

# COVID-19 State Indicator Report (beta)

## Georgia

Developed by the Case Surveillance Task Force in collaboration with the National Syndromic Surveillance Program, National Healthcare Safety Network (NHSN), COVID-19 Response, Centers for Disease Control and Prevention

Includes cases reported through June 14, 2020, mortality through June 14, 2020, NHSN data through June 15, 2020, and Emergency Department data through June 13, 2020.

## Introduction

June 16, 2020

Partners,

In order to assist state and local health jurisdictions with COVID-19 reopening decisions and policy making, CDC has developed a set of state-specific indicator reports that include data summaries and visualizations that correspond with the criteria described in the Reopening America Guidelines ([https://urldefense.proofpoint.com/v2/url?u=https-3A\\_\\_www.whitehouse.gov\\_openingamerica\\_&d=DwMGaQ&c=HPJvcKF4Kk5Wqru1T\\_u\\_fOsw8NVQVa3gp0ReMdlciXw&r=e-sRhz9-rsYLj33B540vVvdkGh4G-LQIVeP1Y38ZzCw&m=H6i58gXOZ-bdT\\_rFW9ldCitdhT9dqn2o5e-vgmIJKfc&s=\\_MXQD6H21tYGMQzMckbJGh6F4psc84b8I4wOYJwSSeQ&e=](https://urldefense.proofpoint.com/v2/url?u=https-3A__www.whitehouse.gov_openingamerica_&d=DwMGaQ&c=HPJvcKF4Kk5Wqru1T_u_fOsw8NVQVa3gp0ReMdlciXw&r=e-sRhz9-rsYLj33B540vVvdkGh4G-LQIVeP1Y38ZzCw&m=H6i58gXOZ-bdT_rFW9ldCitdhT9dqn2o5e-vgmIJKfc&s=_MXQD6H21tYGMQzMckbJGh6F4psc84b8I4wOYJwSSeQ&e=))).

These State Indicator Reports currently contain data visualizations and summaries that address 4 of the 6 indicators included in the Reopening America Guidelines ([https://urldefense.proofpoint.com/v2/url?u=https-3A\\_\\_www.whitehouse.gov\\_openingamerica\\_&d=DwMGaQ&c=HPJvcKF4Kk5Wqru1T\\_u\\_fOsw8NVQVa3gp0ReMdlciXw&r=e-sRhz9-rsYLj33B540vVvdkGh4G-LQIVeP1Y38ZzCw&m=H6i58gXOZ-bdT\\_rFW9ldCitdhT9dqn2o5e-vgmIJKfc&s=\\_MXQD6H21tYGMQzMckbJGh6F4psc84b8I4wOYJwSSeQ&e=](https://urldefense.proofpoint.com/v2/url?u=https-3A__www.whitehouse.gov_openingamerica_&d=DwMGaQ&c=HPJvcKF4Kk5Wqru1T_u_fOsw8NVQVa3gp0ReMdlciXw&r=e-sRhz9-rsYLj33B540vVvdkGh4G-LQIVeP1Y38ZzCw&m=H6i58gXOZ-bdT_rFW9ldCitdhT9dqn2o5e-vgmIJKfc&s=_MXQD6H21tYGMQzMckbJGh6F4psc84b8I4wOYJwSSeQ&e=)), reported at state and select jurisdictional levels:

- **Downward trajectory in COVID-like illness (CLI) emergency department visit data:** sourced from Biosense syndromic surveillance system data
- **Downward trajectory in case reports:** sourced from state-verified case report data at the state level, and USAFacts case report data at the county level
- **Downward trajectory in positive tests as a percent of total tests, while total test volume is flat or increasing:** sourced from HHS Protect laboratory results data
- **Daily changes in healthcare utilization, including inpatient bed, ICU bed and ventilator occupancy, and percentage of inpatient beds and ventilators occupied by COVID-19 patients:** sourced from NHSN COVID-19 module

### Updates to the report since June 12, 2020:

No changes since June 12.

With the goal of expanding to include additional indicators in the near future, we plan to iterate on this report in order to improve its usefulness. In the meantime, we want to highlight our NHSN partners' report, which

contains detailed metrics on healthcare capacity by location and over time. This report is delivered in parallel with this state indicator report, using the same secure email notification system.

The report itself contains an introduction and purpose statement, state-level indicators, county-level indicators, and an appendix describing all methods and data sources used to derive the numbers in the report. We are able to provide geographic breakdowns smaller than state; if you prefer a regional or other breakdown besides county, please let us know and provide us with a .csv file that links the jurisdiction of choice with county FIPS codes.

We are also making available the R code used to create the reports, so that they may be adapted for use with different data sources. The code is available through BitBucket ([https://urldefense.proofpoint.com/v2/url?u=https-3A\\_\\_bitbucket.org\\_icfbiosense\\_covid-2Dresponse-2Danalyses\\_src\\_master\\_&d=DwMGaQ&c=HPJvcKF4Kk5Wqru1T\\_u\\_fOsw8NVQVa3gp0ReMdlciXw&r=e-sRhZ9-rsYLj33B540vVvdkGh4G-LQIVeP1Y38ZzCw&m=H6i58gXOZ-bdT\\_rFW9ldCitdhT9dqN2o5e-vgmlJKfc&s=NNte057dBjG306-p5oG3Cubcrt1fzH-HN0Coyqq8LX8&e=](https://urldefense.proofpoint.com/v2/url?u=https-3A__bitbucket.org_icfbiosense_covid-2Dresponse-2Danalyses_src_master_&d=DwMGaQ&c=HPJvcKF4Kk5Wqru1T_u_fOsw8NVQVa3gp0ReMdlciXw&r=e-sRhZ9-rsYLj33B540vVvdkGh4G-LQIVeP1Y38ZzCw&m=H6i58gXOZ-bdT_rFW9ldCitdhT9dqN2o5e-vgmlJKfc&s=NNte057dBjG306-p5oG3Cubcrt1fzH-HN0Coyqq8LX8&e=)), an online code repository where the most updated version will be available for download. Here's how to access the code repository:

1. Follow the link in the email invitation you received from BitBucket ([https://urldefense.proofpoint.com/v2/url?u=https-3A\\_\\_bitbucket.org\\_icfbiosense\\_covid-2Dresponse-2Danalyses\\_src\\_master\\_&d=DwMGaQ&c=HPJvcKF4Kk5Wqru1T\\_u\\_fOsw8NVQVa3gp0ReMdlciXw&r=e-sRhZ9-rsYLj33B540vVvdkGh4G-LQIVeP1Y38ZzCw&m=H6i58gXOZ-bdT\\_rFW9ldCitdhT9dqN2o5e-vgmlJKfc&s=NNte057dBjG306-p5oG3Cubcrt1fzH-HN0Coyqq8LX8&e=](https://urldefense.proofpoint.com/v2/url?u=https-3A__bitbucket.org_icfbiosense_covid-2Dresponse-2Danalyses_src_master_&d=DwMGaQ&c=HPJvcKF4Kk5Wqru1T_u_fOsw8NVQVa3gp0ReMdlciXw&r=e-sRhZ9-rsYLj33B540vVvdkGh4G-LQIVeP1Y38ZzCw&m=H6i58gXOZ-bdT_rFW9ldCitdhT9dqN2o5e-vgmlJKfc&s=NNte057dBjG306-p5oG3Cubcrt1fzH-HN0Coyqq8LX8&e=))
2. If you don't already have an account, create one using the email address you use to receive reports via NHSN (email comes from a Sharefile invitation from Dr. Brooke Hoots).
3. You have been given read-only access to this repository. You can access these files in two ways. First, you can access files through a project in RStudio that points to the repository. Second, you can download the files or copy the code from BitBucket. BitBucket will always include the most current version of all code.
4. Finally, if you need an invitation or are still unable to access the repository, please email [eocevent118@cdc.gov](mailto:eocevent118@cdc.gov) (<mailto:eocevent118@cdc.gov>) and reference the State Indicator Report.

Local and state officials should use the best data available, regardless of source, when assessing the trajectory of COVID-19 illnesses. Variability will exist from jurisdiction to jurisdiction on the quality, completeness, and timeliness of these data sources, and sufficient data may not be available for all jurisdictions to evaluate all gating criteria. The data in these reports may have limitations in completeness or timeliness and should be used in combination with additional regional data sources as available. For more on the development of these indicators, their strengths and weaknesses and how they may be used for developing mitigation strategies, please see Appendix E within the document CDC Activities and Initiatives Supporting the COVID-19 Response and the President's Plan for Opening America Up Again- May 2020, available at <https://www.cdc.gov/coronavirus/2019-ncov/downloads/php/CDC-Activities-Initiatives-for-COVID-19-Response.pdf> ([https://urldefense.proofpoint.com/v2/url?u=https-3A\\_\\_www.cdc.gov\\_coronavirus\\_2019-2Dncov\\_downloads\\_php\\_CDC-2DActivities-2DInitiatives-2Dfor-2DCOVID-2D19-2DResponse.pdf&d=DwMGaQ&c=HPJvcKF4Kk5Wqru1T\\_u\\_fOsw8NVQVa3gp0ReMdlciXw&r=e-sRhZ9-rsYLj33B540vVvdkGh4G-LQIVeP1Y38ZzCw&m=H6i58gXOZ-bdT\\_rFW9ldCitdhT9dqN2o5e-vgmlJKfc&s=ORv2xJPNpeVemYeclWRmR6j0Cf3HJ110SsHXc89-q9s&e=](https://urldefense.proofpoint.com/v2/url?u=https-3A__www.cdc.gov_coronavirus_2019-2Dncov_downloads_php_CDC-2DActivities-2DInitiatives-2Dfor-2DCOVID-2D19-2DResponse.pdf&d=DwMGaQ&c=HPJvcKF4Kk5Wqru1T_u_fOsw8NVQVa3gp0ReMdlciXw&r=e-sRhZ9-rsYLj33B540vVvdkGh4G-LQIVeP1Y38ZzCw&m=H6i58gXOZ-bdT_rFW9ldCitdhT9dqN2o5e-vgmlJKfc&s=ORv2xJPNpeVemYeclWRmR6j0Cf3HJ110SsHXc89-q9s&e=))

[https://urldefense.proofpoint.com/v2/url?u=https-3A\\_\\_www.cdc.gov\\_coronavirus\\_2019-2Dncov\\_downloads\\_php\\_CDC-2DActivities-2DInitiatives-2Dfor-2DCOVID-2D19-2DResponse.pdf&d=DwMGaQ&c=HPJvcKF4Kk5Wqru1T\\_u\\_fOsw8NVQVa3gp0ReMdlciXw&r=e-sRhZ9-rsYLj33B540vVvdkGh4G-LQIVeP1Y38ZzCw&m=H6i58gXOZ-bdT\\_rFW9ldCitdhT9dqN2o5e-vgmlJKfc&s=ORv2xJPNpeVemYeclWRmR6j0Cf3HJ110SsHXc89-q9s&e=](https://urldefense.proofpoint.com/v2/url?u=https-3A__www.cdc.gov_coronavirus_2019-2Dncov_downloads_php_CDC-2DActivities-2DInitiatives-2Dfor-2DCOVID-2D19-2DResponse.pdf&d=DwMGaQ&c=HPJvcKF4Kk5Wqru1T_u_fOsw8NVQVa3gp0ReMdlciXw&r=e-sRhZ9-rsYLj33B540vVvdkGh4G-LQIVeP1Y38ZzCw&m=H6i58gXOZ-bdT_rFW9ldCitdhT9dqN2o5e-vgmlJKfc&s=ORv2xJPNpeVemYeclWRmR6j0Cf3HJ110SsHXc89-q9s&e=)

CDC will send out these secure state indicator reports twice weekly to the state preparedness coordinators, hospital acquired infections coordinators and state epidemiologists, in tandem with bi-weekly reports of NHSN's COVID-19 Module.

We are interested in your feedback on these reports as we continue to improve and add content to them.

Please feel free to reach out with comments and questions at to the Case Surveillance Taskforce State Coordination Team, at [eocevent118@cdc.gov](mailto:eocevent118@cdc.gov) (mailto:eocevent118@cdc.gov) or via your CDC Health Department Taskforce Liaison, and reference the State Indicator Reports. We will triage questions on specific indicators or data sources to the appropriate subject matter expert.

## Purpose

The purpose of this report is to provide state and local public health partners with timely, integrated data from a variety of sources, along with derived indicators of trends in the data. Our goal is to provide a resource that can inform reopening decisions, when used in the context of additional relevant data at the state and local level.

## Data sources

State-level case counts and mortality data: State-verified case report counts in NNDSS and DCIPHER

County-level case counts and mortality data: USAFacts

COVID-like Illness (CLI) Emergency Department Data: BioSense- Facility Location

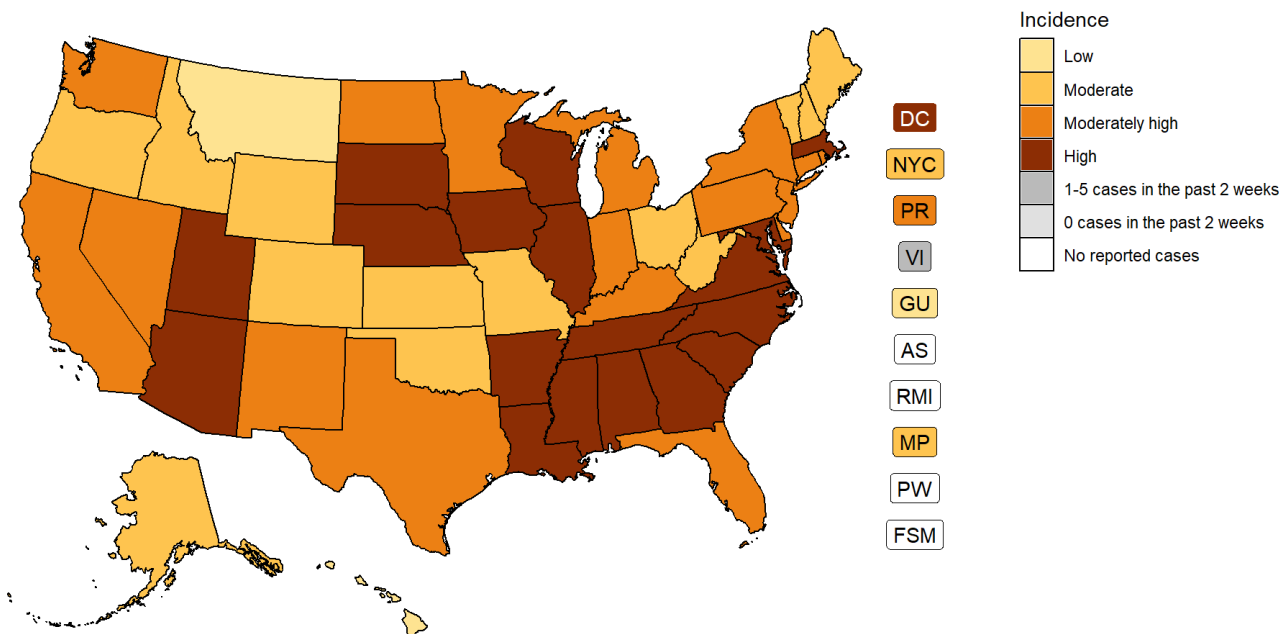
Total testing volume and results: HHS Protect Laboratory Data

Population denominator for incidence calculations: 2018 US Census estimates

Hospitalized COVID-19 patients, ventilators used by COVID-19 patients, beds, ICU beds and ventilators occupancy: NHSN COVID-19 module

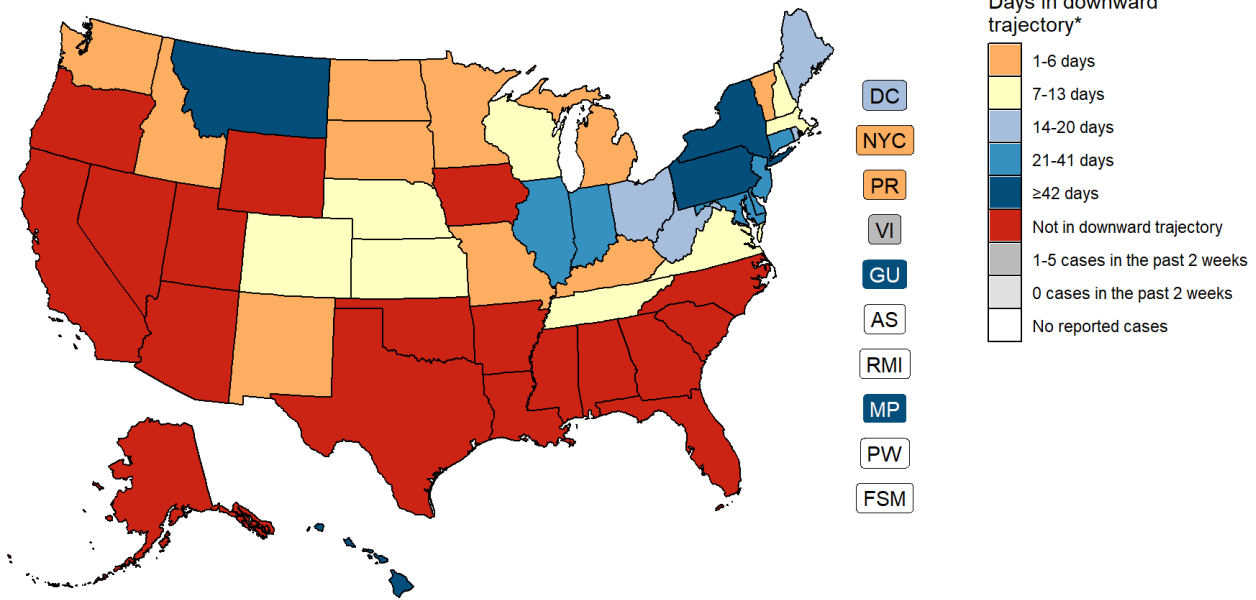
## National maps

**Coronavirus Disease 2019 (COVID-19)**  
**Number of New Cases per 100,000 in the past 2 weeks,**  
**U.S. States and Territories, 31 May 2020 - 14 June 2020**



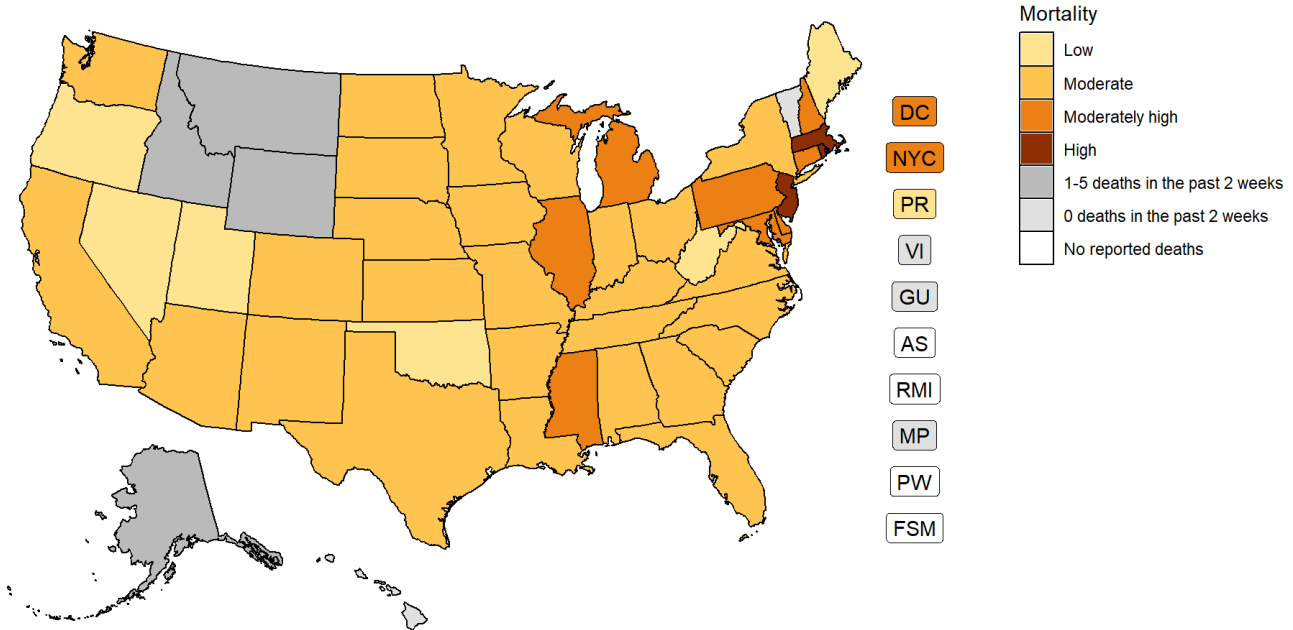
Note: Defined using the number of new cases per 100,000 in the past 2 weeks. Low is >0 to 10, moderate is >10 to 50, moderately high is >50 to 100, and high is >100. Jurisdictions denoted as 0 cases in the past 2 weeks have had at least 1 case previously.  
 Sources: State reported aggregate counts, US Census

**Coronavirus Disease 2019 (COVID-19)**  
**Current consecutive days of downward trajectory in case reports,**  
**U.S. States and Territories, 14 June 2020**



\*The number of days in a downward trajectory represents the number of consecutive days for which the jurisdiction experienced either a negative slope or a low incidence plateau (two-week incidence  $\leq 10$  cases per 100,000 and slope  $> -0.1$  and  $\leq 0.1$ ). Jurisdictions are allowed a 5 day grace period of departure from downward trajectory before the downward trajectory is considered over. Sources: State reported aggregate counts, US Census

**Coronavirus Disease 2019 (COVID-19)**  
**Number of Deaths per 100,000 in the past 2 weeks,**  
**U.S. States and Territories, 31 May 2020 – 14 June 2020**



Notes: Defined using the number of new deaths per 100,000 in the past two week. Low is  $>0$  to 5, moderate is  $>5$  to 25, moderately high is  $>25$  to 50, and high burden is  $>50$ . Jurisdictions denoted as 0 deaths in the past 2 weeks have had at least 1 case previously. Sources: USAFacts, US Census

## Georgia maps and figures

### State-level indicator summary table

Coming soon! This table will include the following:

#### Case Indicators:

- Cases/100k in the last two weeks
- Current Spline of 3-day smoothed number of cases/100k
- Daily change in spline of 3-day smoothed number of cases/100k
- Epidemic Curve status
- Current number of days in a downward trajectory
- Number of jurisdictions in a downward trajectory
- Number of jurisdictions in rebound or increasing

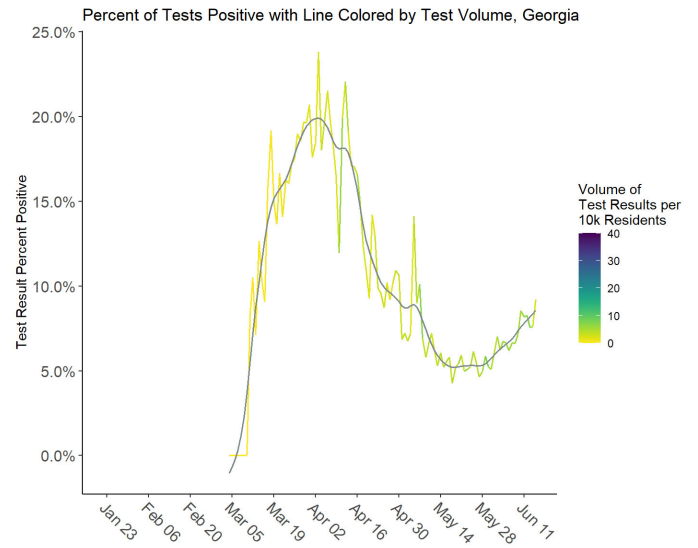
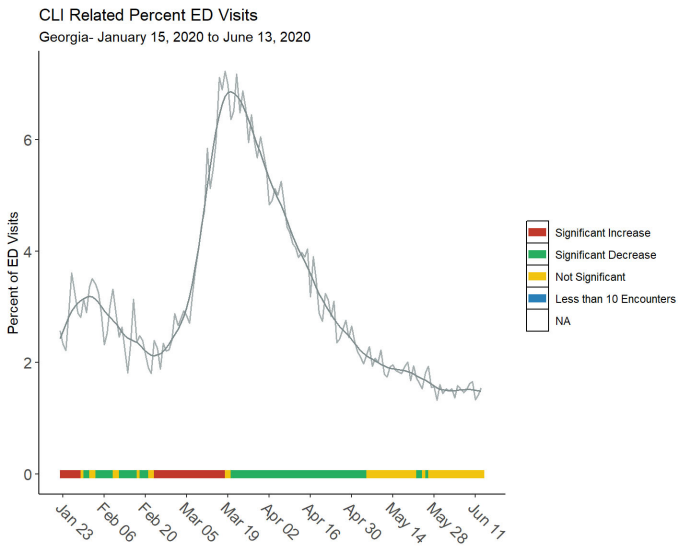
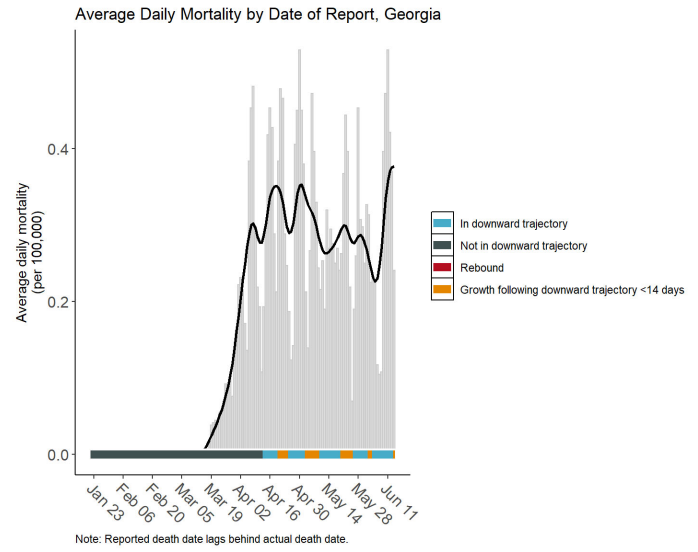
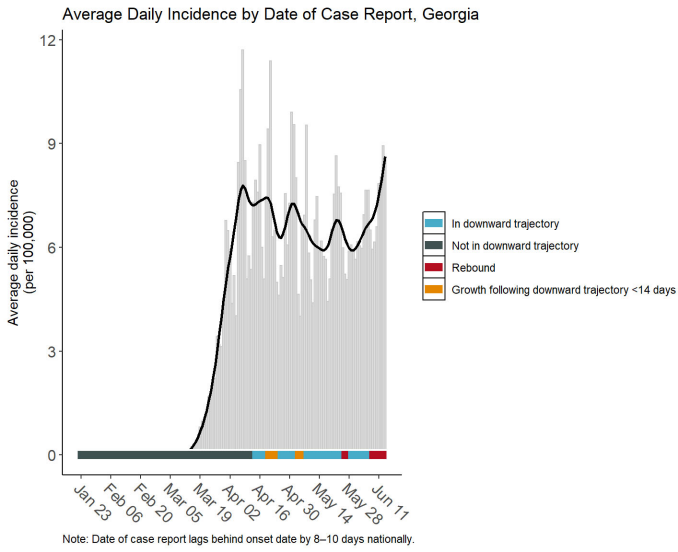
#### CLI ED Indicators:

- Current number of days of decreasing visits trend
- Number of jurisdictions decreasing
- Number of jurisdictions increasing or stable

#### Laboratory Testing Indicators:

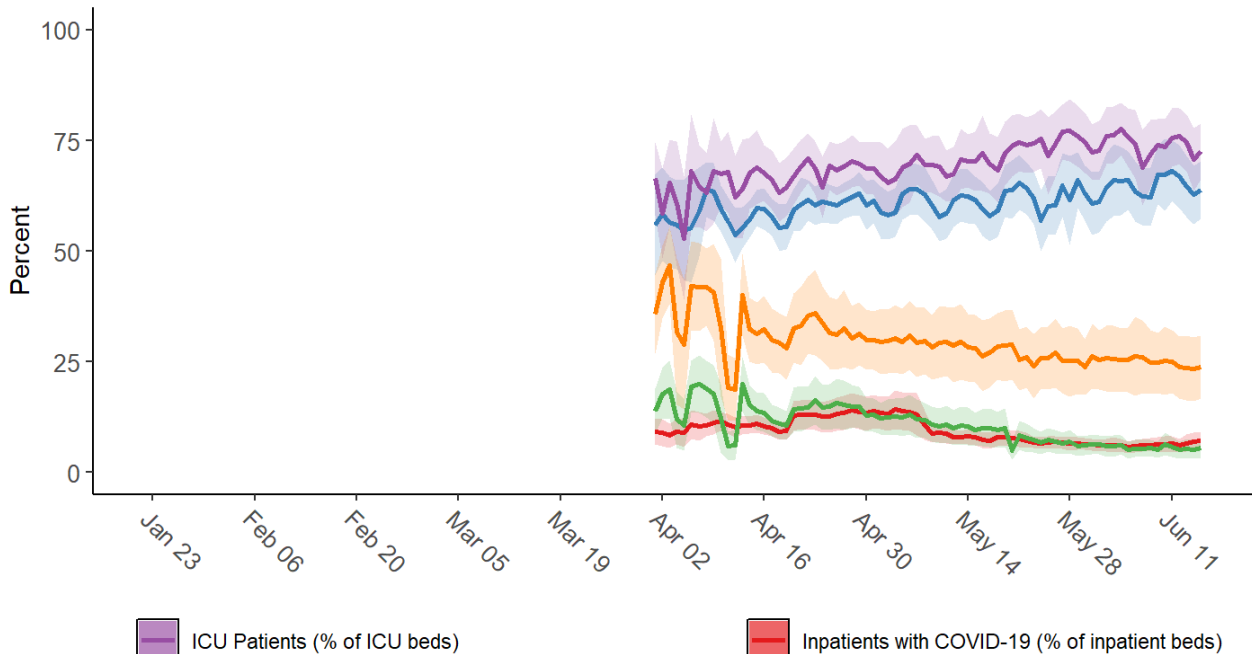
- Number of days percent positive in decreasing trend
- Testing volume status

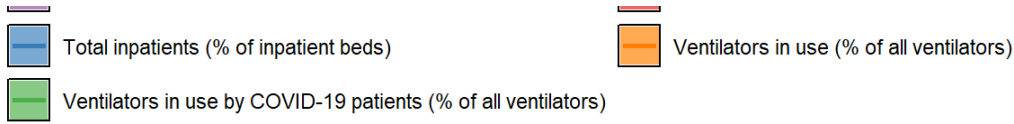
## Trends in State Indicators



## Estimates of Hospital Capacity Indicators

### NHSN, Georgia, January 22 – June 15

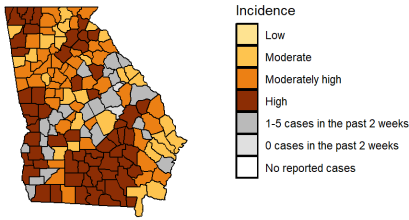




Note: The x-axis for hospital capacity indicators begins at January 23 for consistency with other figures in this section; consistent reporting for these indicators began on April 1, 2020.

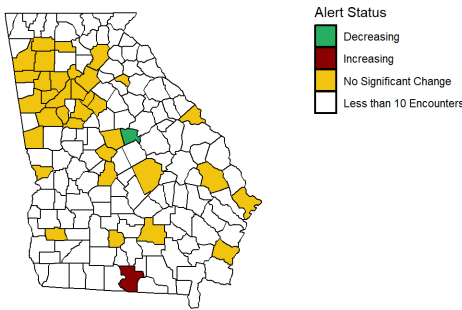
## County-level maps

**Coronavirus Disease 2019 (COVID-19)**  
 Number of New Cases per 100,000 in the past 2 weeks,  
 by County, Georgia  
 31 May 2020 - 14 June 2020

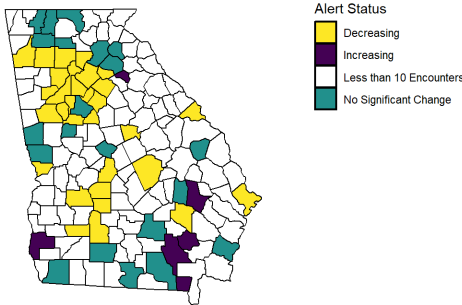


Note: Defined using the number of new cases per 100,000 in the past 2 weeks. Low is >0 to 10, moderate is >10 to 50, moderately high is >50 to 100, and high is >100. Jurisdictions denoted as 0 cases in the past 2 weeks have had at least 1 case previously. Sources: CDC analysis of USAFacts data, US Census

**COVID Like Illness: January 15, 2020 - June 13, 2020**

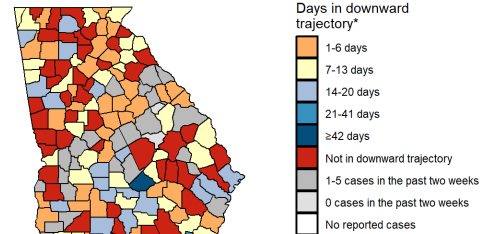


Source: BioSense- Facility Location  
**Laboratory Test Volume: Jun 02, 2020 - Jun 15, 2020**



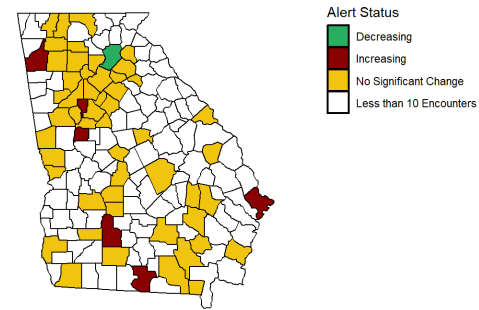
Source: HHS Protect Lab Data

**Coronavirus Disease 2019 (COVID-19)**  
 Current consecutive days of downward trajectory, by county  
 14 Jun, 2020



Source: CDC analysis of USAFacts data

**Laboratory Test Percent Positive: Jun 02, 2020 - Jun 15, 2020**



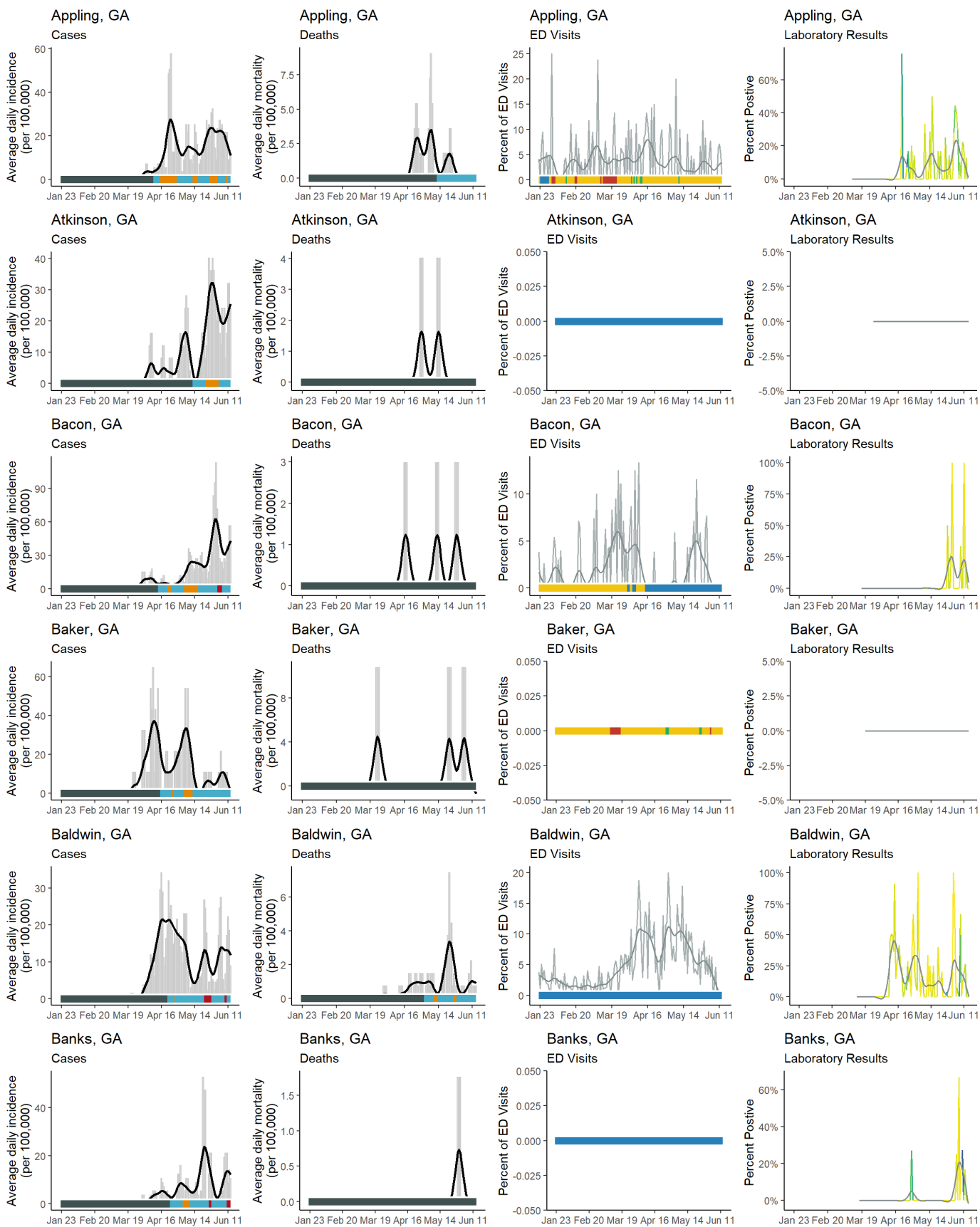
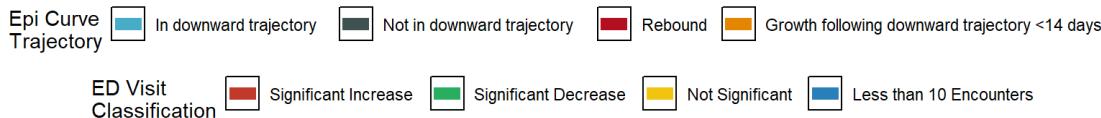
Source: HHS Protect Lab Data

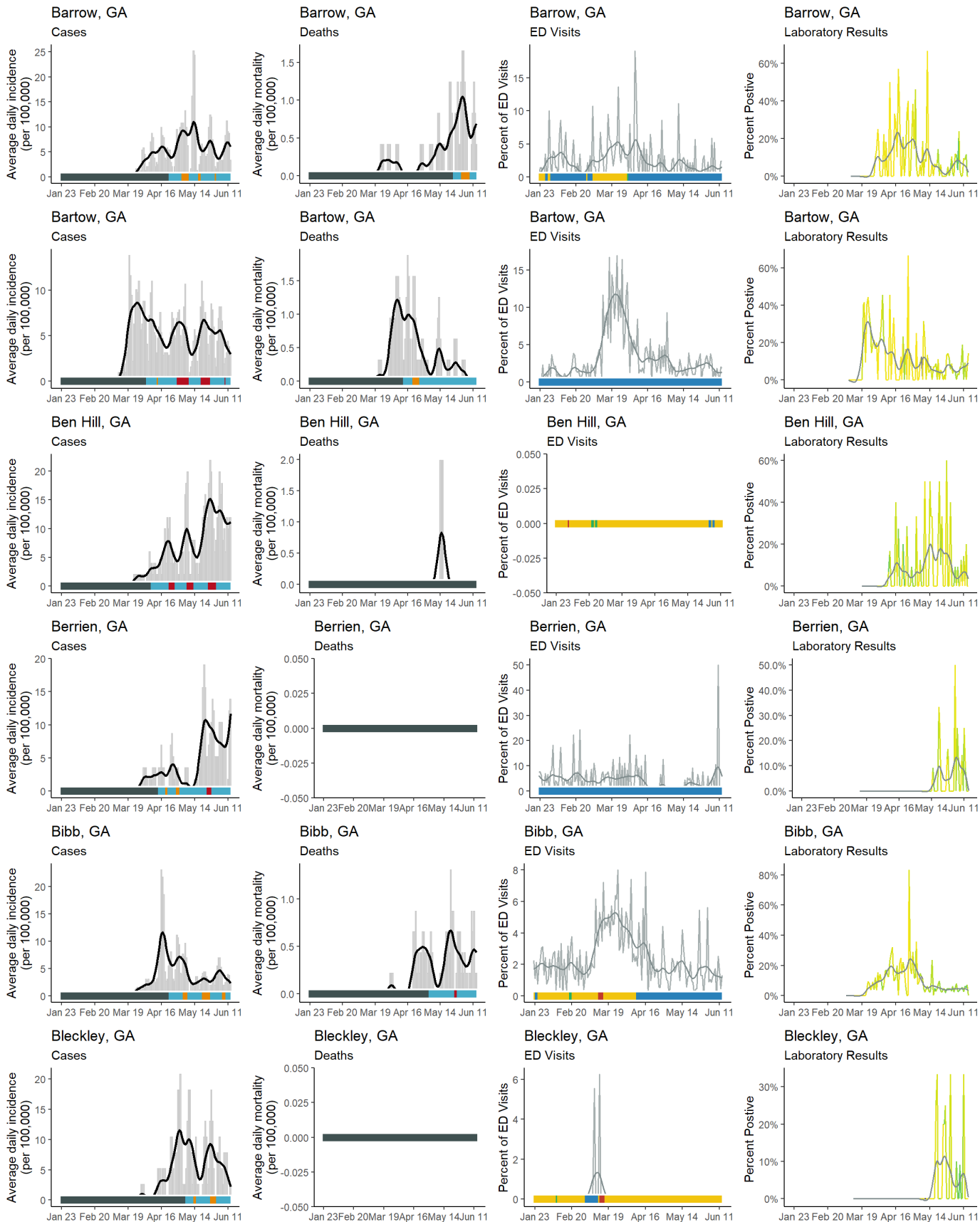
## Trends in County Indicators

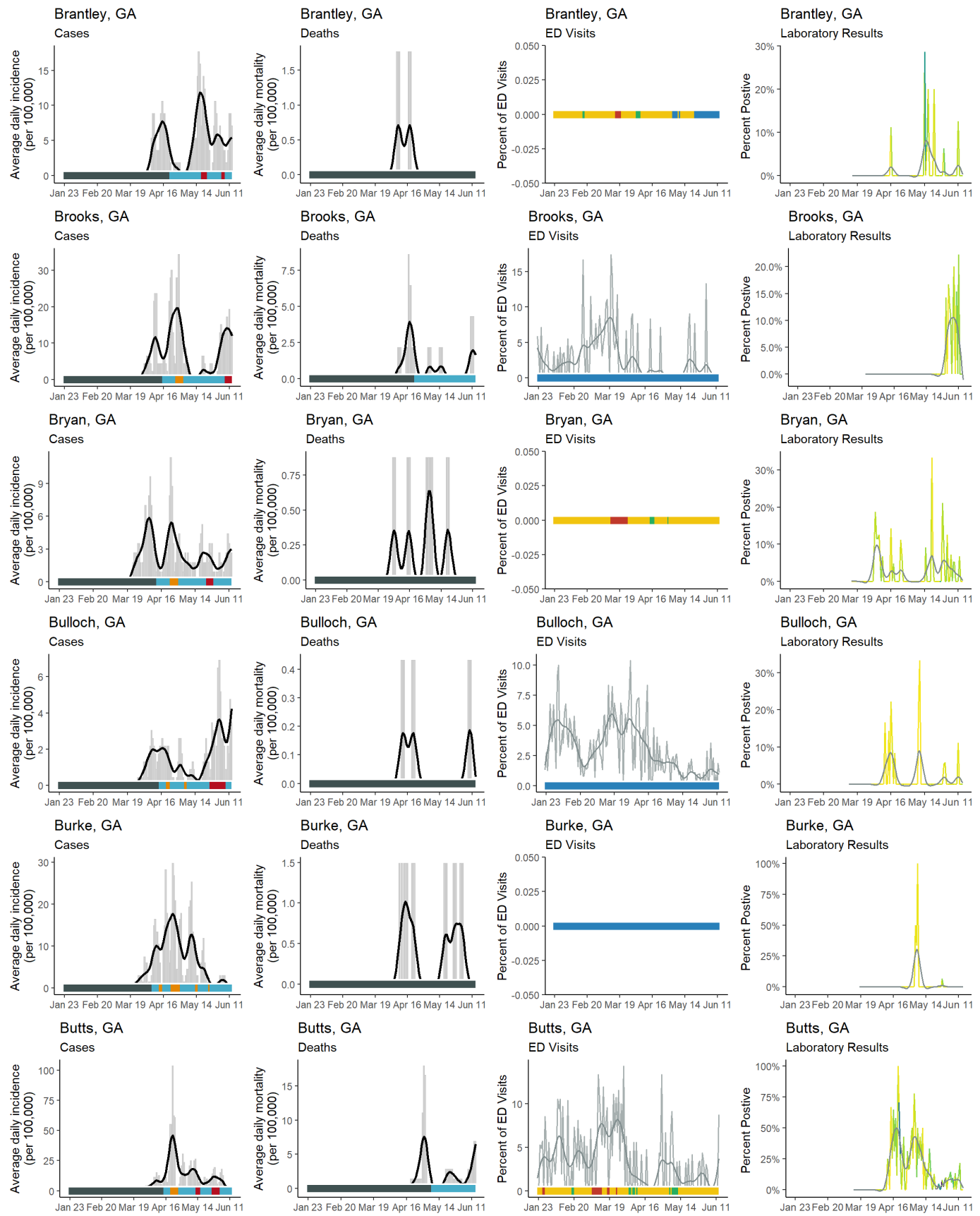
Note: The scale used for the y-axis differs by county and state to improve visualization of the data. The x-axis represents the report date, which lags behind onset date by 8–10 days nationally.

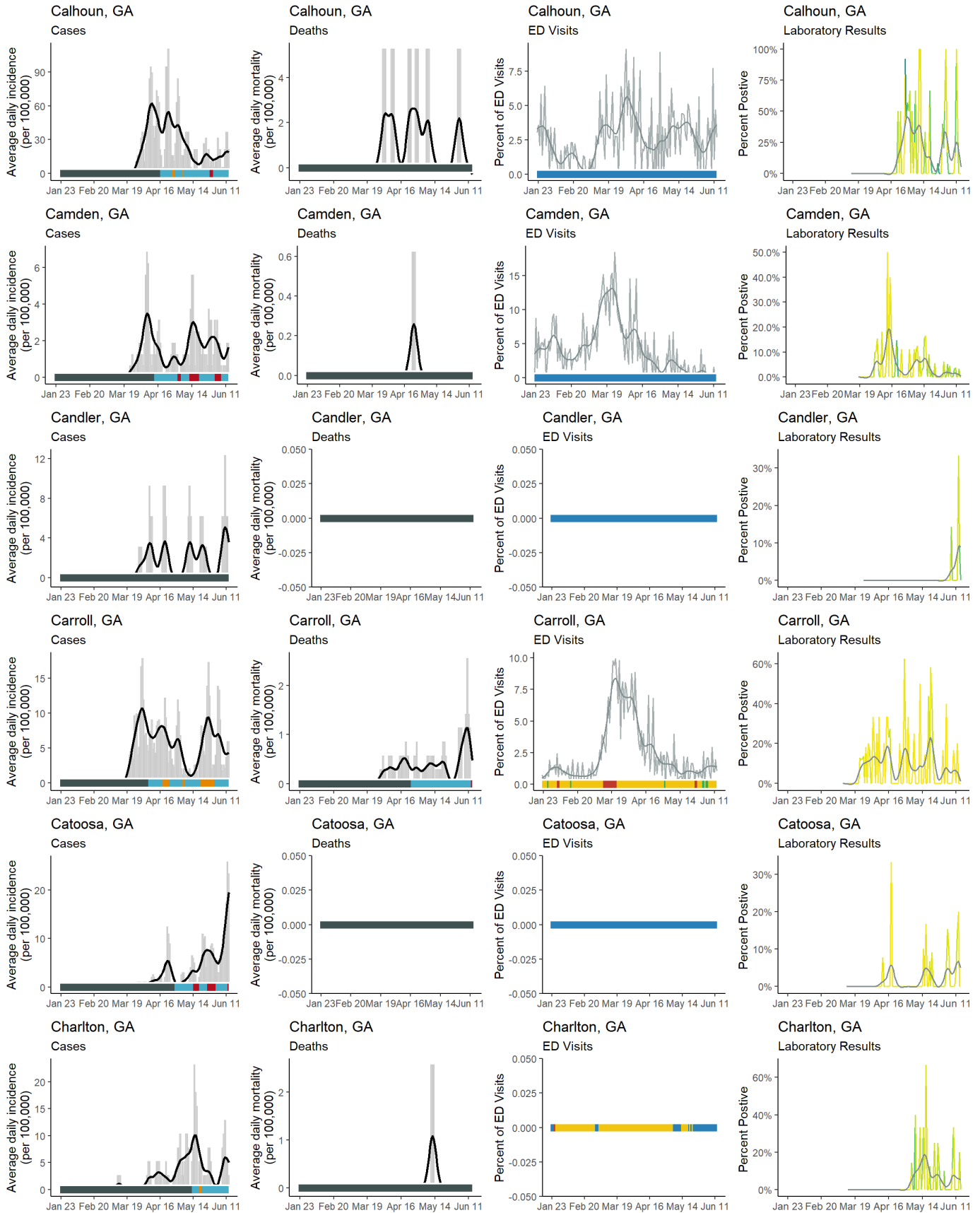
Figures are only displayed for counties with diagnosed cases. Some counties have low/no coverage for ED data and are displayed as a line at 0.

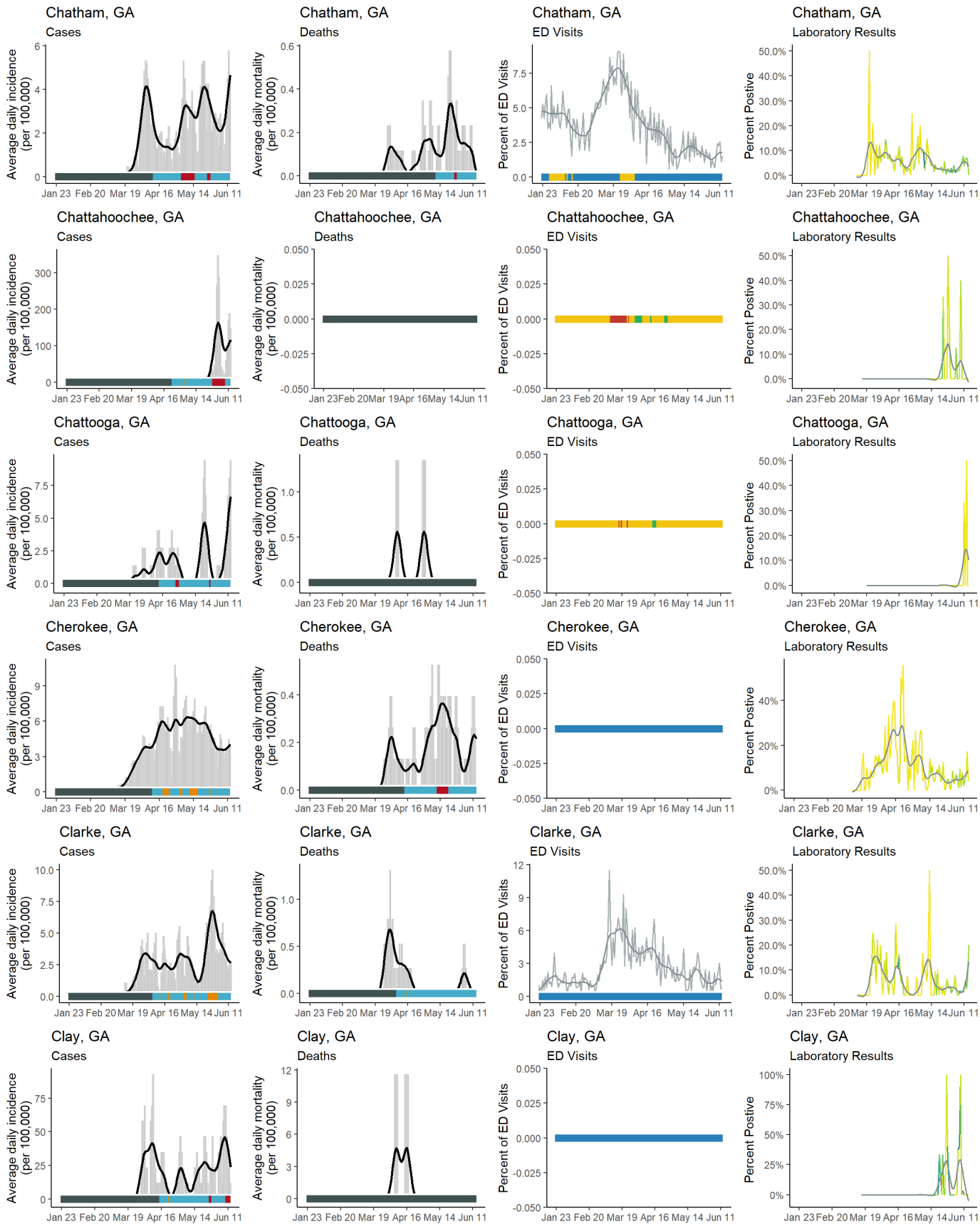
### Figure Legends

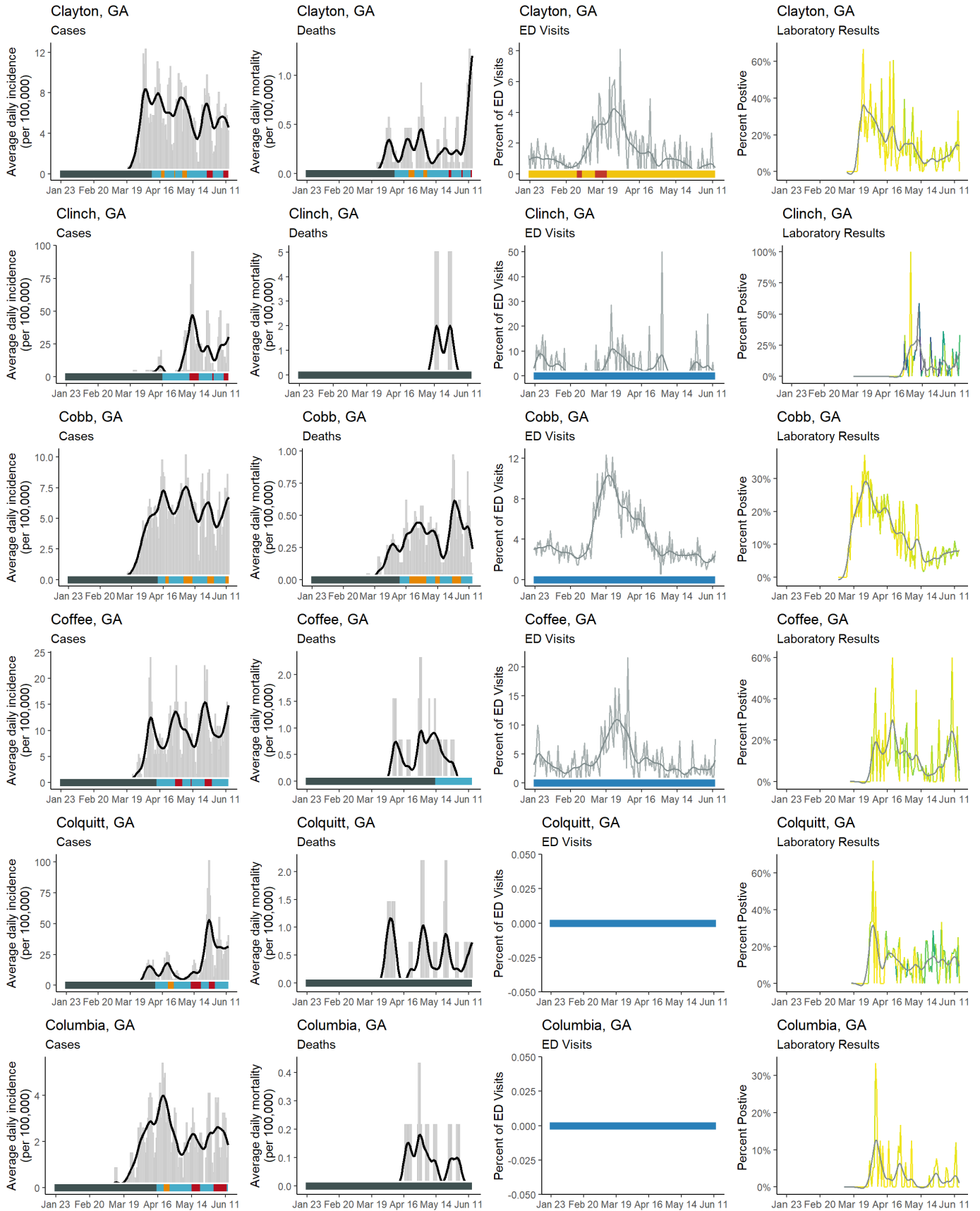


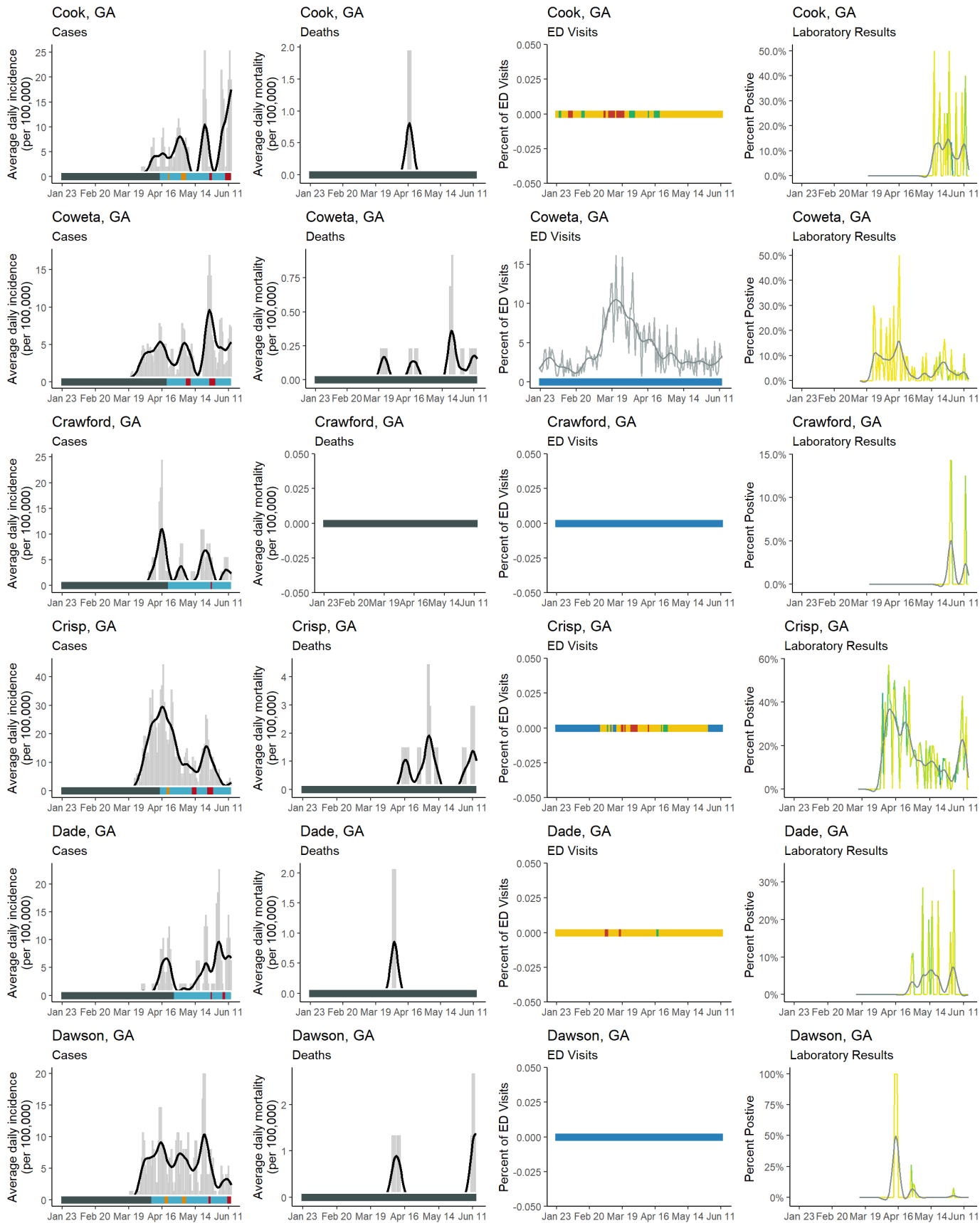


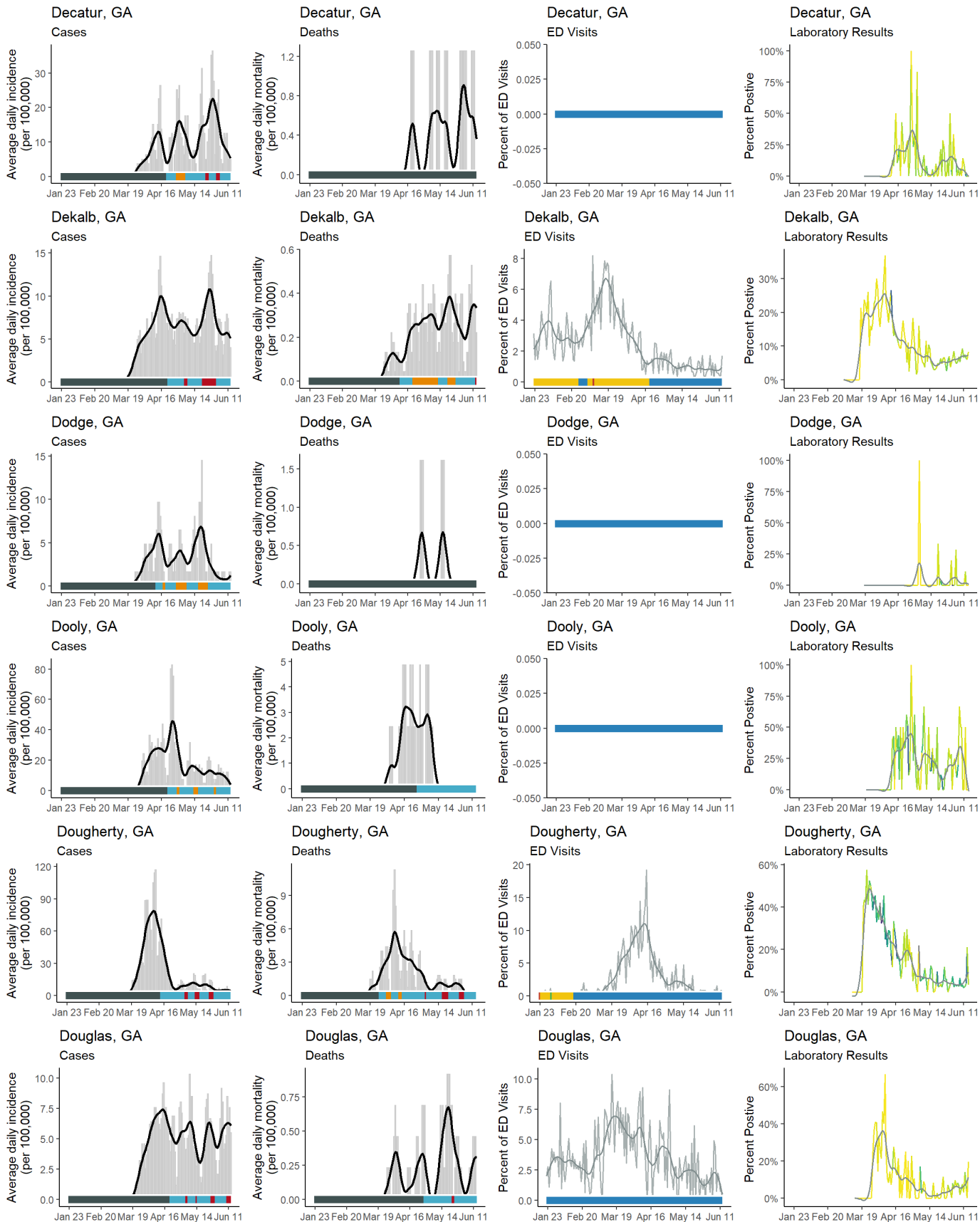


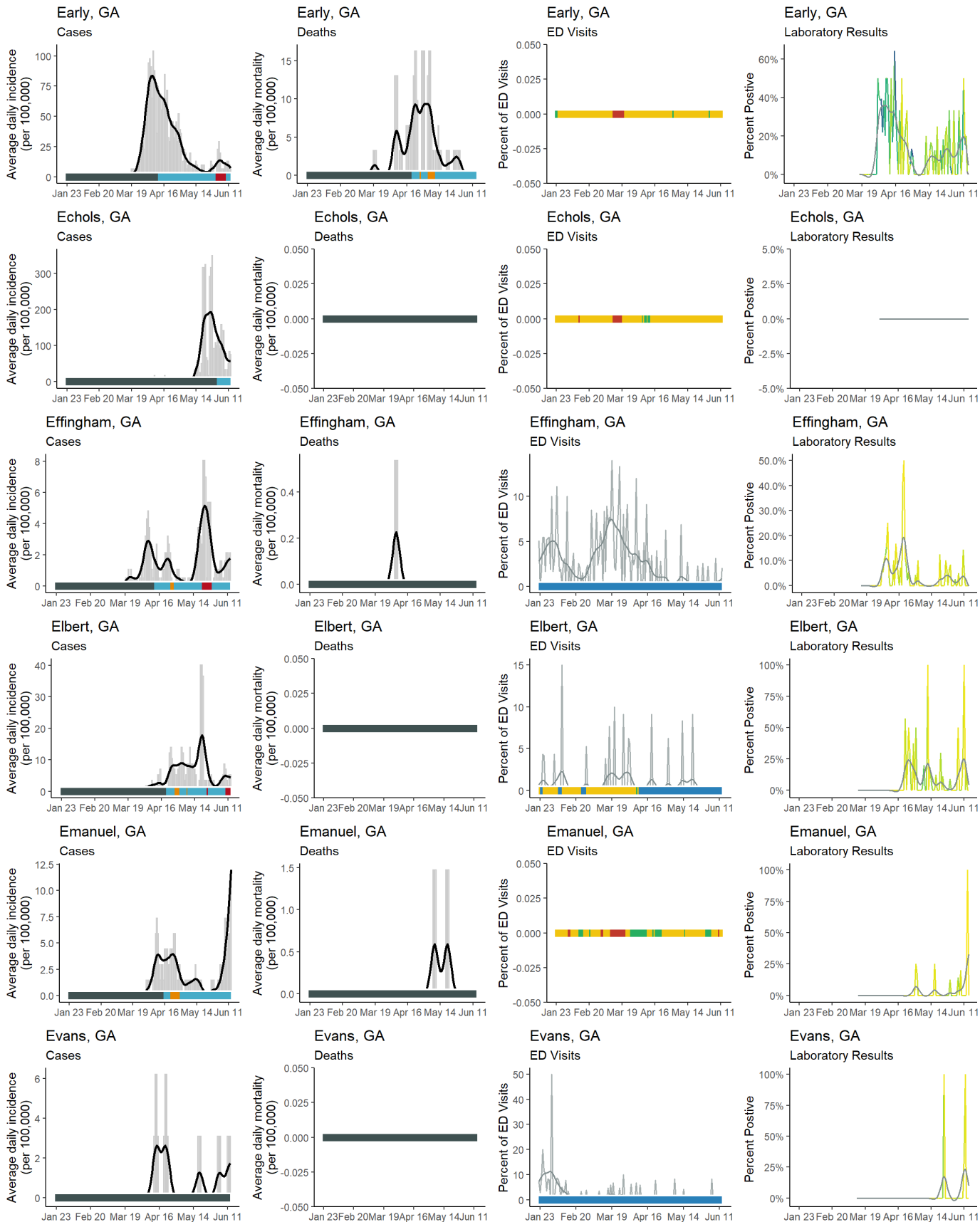


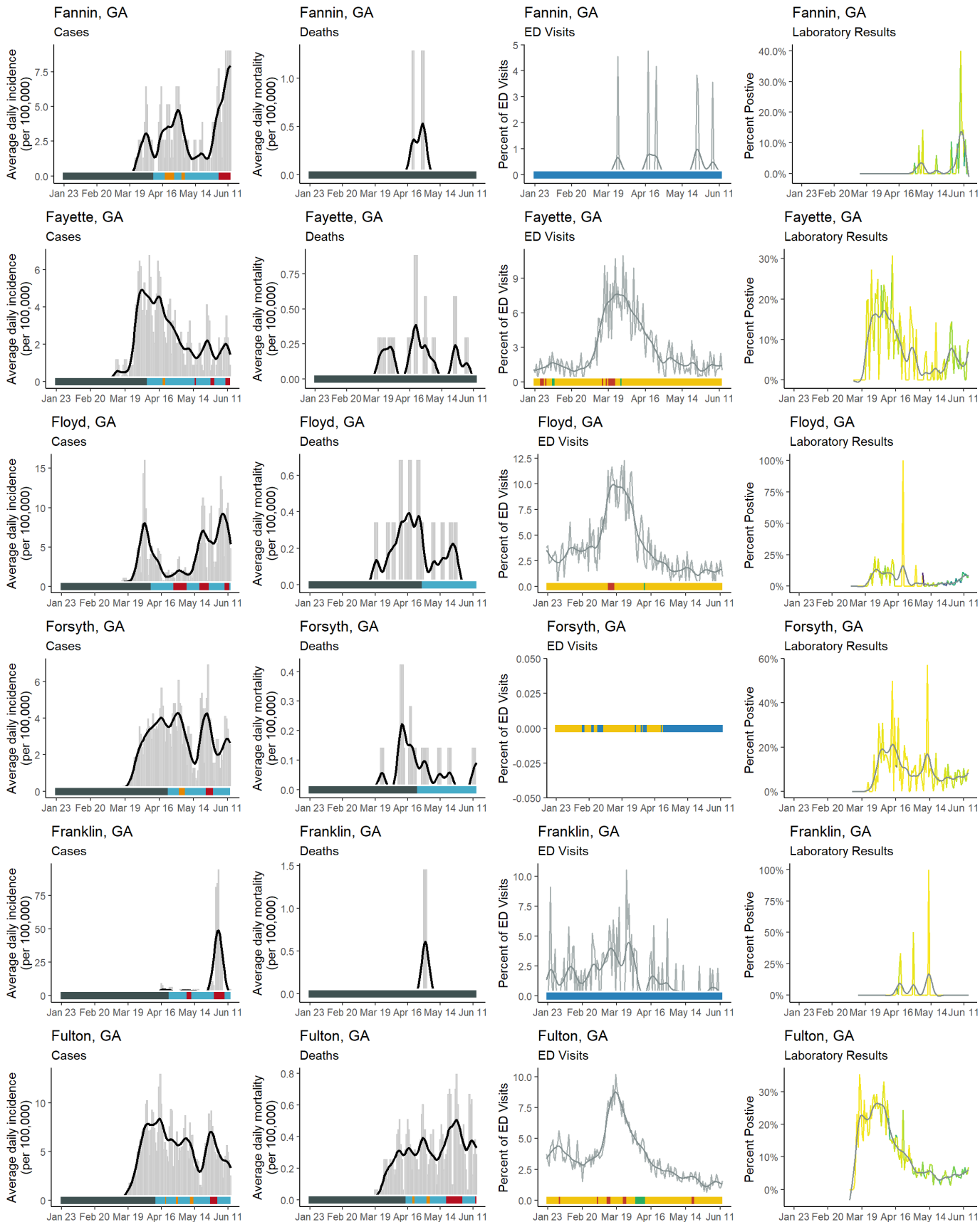


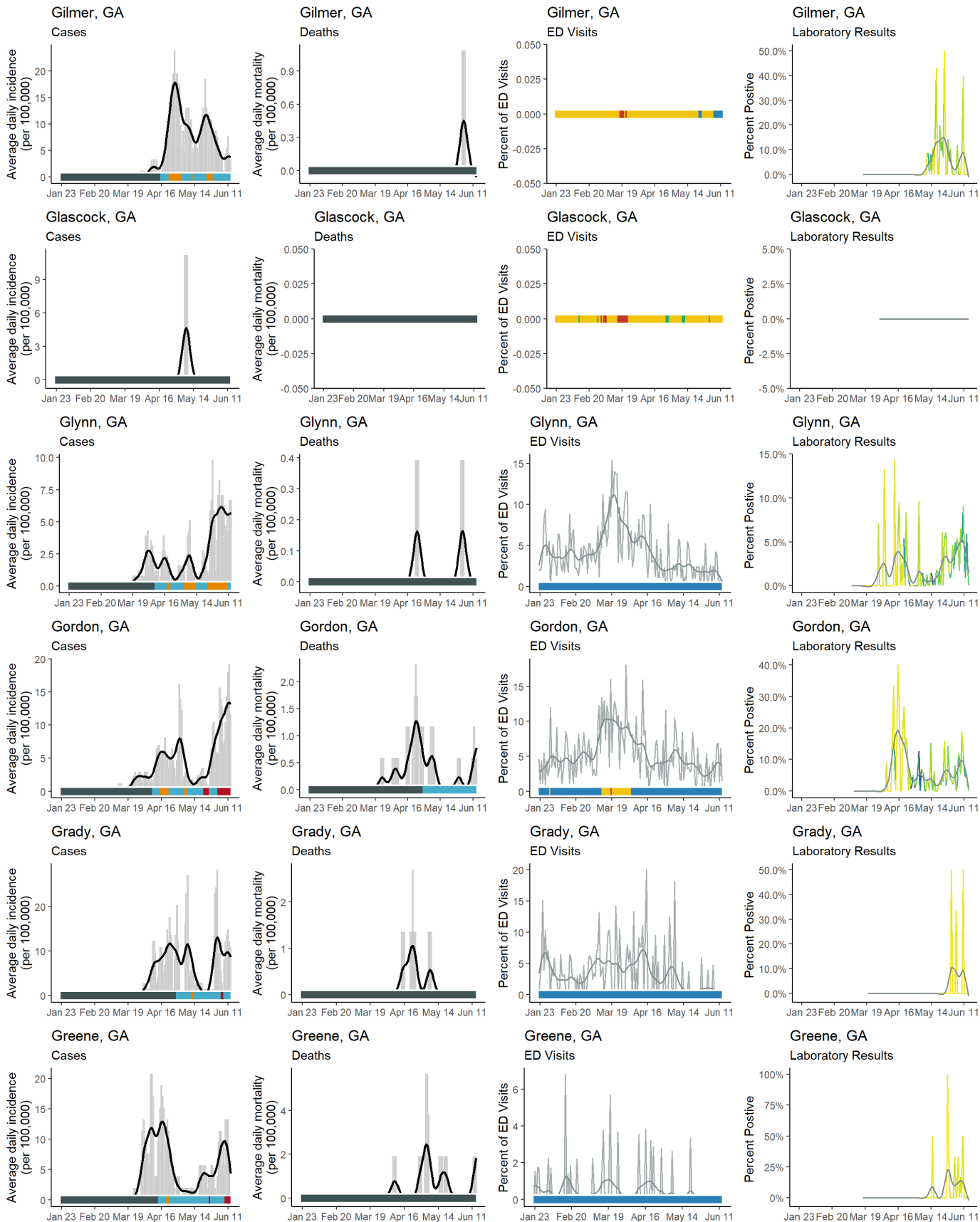


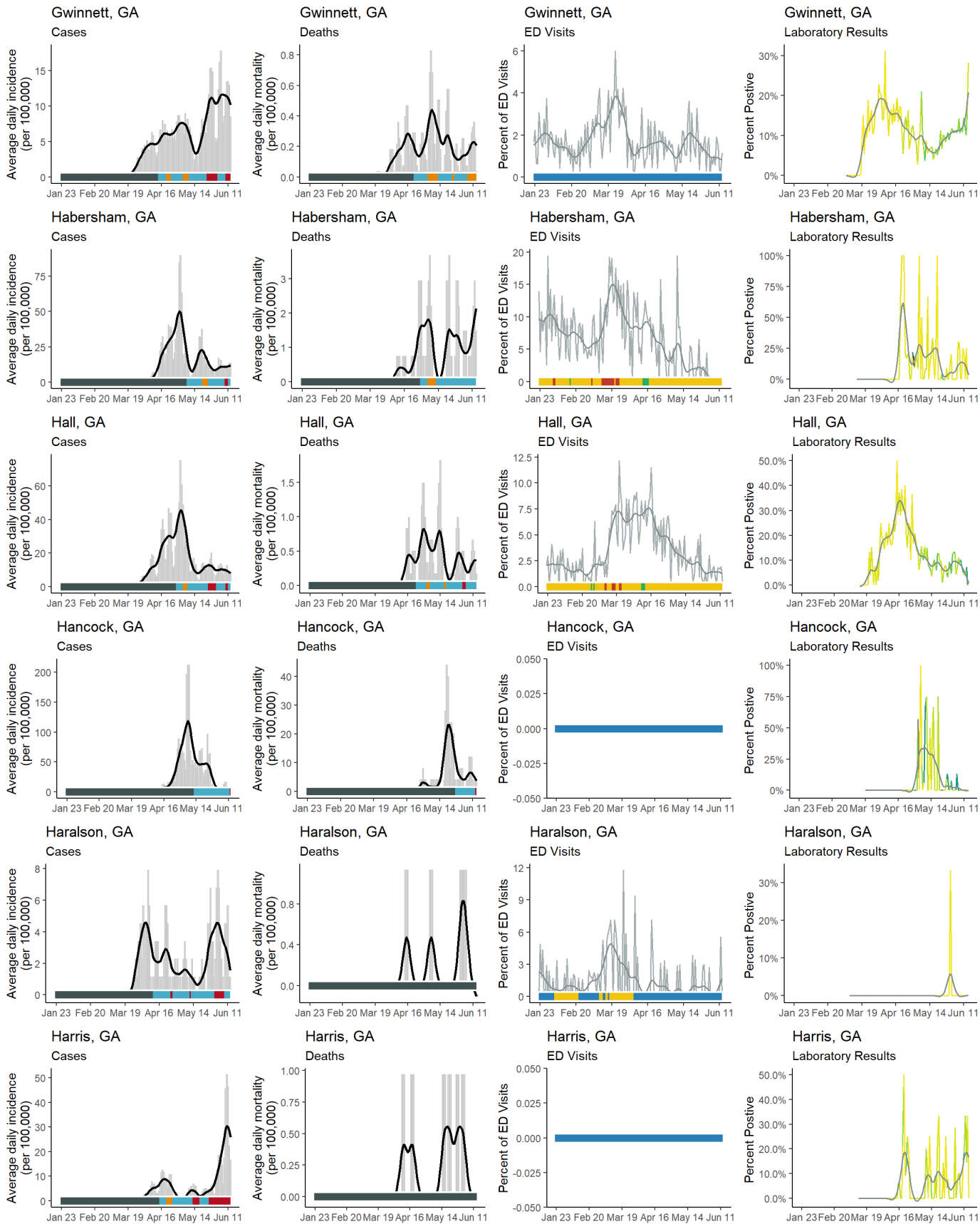


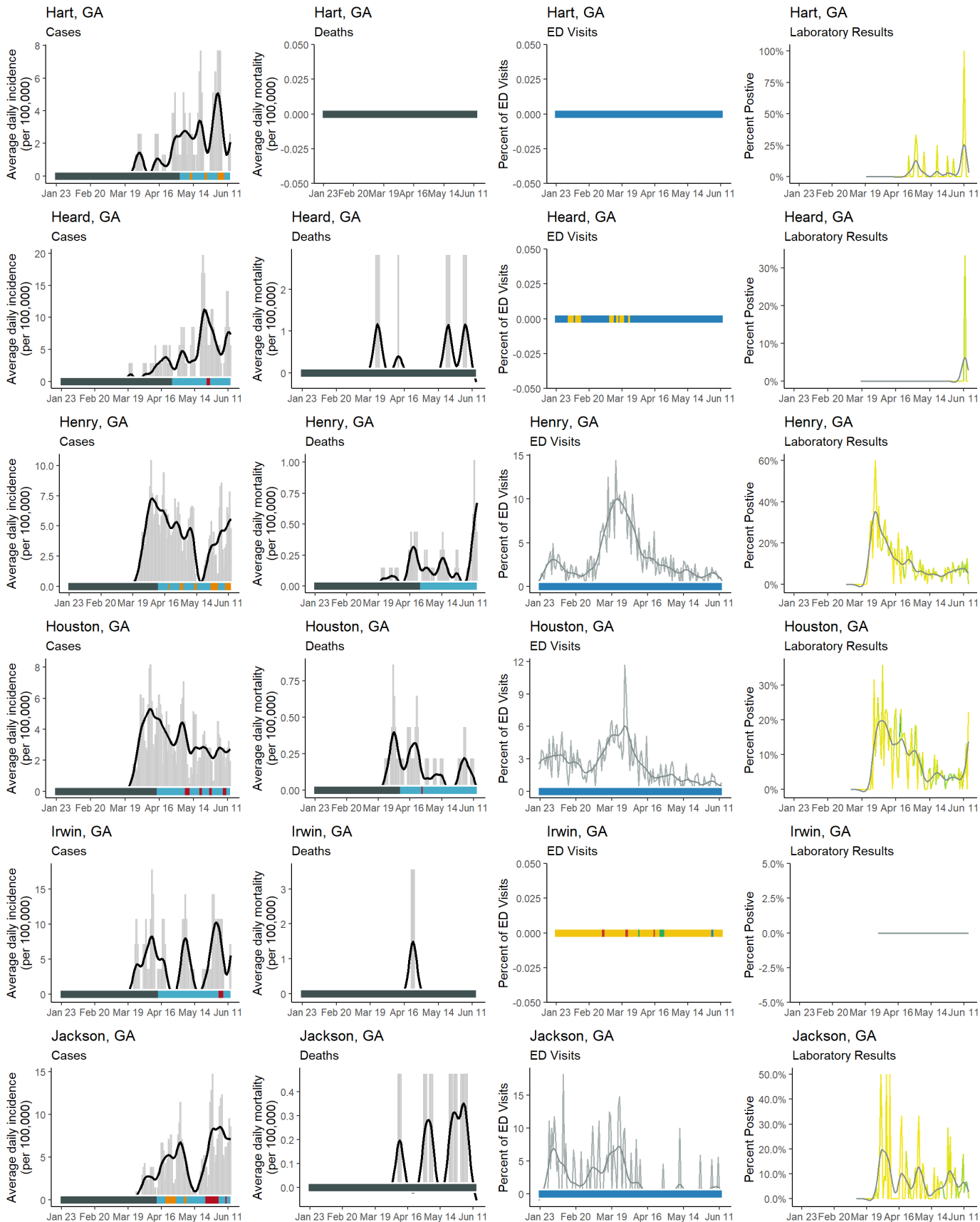


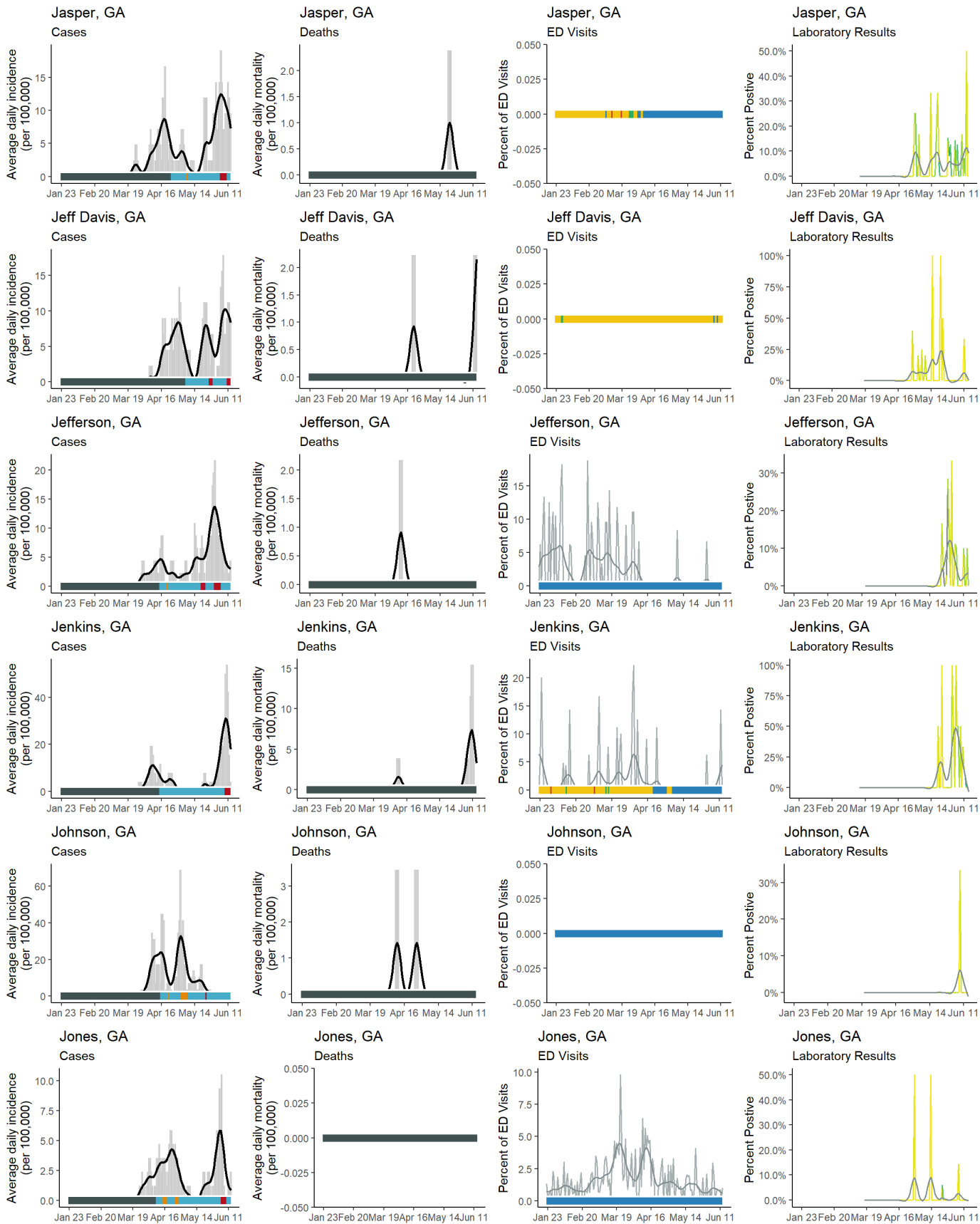


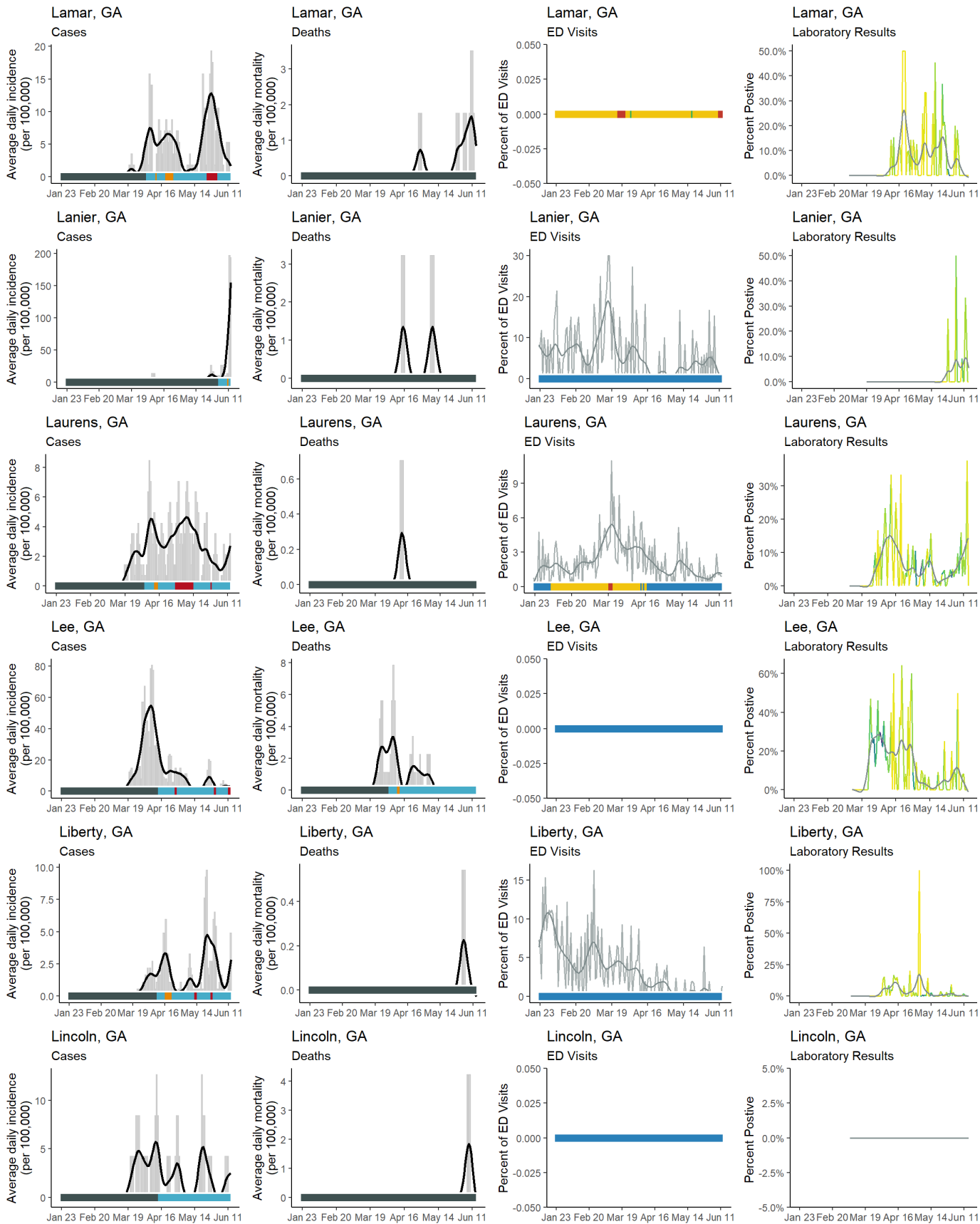




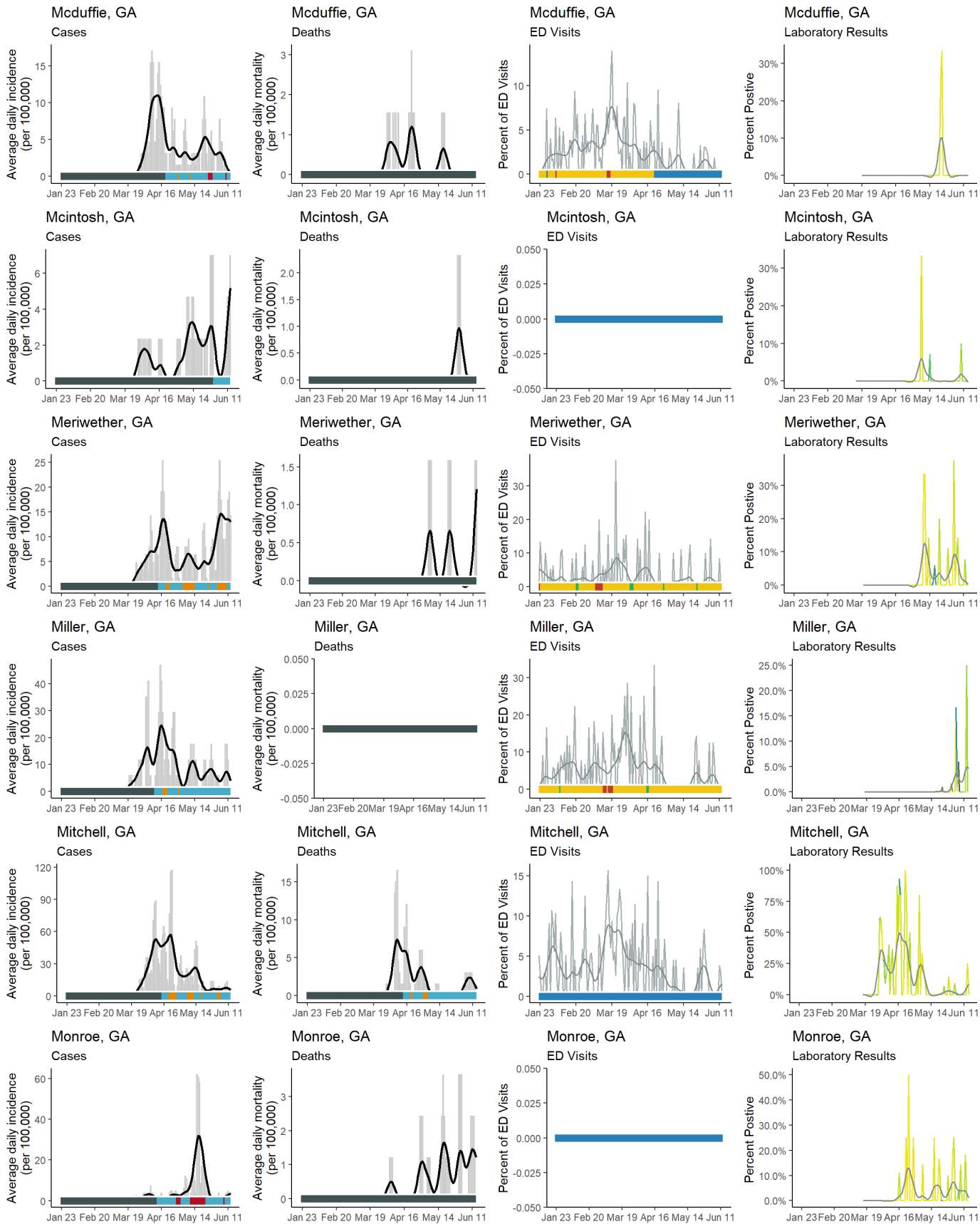


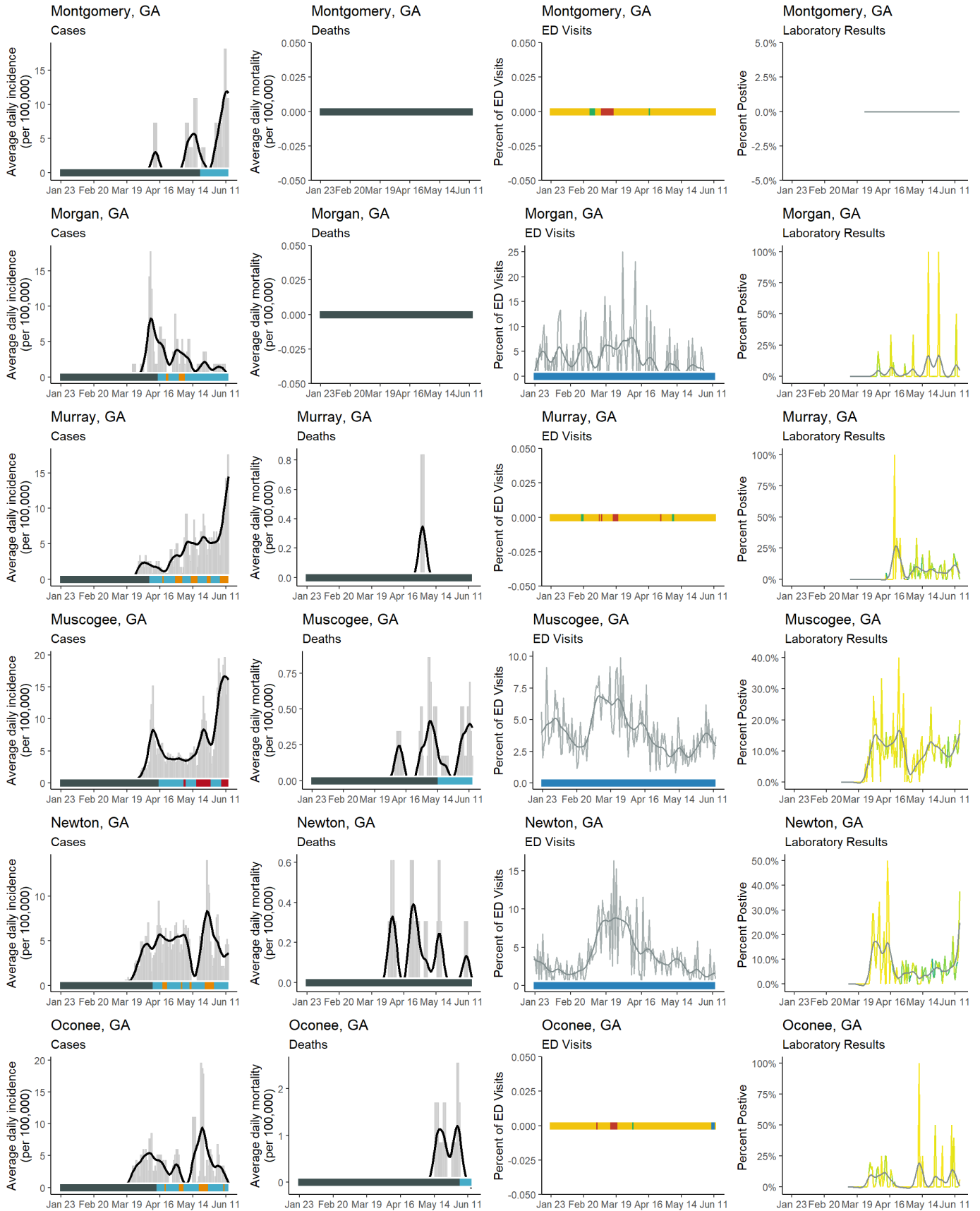


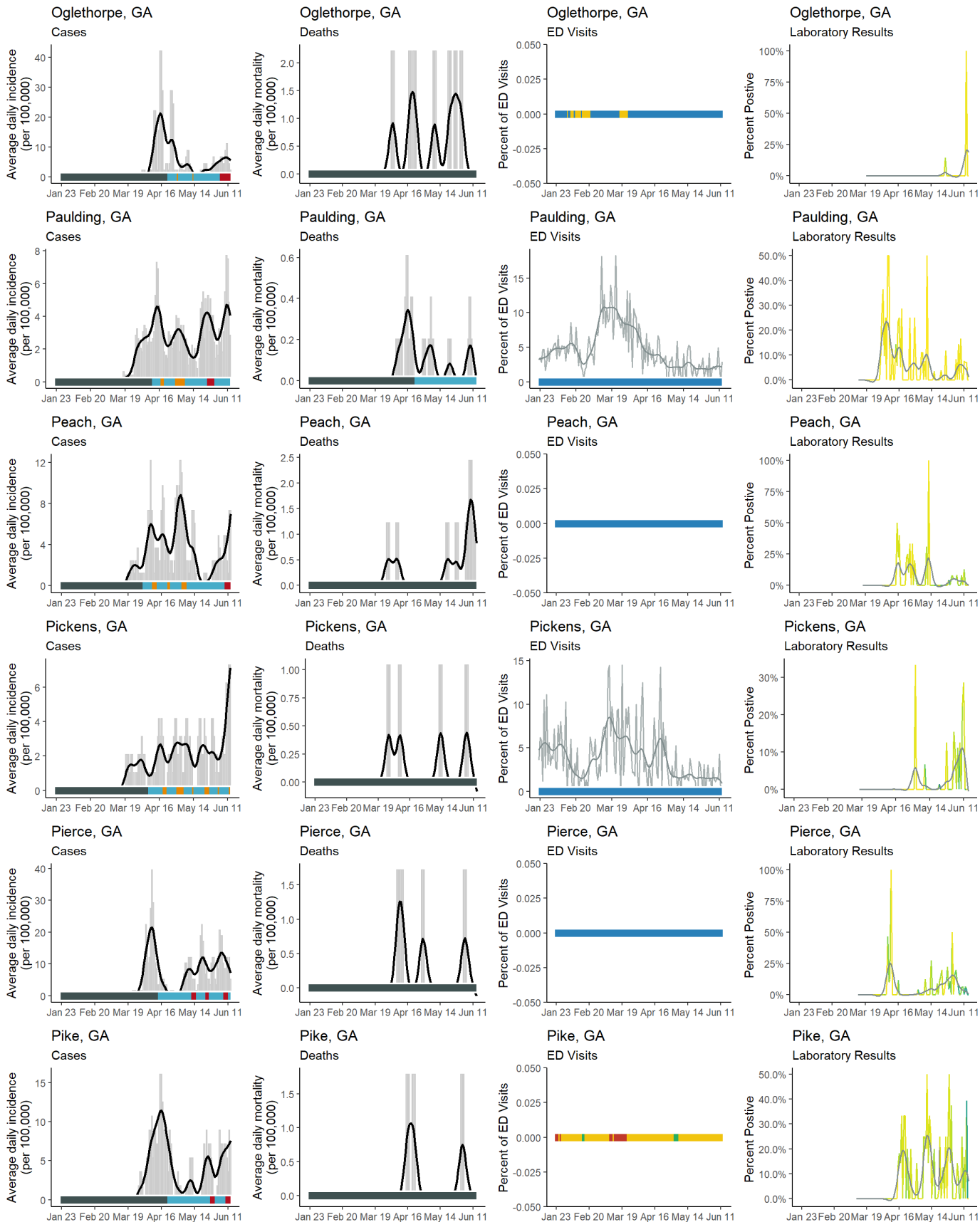


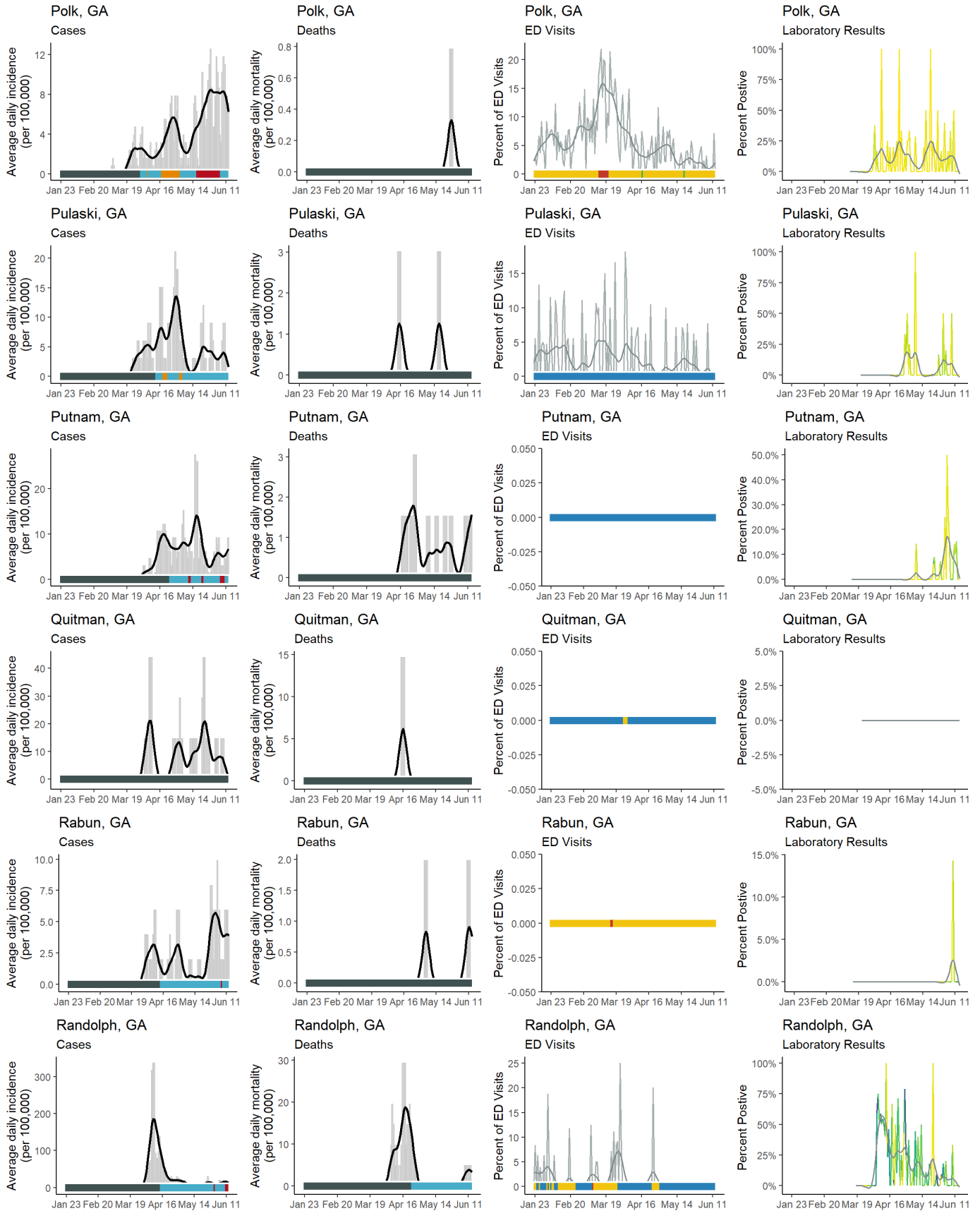


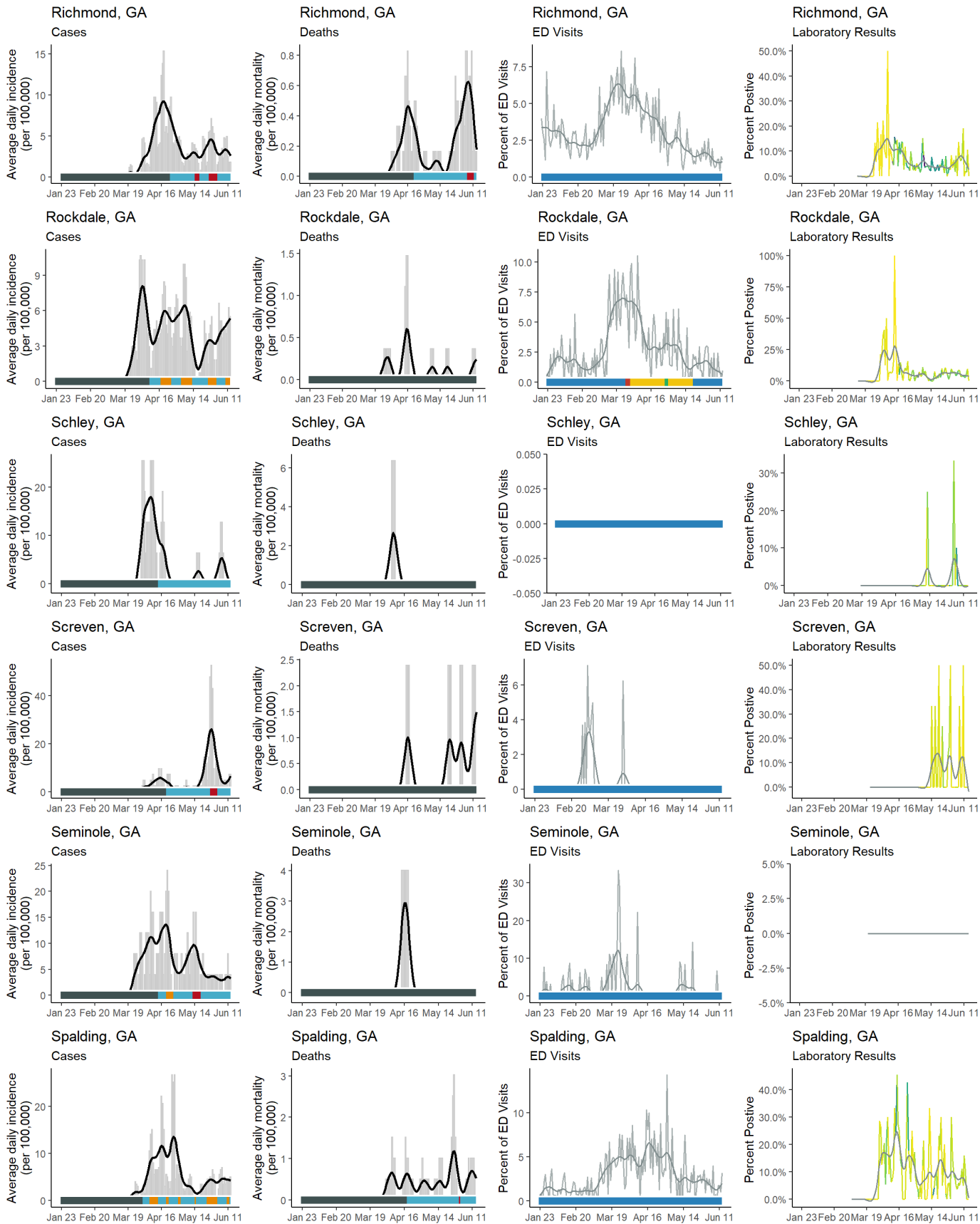


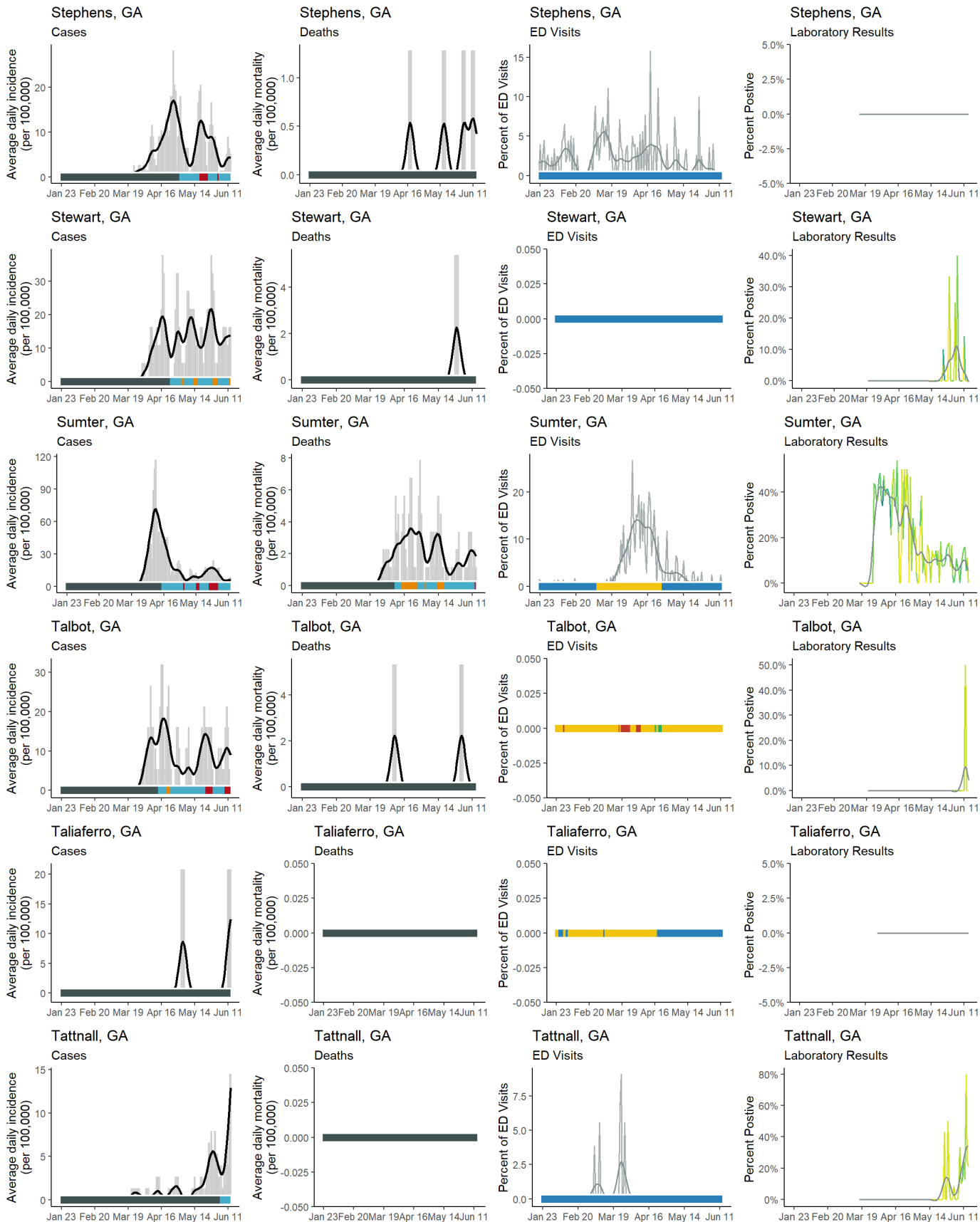


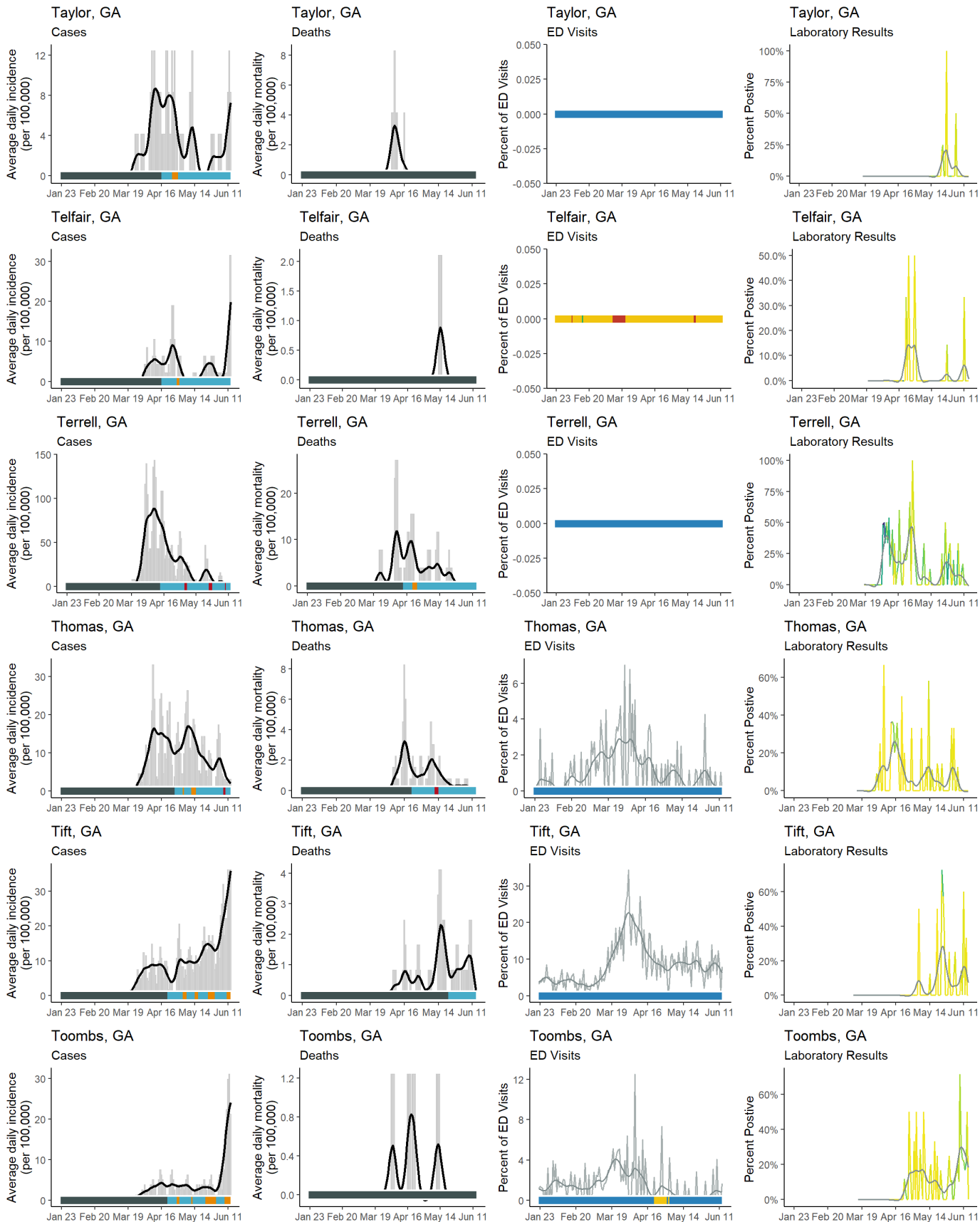


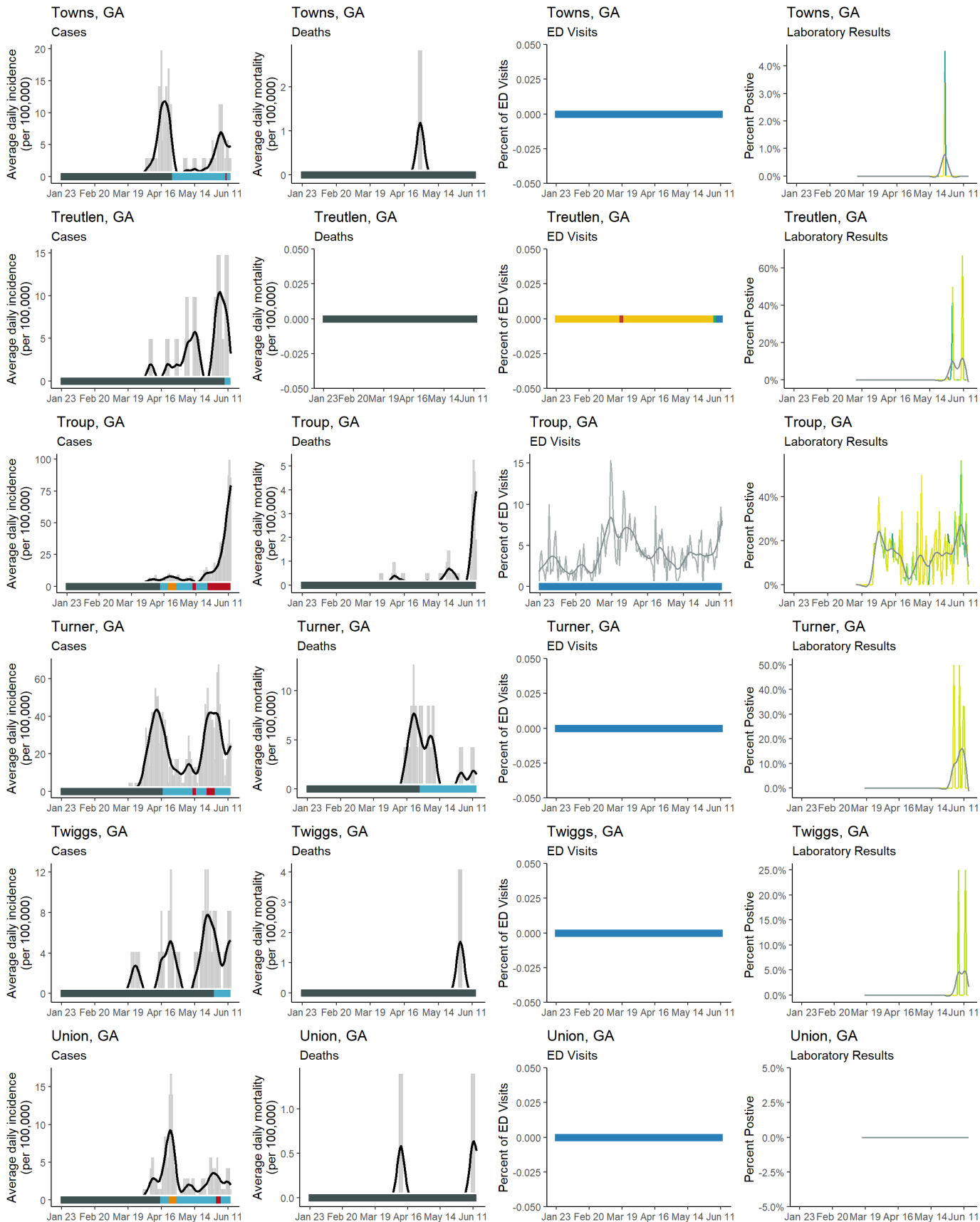


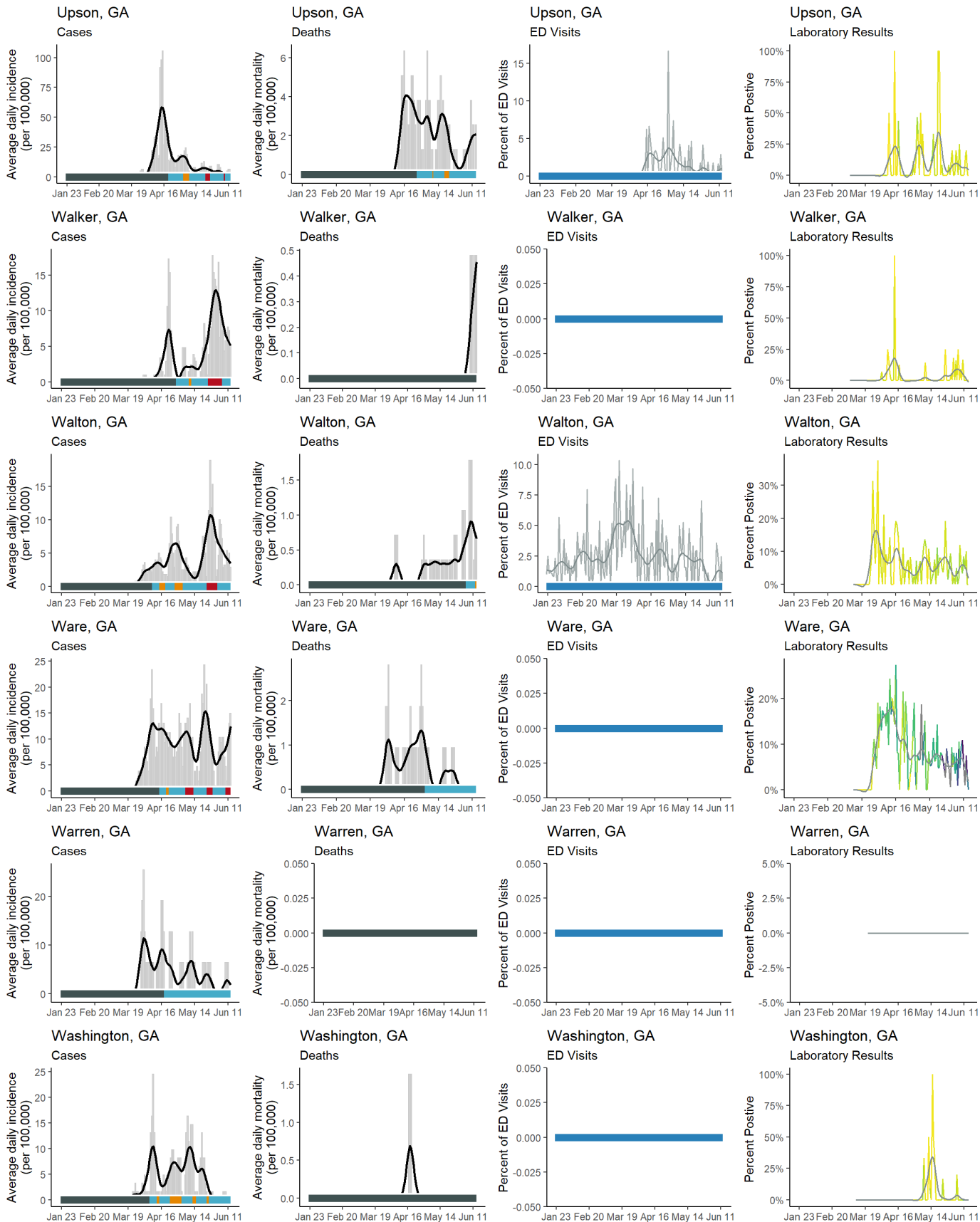


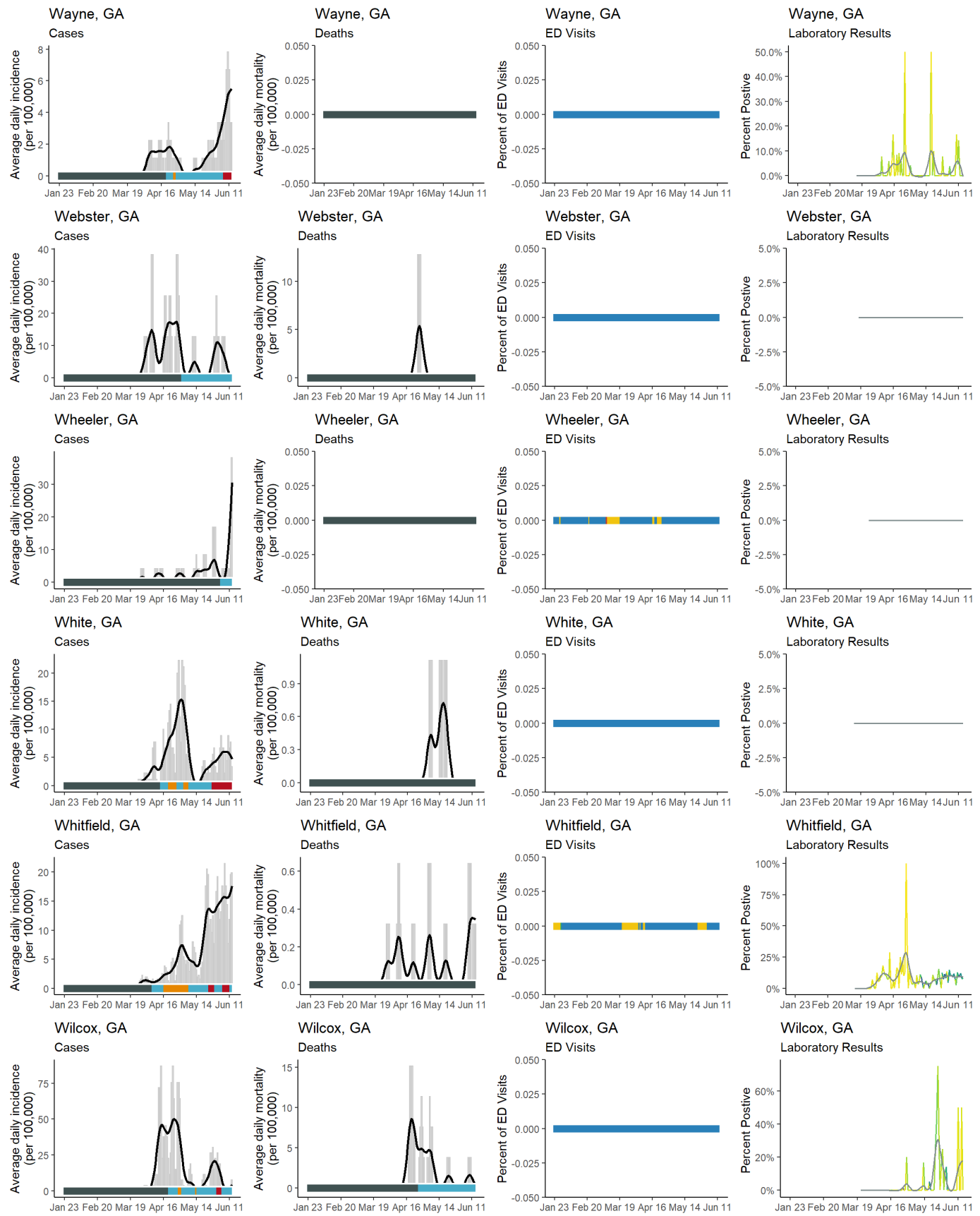


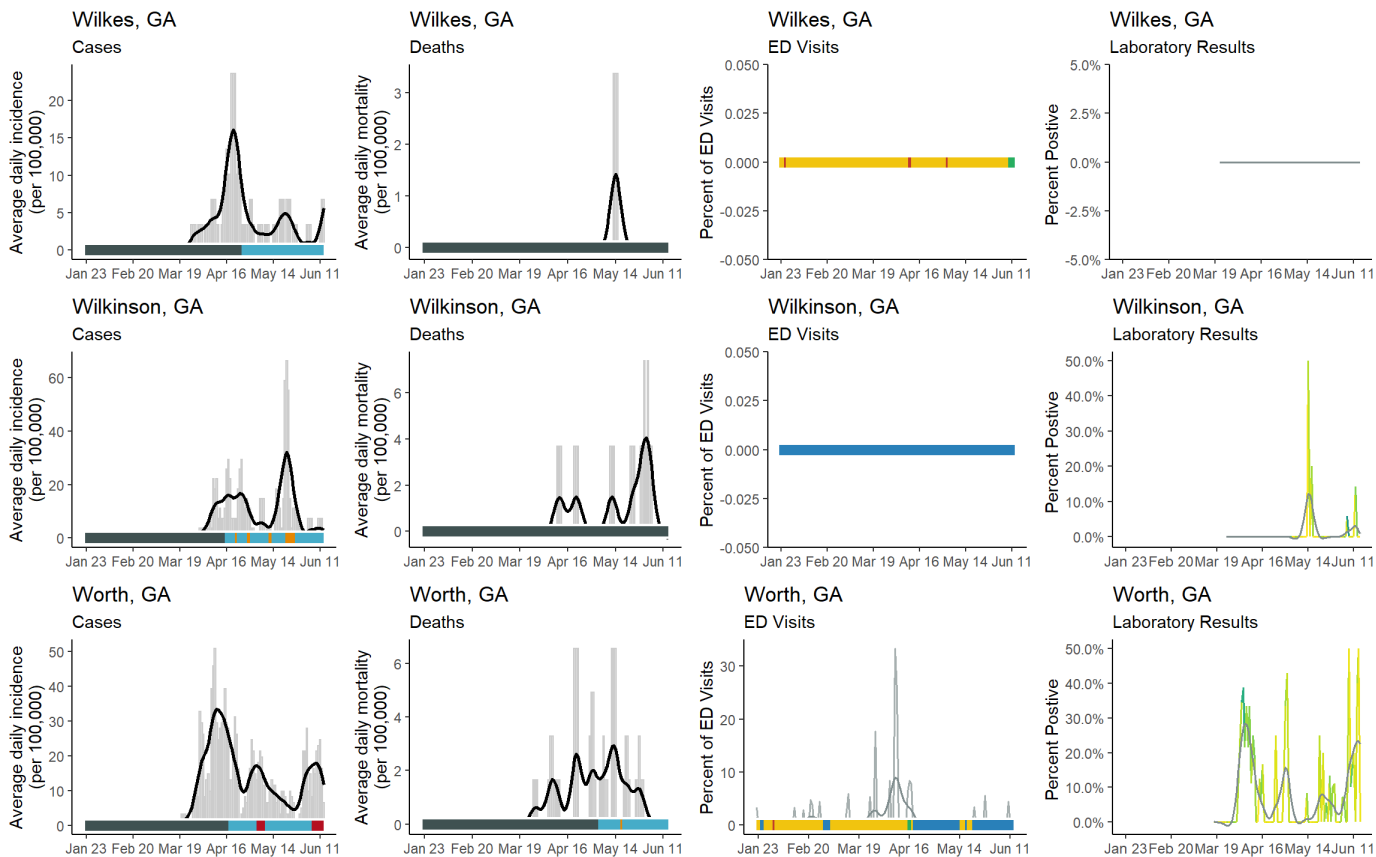












## Methods

### Epidemic Curve Status

**Overview:** Categorizes jurisdictions into various epidemic curve status categories based on two-week incidence (above or below 10 per 100,000) and recent slope.

**Purpose:** Provides a composite metric that includes both the burden of illness and the trajectory of new illnesses (i.e., growth, plateau, decline). These statuses give an instantaneous and historic picture of the shape of an epidemic curve, however these are not used to calculate days in a downward trajectory. Please see the “Downward Trajectory” indicator description below.

**Please note:** As we simplify the data visualizations in this report, we are no longer showing maps and plots by epidemic curve status, but will continue to provide the methods for calculating them below.

**Specification:**

1. Calculate the above indicators for Two-Week Cumulative Incidence Rate (Burden) and Change in Daily Incidence (Trajectory)
2. Identify jurisdictions with elevated incidence, defined as having a two-week incidence of >10 cases per 100,000
3. Identify jurisdictions meeting one of the following conditions and remove them from the main analysis:
  - o 1-5 cases in the past 2 weeks

- 0 cases in the past 2 weeks
  - No reported cases (ever)
4. For the remaining jurisdictions, classify each day into one of the following categories based on the smoothed epidemic curves computed with information up to that day:
- Low incidence growth:
    - Two-week incidence:  $\leq 10$  cases per 100,000 **AND**
    - Slope:  $\geq 0.1$  new cases (based on 3-day moving average) per 100,000 per day
  - Elevated incidence growth:
    - Two-week incidence:  $> 10$  cases per 100,000 **AND**
    - Slope:  $\geq 0.1$  new cases (based on 3-day moving average) per 100,000 per day
  - Elevated incidence plateau:
    - Two-week incidence:  $> 10$  cases per 100,000 **AND**
    - Slope: slope  $\geq 0$  to  $< 0.1$  new cases (based on 3-day moving average) per 100,000 per day; **OR**
    - Slope: slope  $< 0$  new cases (based on 3-day moving average) per 100,000 per day following a slope  $\geq 0$  new cases (based on a 3-day moving average) per 100,000 per day within the previous 5 days
  - Sustained decline:
    - Two-week incidence: any **AND**
    - Slope:  $< 0$  new cases (based on 3-day moving average) per 100,000 per day following 5 consecutive days of slope  $< 0$  new cases (based on a 3-day moving average) per 100,000 per day
  - Low incidence plateau:
    - Two-week incidence:  $\leq 10$  cases per 100,000 **AND**
    - Slope: slope  $\geq 0$  to  $< 0.1$  new cases (based on 3-day moving average) per 100,000 per day; **OR**
    - Slope: slope  $< 0$  new cases (based on 3-day moving average) per 100,000 per day and following a slope  $\geq 0$  new cases (based on a 3-day moving average) per 100,000 per day within the previous 5 days

These same criteria may be applied to epi curves of mortality, with minor modification:

1. Calculate the above indicators for Two-Week Cumulative Incidence Rate (Burden) and Change in Daily Incidence (Trajectory)
2. Identify jurisdictions with elevated incidence, defined as having a two-week incidence of  $> 0.5$  deaths per 100,000
3. Identify jurisdictions meeting one of the following conditions and remove them from the main analysis:
  - 1-5 deaths in the past 2 weeks
  - 0 deaths in the past 2 weeks

- No reported deaths (ever)

4. For the remaining jurisdictions, classify each day into one of the following categories, based on the smoothed epidemic curves computed with information up to that day:

- Low incidence growth:
  - Two-week incidence:  $\leq 0.5$  deaths per 100,000 **AND**
  - Slope:  $\geq 0.1$  new deaths (based on 3-day moving average) per 100,000 per day
- Elevated incidence growth:
  - Two-week incidence:  $> 0.5$  deaths per 100,000 **AND**
  - Slope:  $\geq 0.1$  new deaths (based on 3-day moving average) per 100,000 per day
- Elevated incidence plateau:
  - Two-week incidence:  $> 0.5$  deaths per 100,000 **AND**
  - Slope: slope  $\geq 0$  to  $< 0.1$  new deaths (based on 3-day moving average) per 100,000 per day;  
**OR**
  - Slope: slope  $< 0$  new deaths (based on 3-day moving average) per 100,000 per day and within 5 days of low incidence growth or elevated incidence growth
- Sustained decline:
  - Two-week incidence: any **AND**
  - Slope:  $< 0$  new deaths (based on 3-day moving average) per 100,000 per day following 5 days of elevated incidence plateau
- Low incidence plateau:
  - Two-week incidence:  $\leq 0.5$  deaths per 100,000 **AND**
  - Slope: slope  $\geq 0$  to  $< 0.1$  new deaths (based on 3-day moving average) per 100,000 per day;  
**OR**
  - Slope: slope  $< 0$  new deaths (based on 3-day moving average) per 100,000 per day following a slope  $\geq 0$  new cases (based on a 3-day moving average) per 100,000 per day within the previous 5 days

**Note: All dates are based on the date of report, not date of onset.**

## Number of Days in Downward Trajectory and 14-Day Cycles Completed

**Overview:** Characterizes the number of consecutive days of downward trajectory in daily case incidence a location has experienced, as well as the number of 14-day consecutive downward trajectory cycles achieved by each jurisdiction without a rebound.

**Purpose:** Identifies progress in jurisdictions towards achieving a downward trajectory in case incidence over a 14-day period, which is one of the "gate criteria" included in the White House's *Opening Up America Again* guidance ([https://urldefense.proofpoint.com/v2/url?u=https-3A\\_\\_www.whitehouse.gov\\_openingamerica\\_&d=DwMGaQ&c=HPJvcKF4Kk5Wqru1T\\_u\\_fOsw8NVQVa3gp0ReMdlciXw&r=e-sRhZ9-rsYLj33B540vVvdkGh4G-LQIVeP1Y38ZzCw&m=H6i58gXOZ-bdT\\_rFW9ldCitdhT9dqN2o5e-vgmlJKfc&](https://urldefense.proofpoint.com/v2/url?u=https-3A__www.whitehouse.gov_openingamerica_&d=DwMGaQ&c=HPJvcKF4Kk5Wqru1T_u_fOsw8NVQVa3gp0ReMdlciXw&r=e-sRhZ9-rsYLj33B540vVvdkGh4G-LQIVeP1Y38ZzCw&m=H6i58gXOZ-bdT_rFW9ldCitdhT9dqN2o5e-vgmlJKfc&))

s=\_MXQD6H21tYGMQzMckbJGh6F4psc84b8I4wOYJwSSeQ&e=).

### Specification:

1. Calculate the above indicators for Two-Week Cumulative Incidence Rate (Burden), Change in Daily Incidence (Trajectory) and Epidemic Curve Status
2. Calculate the days in downward trajectory by summing the number of consecutive days of sustained decline in the smoothed epidemic curve with information up to that day:
  - Was previously at elevated incidence (growth or plateau) **AND**
    - Had a negative slope ( $<0$  cases per 100,000 per day) after an initial 5 days of negative slope (sustained decline only counted after 5 days of decline); **OR**
    - Was in a low incidence plateau (e.g., two-week incidence  $\leq 10$  cases per 100,000 and a slope  $\geq 0$  to  $<0.1$  new cases (based on 3-day moving average) per 100,000 per day); **OR**
    - Had less than 5 cases in the past two weeks; **OR**
    - Had no cases in the past two weeks; **OR**
    - Met one of the above 4 conditions within the previous 5 days (grace period)
  - Note that if a jurisdiction has never had more than 5 cases, no downward trajectory classification is calculated. These jurisdictions are classified separately to acknowledge that COVID-19 has had minimal to no impact.
3. For mapping purposes, classify each jurisdiction as having experienced:
  - 0 days of downward trajectory (the slope during the most recent day for these jurisdictions is  $\geq 0$  cases per 100,000 per day)
  - 1-7 days of downward trajectory
  - 8-13 days of downward trajectory
  - 14-27 days of downward trajectory
  - 28-41 days of downward trajectory
  - $\geq 42$  days of downward trajectory
  - 0-5 reported cases (ever)
4. If the jurisdiction then experiences a **"rebound"** in daily incidence the consecutive days in **downward trajectory tally is set back to 0 days**. (Keep a record, however, of the number of total 14-day cycles completed for historical purposes). A **rebound** is defined as:
  - Having completed at least one 14-day cycle at any time during the epidemic **AND**
  - Having departed from a downward trajectory (including 5-day grace period) **AND**
  - Having previously reached an elevated incidence (two-week incidence  $>10$  cases per 100,000)

## Definition of CLI ED Visits Categorization

The trends in these graphs are reported as a given syndrome category as a proportion of total visits per day, and we've chosen an approach using a binomial regression model where the proportions can easily be computed from the percentages through division by 100. The corresponding Wald test will result in two pieces of information: (1) the sign of the test statistic which will allow for classification of increase or decrease, and (2) the p-value which points to significance of the change given it is below a uniform threshold (0.01). This

methodology allows for automating the classification a of large number of stratified time series (i.e., by site or county). R's standard generalized linear model function `glm()` is used along with the `map` function of the `purrr` library to apply separate binomial regressions to each county's data for a specific CCDD category.

A rolling time period is used to define a recent window of time for separate binomial regression models to be run for each stratification. This time period is currently defined to be the 11 days prior to the 3rd day before the present date (a total of 12 days). The length of the baseline and buffer period allows for trend analysis for recent but an adequate amount of data, and to prevent bias from the most recent dates that will have lower counts due to lags in receiving the data. Based upon each individual regression and statistical test, stratifications with a positive test-statistic and p-value strictly less than 0.01 are classified as increasing, stratifications with a negative test\_statistic and p-value strictly less than 0.01 are classified as decreasing, while the remaining stratifications are classified as having no significant increase or decrease. Additionally, all stratifications with a count lower than 10 over the baseline period are removed in order to avoid convergence errors and instability for the modeling process.

## Definition of Laboratory Testing Indicators

The trends in these graphs are generated from HHS Protect laboratory data, which includes data directly reported to the federal government by public health laboratories, six large commercial and reference laboratories, and ~750 hospital laboratories nationwide. We will soon be transitioning to laboratory data reported by the states to CDC.

We calculate percent positive based on new positive results divided by new positive and negative results for that day. We calculate test volume per 10,000 residents by summing the new positive, negative, and inconclusive results for that day and dividing by the population for that area.

To calculate the whether an area's percent positive and total test volume are increasing, decreasing, or have no statistically significant change, we use the same binomial regression method as the emergency department data. We keep the same guard band and rolling window.

The time trend for percent of tests positive changes color with the test volume per 10,000 residents.

## Definition of NHSN Hospital Capacity Indicators

CDC augmented its existing NHSN infrastructure to monitor and analyze the capacity of the domestic healthcare system daily, including hospital beds and ICU beds. Estimates are based on data submitted by acute care hospitals to the NHSN COVID-19 Module. Daily changes for the following indicators are reported:

- % of inpatient beds occupied out of total beds
- % of ICU beds occupied out of total ICU beds
- % inpatient beds occupied by COVID-19 patients out of total inpatient beds

Statistical methods were used to generate estimates of patient impact and hospital capacity indicators that are representative at the state level. The statistical methods include weighting (to account for non-response), multiple imputation (to account for missing data), and a running 7-day smoothing technique (that accounts for daily fluctuations and updated responses in reporting to NHSN). The estimates (percentages) are shown along with 95% confidence intervals that reflect the statistical error that is primarily due to non-response.