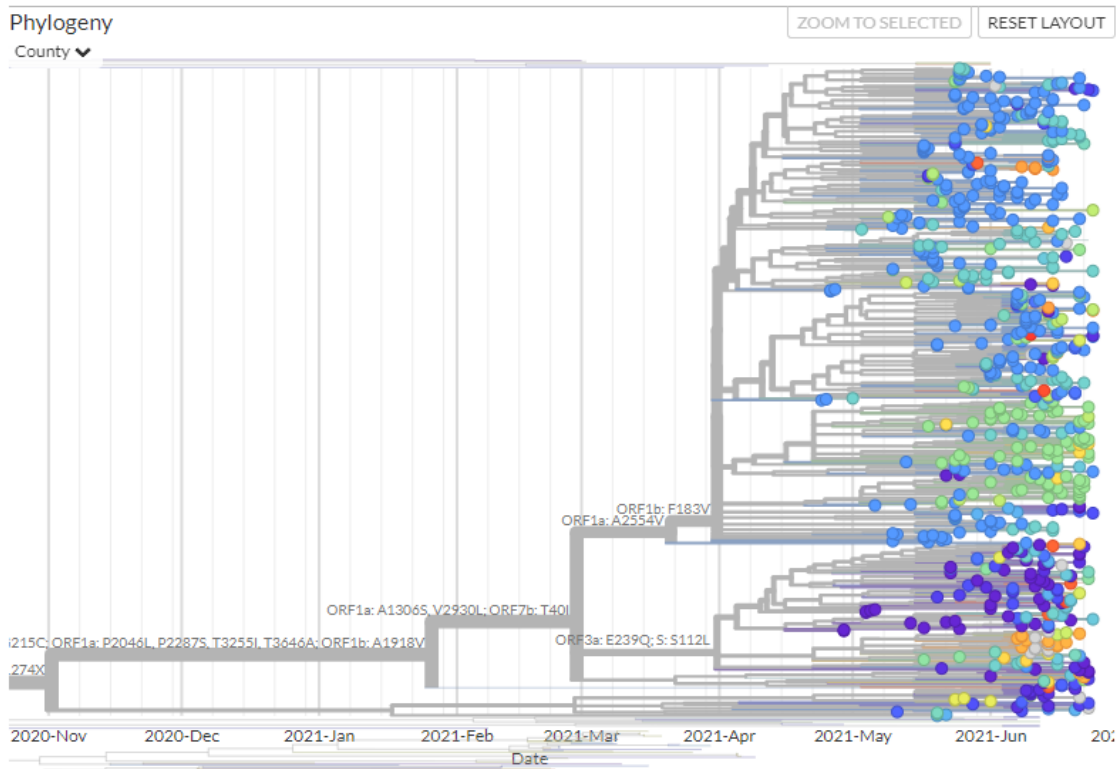
Monoclonal Antibodies and Delta Variant

- Bamlanivimab + etesevimab shown to have decreased activity against variants of concern that contain the E484K mutation
 - Casirivimab + imdevimab (REGEN-COV) also has decreased activity but to a lesser extent
- June 18 - distribution of bamlanivimab + etesevimab halted to 8 states with high case numbers of variants showing resistance
- June 25 - all distribution of bamlanivimab + etesevimab and etesevimab alone halted until further notice
 - Variants of concern demonstrating resistance to these monoclonal antibodies now total 11% of cases in the US and are trending upward

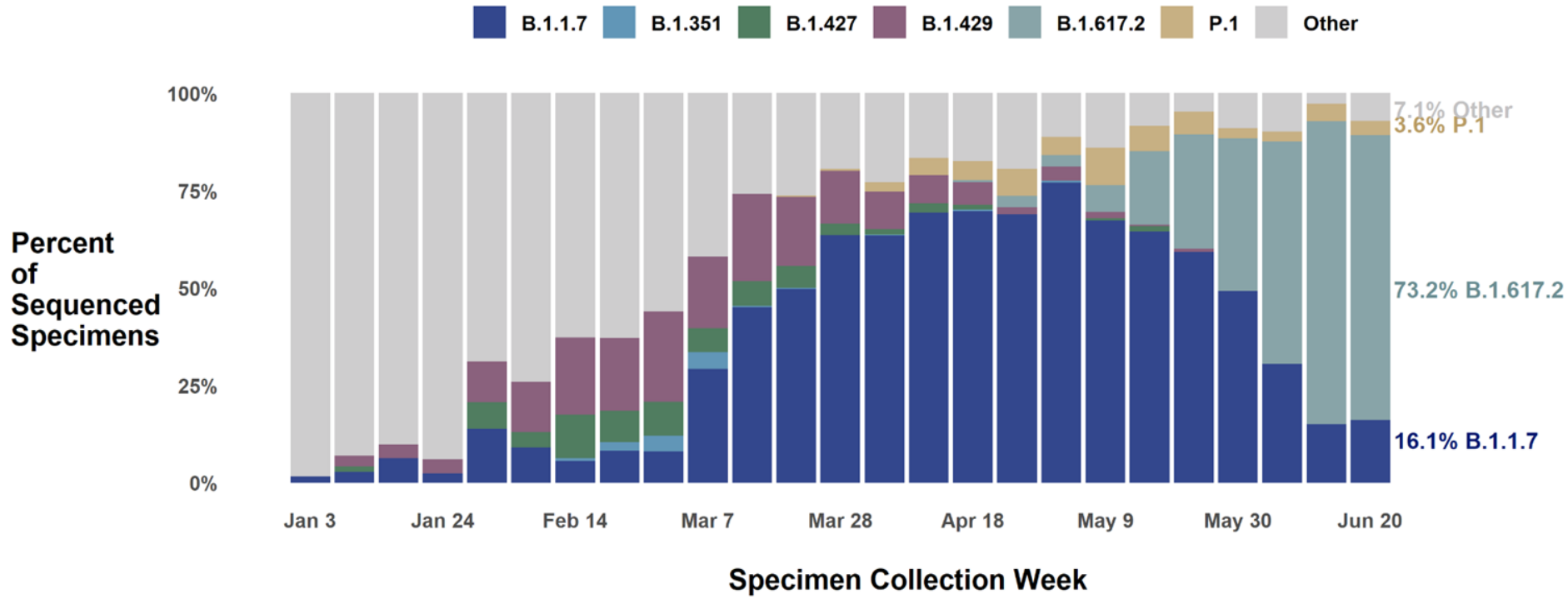
Delta Variant in Colorado

- First 2 cases identified on 5/5/2021 in Mesa County
 - Both cases were connected to a school outbreak
- As of 7/2/2021, Colorado has identified 1,188 cases with Delta variant, including 2 “Delta Plus” cases
 - 42.0% in Mesa County
 - 20.7% in El Paso County
 - 6.2% in Garfield County
 - 5.1% in Moffat County

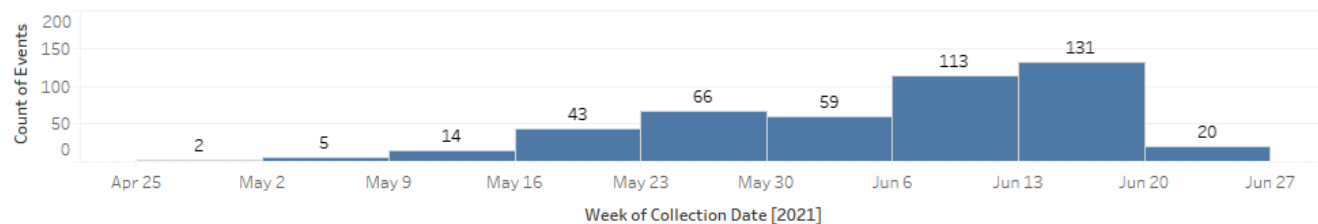
Phylogenetic Analysis



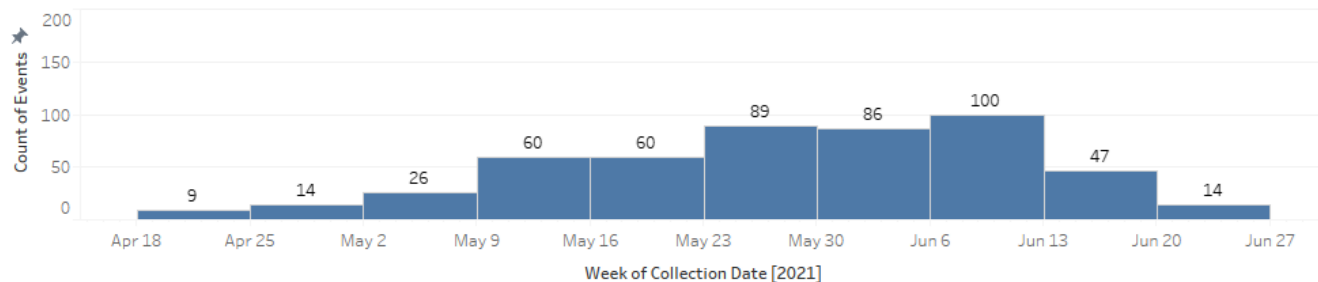
Statewide Variant Sentinel Surveillance



Colorado B.1.617.2s by Collection Date (excluding Mesa and El Paso Counties)

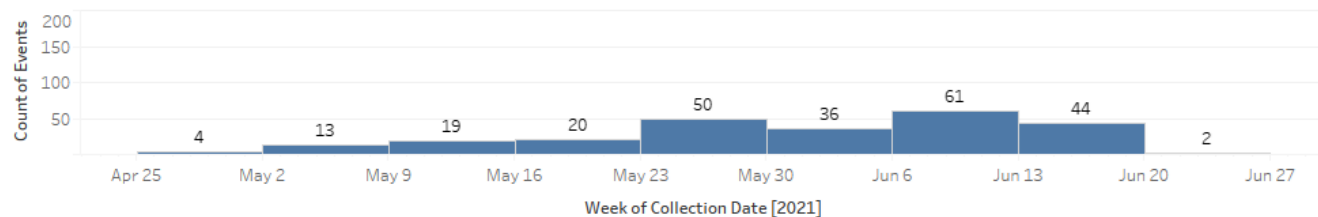


Mesa B.1.617.2s by Collection Date

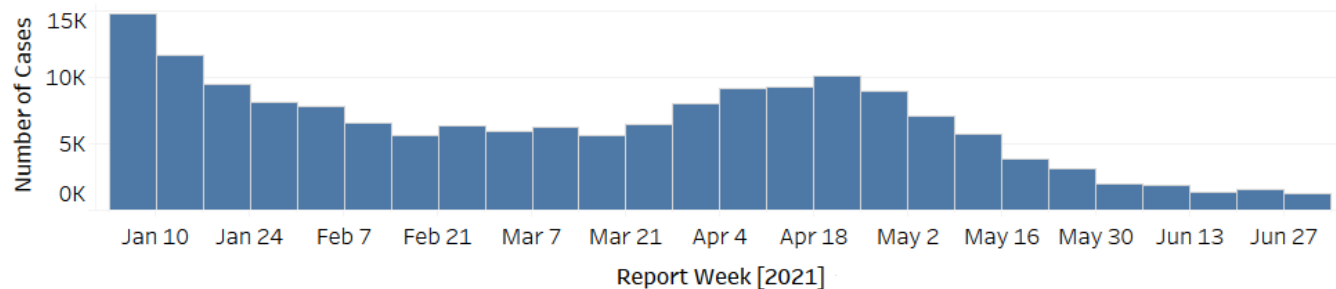


B.1.617.2 variants identified have been increasing in Colorado as well as Mesa and El Paso Counties . 42.0% of B.1.617.2 variants detected have been in Mesa County and 20.7% of B.1.617.2 variants detected have been in El Paso County , but it is spreading.

El Paso B.1.617.2s by Collection Date



Colorado COVID-19 Cases (excluding Mesa and El Paso Counties) by Report Week

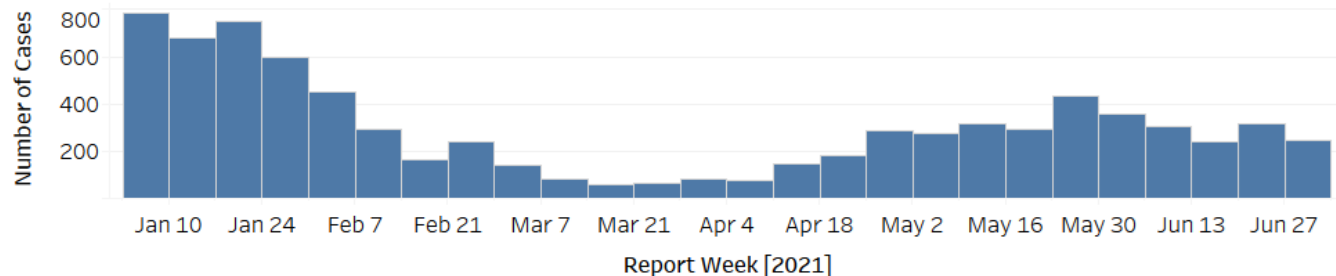


Colorado COVID-19 cases have been decreasing since mid-April.

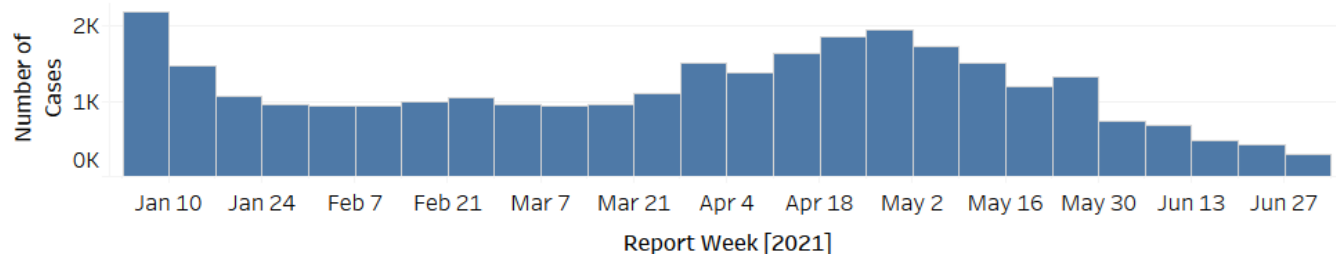
In Mesa County, COVID-19 cases have been increasing overall since early April and now may be decreasing, in contrast to cases overall in Colorado.

In El Paso County, cases have been decreasing despite seeing an increase in B.1.617.2 cases.

Mesa County COVID-19 Cases by Report Week

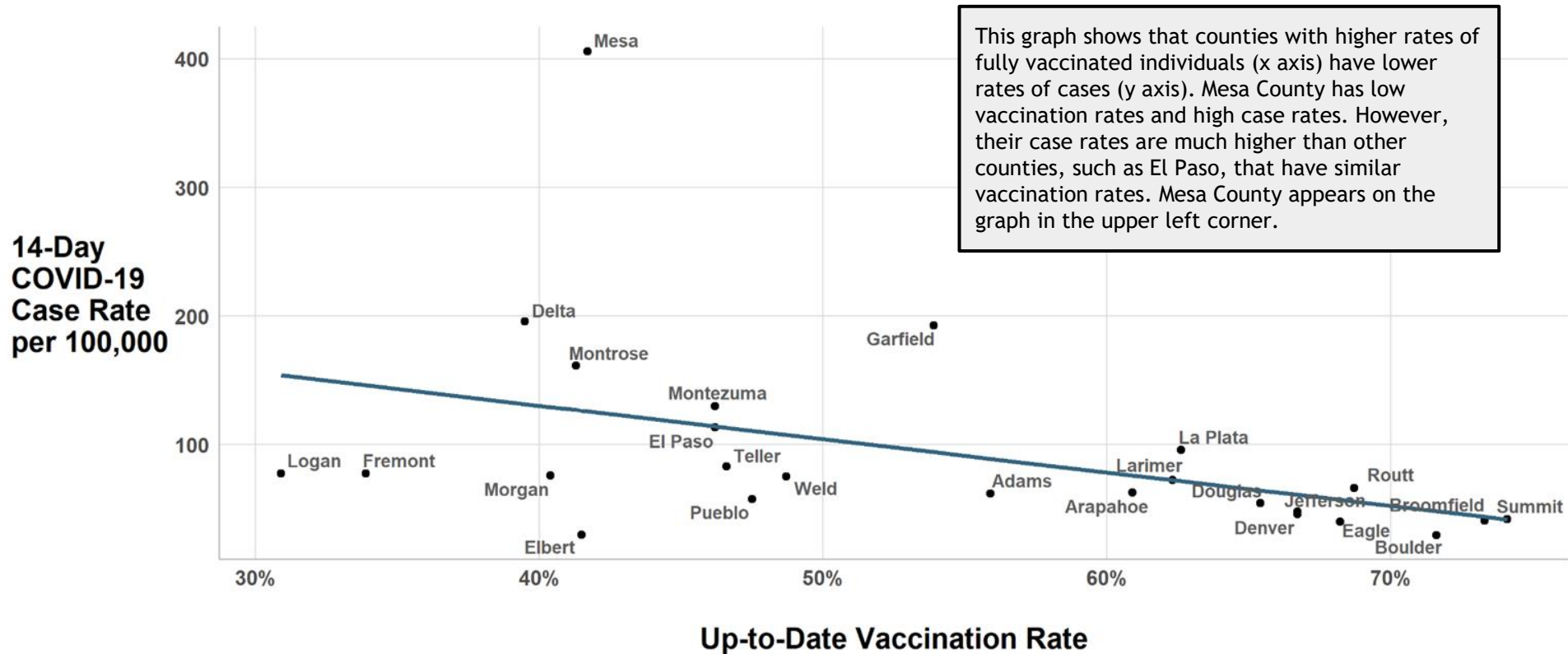


El Paso County COVID-19 Cases by Report Week

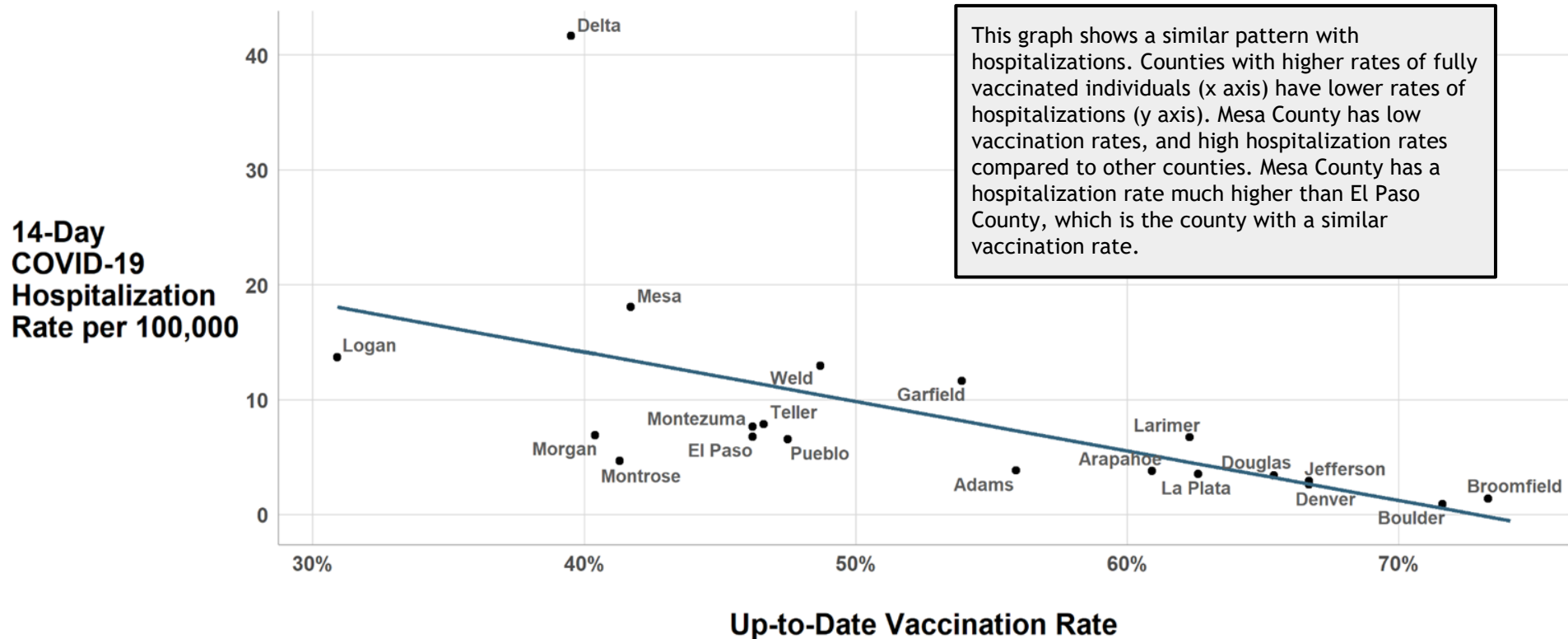


	Colorado COVID-19 Cases (excluding Mesa County)	Mesa County COVID-19 Cases	B.1.617.2s in Colorado (excluding Mesa County)	B.1.617.2s in Mesa County
Date Range	April 5, 2021 - July 1, 2021	April 5, 2021 - July 1, 2021	April 5, 2021- June 30, 2021	April 20, 2021- June 22, 2021
Number of cases	n=79,624	n=3,484	n=684	n=518
Median/Mean Age Range	31 yrs / 33.9 yrs 0-105*yrs	34 yrs / 36.8 yrs 0-103yrs	34 yrs / 37.0 yrs 1-103 yrs	35 yrs / 37.4 yrs 1-96 yrs
Sex	Male 49.4 % Female 50.0 %	Male 44.7 % Female 54.9 %	Male 49.4 % Female 50.1 %	Male 41.9 % Female 57.5 %
Hospitalized N(%)	4,749 (6.0%)	244 (7.0%)	78 (11.4%)	48 (9.3%)
Outcome N(%)	Died 541 (0.7%) Alive 79,083 (99.3%)	Died 38 (1.1%) Alive 3,446 (98.9%)	Died 16 (2.3%) Alive 668 (97.7%)	Died 9 (1.7%) Alive 509 (98.3%)
Reinfection N(%)	1020 (1.3%)	34 (1.0%)	0	0
Vaccine Breakthrough N(%)	3005 (3.8%)	242 (6.9%)	74 (10.9%)	52 (10.1%)

Correlation between 14-Day Case Rates and Up-to-Date Vaccination Rate

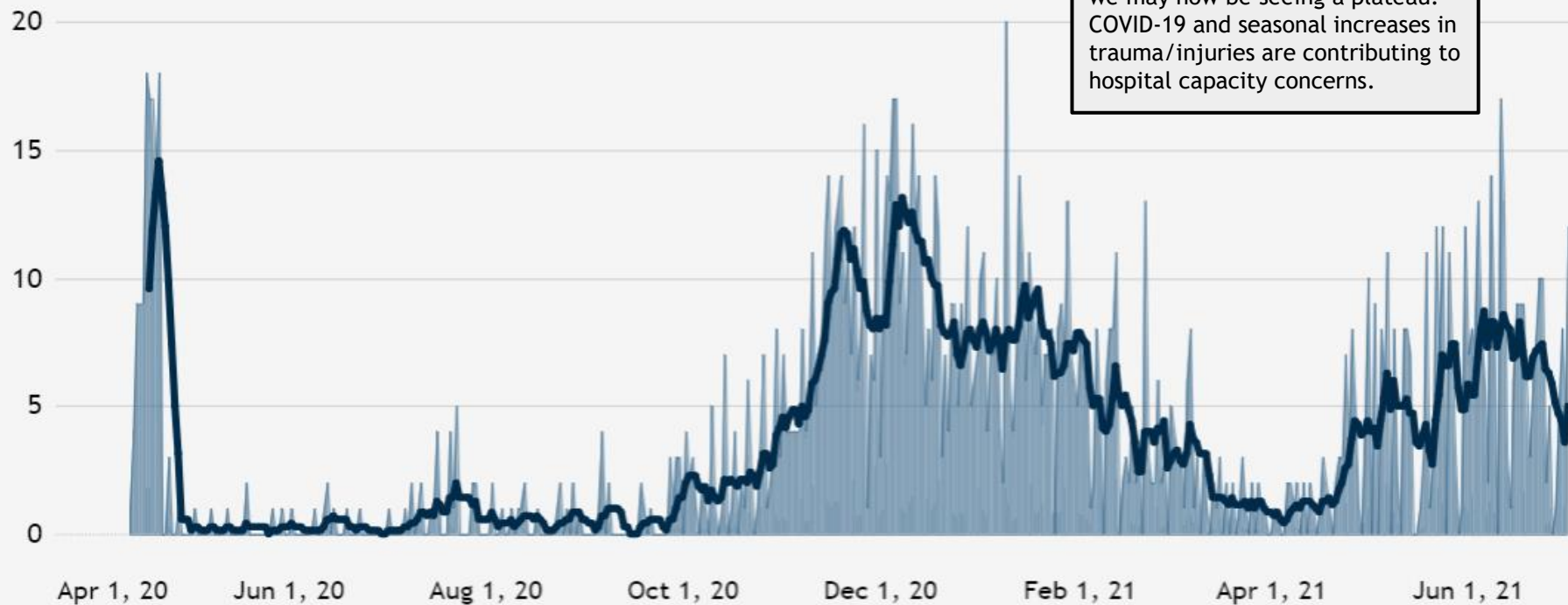


Correlation between 14-Day COVID-19 Hospitalization Rates and Up-to-Date Vaccination Rate



Daily Hospital Admissions in Mesa County

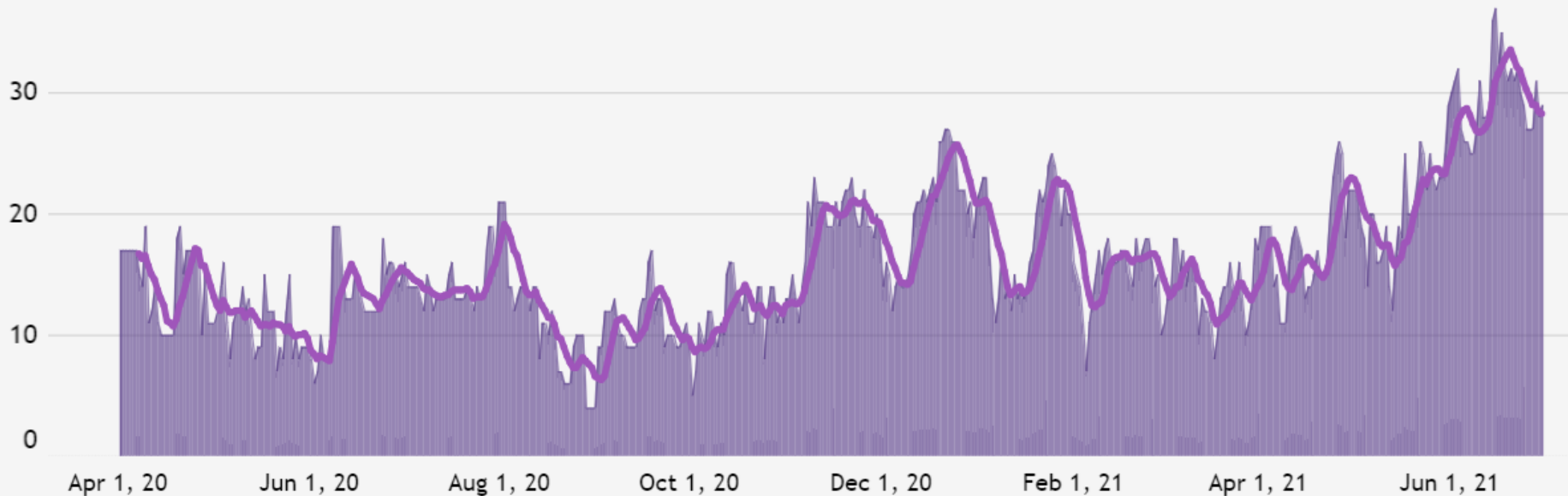
Hospitalizations in Mesa County had recently been increasing but we may now be seeing a plateau. COVID-19 and seasonal increases in trauma/injuries are contributing to hospital capacity concerns.



Ventilator Use in Mesa County

Adult and pediatric use of ventilators in Mesa County has been increasing.

Adult & Pediatric Critical Care Ventilators



Daily Hospital Admissions in El Paso County



Ventilator Use in El Paso County

Adult and pediatric use of ventilators in El Paso County has been increasing.

Adult & Pediatric Critical Care Ventilators

