The Impact of Social Distancing on COVID19 Spread: State of Georgia Case Study

Online Supplemental Material

Online Supplement A: Data Sources, Model Description and Model Inputs

Figure A1: *Agent-base model incorporates the natural history of the disease for each individual agent, by age group, and the interactions at the household, peer group, and community, across different geographic areas.*

Table A1: *Descriptions and references for the model input parameters*

Figure A2: *County-level risk factor (left) and its multiplier (right) derived by applying the principal component analysis on several factors known to impact a higher risk of complications and severe outcomes for COVID19 infections, including prevalence of asthma, diabetes, obesity, smoking, cardiovascular disease and chronic conditions in general*

Online Supplement B: Supplemental Figures, Tables and Results

Figure B1: *Cumulative number of COVID19 deaths (left plot) and infections (right plot) of Scenarios 1, 2, 3 with respect to confirmed numbers of Georgia. On left, the actual COVID19 deaths in Georgia is plotted whereas on right, the confirmed COVID19 cases in Georgia multiplied by 8 to account for under-testing and existence of asymptomatic cases and moved one week earlier to account for incubation period*

Figure B2: *State Level Outcomes: IAR (first row left plot), CAR (first row right plot), ISOR (second row left plot), IFR (second row right plot), hospital bed capacity (third row left plot), ICUB (third row right plot), V (fourth row center plot) across all scenarios (including the baseline scenarios)*

Figure B3: *State level Outcomes: Daily new COVID19 infections when Low VQ is combined with 4 week (Scenario 1), 5 week (Scenario 4), 6 week (Scenario 7) SIP (top left plot), Mid VQ is combined with 4 week (Scenario 2), 5 week (Scenario 5), 6 week (Scenario 8) SIP (top right plot), High VQ is combined with 4 week (Scenario 3), 5 week (Scenario 6), 6 week (Scenario 9) SIP (bottom center plot)*

Figure B4: *Four maps of Georgia at the county level recording the number of new cases per 100,000 people for April 23,2020 (using the actual number of cases[1]), May 15, 2020 (simulated data from our model), June 15, 2020 (simulated data), and July 15, 2020 (simulated data)*

Figure B5: *Georgia map of the 14 coordinating hospital regions*

Table B1: *Peak Day in each county in the State of Georgia under all scenarios tested with urban counties highlighted in green*

Table B2: *Peak Infection Percentage in each county in the State of Georgia under all scenarios tested with urban counties highlighted in green*

1 Source: The New York Times (https://github.com/nytimes/covid-19-data)

Online Supplement A: Data Sources, Model Description and Model Inputs

Data Sources

Multiple sources of data were used throughout this study, including household type[2], household size[1], children status[1,3], workflow[4] and population demographics[1]. The household type represents the percentage of households with a specific number of people that are designated as family. The children status is the percentage of households with at least a certain number of children. The workflow is the number of people who live in one census tract and work in another census tract. Our workflow data also includes people who live outside of Georgia, but work in some census tract in Georgia. For the population demographics, we divided the population into five age categories: 0 year olds to 4 year olds, 5 year olds to 9 year olds, 10 year olds to 19 year olds, 20 year olds to 64 year olds, and 65+ year olds.

To ensure that certain groups interacted with certain other groups more, we imposed different probabilities based on the age of the person for the following parameters in the model: probability of hospitalization and probability of death. We were unable to find the proportion of patients of the specific age categories we desired for the following parameters in the literature: proportion of patients that develop symptoms after being exposed, proportion of patients that are asymptomatic after being exposed, and transmission rate.

County-level confirmed COVID19 cases and deaths were collected from The New York Times[5], based on reports from state and local health agencies. County-level hospitalizations were acquired from the Georgia Department of Health [1].

Agent-Based Infection Spread Model

We adapted a simulation-based disease spread model assuming heterogeneous population mixing to predict the spread pattern of the disease geographically over a period of one year based on existing agent-based simulation models [2-5]. The underlying model was a Susceptible-Exposed-Infected-Recovered (SEIR) model that tracks the disease status of an individual as the disease spreads through a census-tract level contact network by interactions in households, workplaces, schools, and communities. Each population member was assumed to be an agent in the disease spread but with different interactions in the household, workplace and in the community, with different rates of transmission and with different rates for severe outcomes such as hospitalizations and deaths varying with the age group. The model assumed one million agents, that is, one agent corresponding to approximately 10 people in the population in Georgia.

The main assumptions of the model used were (1) every individual is in exactly one of the following states at any given time: susceptible (S), exposed (E), pre-symptomatic (IP), asymptomatic (IA), symptomatic (IS), hospitalized (H), recovered (R), or dead (D) and (2) the entire population has three levels of mixing: (i) community (day and night), (ii) peer groups (day), and (iii) household (night). Other assumptions are made as well when it comes to the various parameters set and how the virus works. Anyone who follows shelter-in-place order does not have any peer-to-peer interaction until the shelter-in-place order is lifted. For those over the age of 64, workplace peer-to-peer interactions end. Everyone between the ages of 20 and 64, inclusive, act the same and have the same likelihood to be infected or spread the virus.

The input model parameters were: probability of developing symptoms stratified by age; probability of hospitalization stratified by age; probability of death given the patient was hospitalized stratified by age; R_0, reproductive number; β, transmission rate; the average length of time before a patient becomes pre-symptomatic; the standard deviation for the length of time before a patient becomes pre-symptomatic, the average length of time a patient is hospitalized,

[2] Source: U.S. Census Bureau; American Community Survey, 2017 American Community Survey 5-year Estimates (data.census.gov)
[3] Source: U.S. Census Bureau; 2010 Census Summary File 1 (data.census.gov)
[4] Source: U.S. Census Bureau; Census Transportation Planning Products, 5-year data (2012-2016) (http://data5.ctpp.transportation.org)
[5] Source: The New York Times (https://github.com/nytimes/covid-19-data)

average length of time a patient is pre-symptomatic, the probability of isolating a person who has already been hospitalized, the probability of being asymptomatic; θ, the proportion of transmission that occurs at the pre-symptomatic or asymptomatic stage; ω, the proportion of infections generated by those who are asymptomatic; and the average length of time a patient has symptoms. *Table A1* provides the input model parameters along with the references citing these parameters.

The path every person takes in the infection spread process starts at being susceptible (unless they start in the exposed phase initially). Anyone who is susceptible has a probability of being exposed based on age group (0-4, 5-9, 10-19, 20-65, 65+) and with whom a person interacts (peer group in school, peer group at work, etc.). Once someone is exposed, he/she will eventually become infectious, called the pre-symptomatic phase. There is some latency between when they are exposed and when they are pre-symptomatic. That duration is based on a Weibull distribution with a specified mean value (in number of days), called *Exposed Duration* in *Table A1*. The pre-symptomatic phase lasts 12 hours (0.5 days), the end of which marks when the person is symptomatic or asymptomatic, determined by a fixed probability, *Probability of Symptomatic* in *Table A1*. The people who are asymptomatic will always recover but will remain infectious for a variable amount of time (in days) based on an exponential distribution with specified mean, called *Symptomatic Duration* in *Table A1*. Any person who is symptomatic can either recover or go to the hospital with an age-dependent probability defined by *Probability of Hospitalization* in *Table A1*. Any person who goes to the hospital can, again, either recover, or can die with an age-dependent probability named *Probability of Death* in *Table A1*. At each point where there are two options, there is an associated probability given in *Table A1, Probability of symptomatic, Probability of Hospitalization,* and *Probability of death.*

The *Probability of Symptomatic* in *Table A1* is the probability that a pre-symptomatic infected patient will start showing symptoms. The *Probability of Hospitalization* in *Table A1* is the probability that a symptomatic patient becomes hospitalized. The *Probability of Death* in *Table A1* is the probability that a person who is hospitalized dies. The R_0 in *Table A1* is the *reproductive number*, which measures the transmission potential of the virus (i.e., the expected number of secondary infections caused by a typical infection). The β in *Table A1* parameter represents the transmission rate. The *Exposed Duration* in *Table A1* is the length of time (in days) between when a person was exposed to COVID19 from another infectious person and when this person becomes infectious, that is, when a person enters the pre-symptomatic phase. Note that a person becomes infectious when they enter the pre-symptomatic phase. The *Pre-symptomatic Duration* in *Table A1* is the amount of time (in days) before an infected patient enters either the symptomatic or asymptomatic phase. Note that a patient will either become symptomatic or asymptomatic after the same amount of time (in days) through the pre-symptomatic phase. Also note that a person who goes from pre-symptomatic to asymptomatic has no fundamental change. It is simply that this person will continue to never develop symptoms. The *Symptomatic Duration* in *Table A1* is the amount of time (in days) it takes for a symptomatic person to become either hospitalized or recovered. The *Hospitalized Duration* in *Table A1* is the amount of time (in days) a person who has been hospitalized will either become recovered or will die. The *Symptomatic-Asymptomatic Duration Ratio* in *Table A1* is the ratio of duration times between symptomatic and asymptomatic, which is used to identify the average asymptomatic duration. The θ parameter in *Table A1* is the proportion of transmission that occurs at the pre-symptomatic or asymptomatic phase. The ω parameter in *Table A1* denotes the proportion of infections generated by individuals who are asymptomatic.

To seed the model, we utilized the confirmed case data for Georgia. Since the case data was stratified down to the county level and our initialization needed data down to the census tract level, we took the numbers provided for the county level from The New York Times and applied the Huntington-Hill method of apportionment (the same method used to decide the number of seats that belong to each U.S. congressman in the House of Representatives) to apportion the number of COVID19 confirmed cases from March 24th to each of the census tracts in the state of Georgia. We used the distribution of the seeds from the confirmed cases to inform the community-level projections.

At the start of a simulation run, an initial infection was introduced randomly to agents from census tracts following the distributions of confirmed cases in Georgia. Any susceptible individual who becomes infected changes their disease status from susceptible to exposed. With pre-defined probabilities, the disease progresses within infected individuals and spreads to previously healthy individuals across the network. Once recovered from the disease, the individual remains in that state as there is no definitive evidence that it is possible to be re-infected with COVID19 after full recovery.

The code used was implemented using C++.

Figure A1: *Agent-base model incorporates the natural history of the disease for each individual agent, by age group, and the interactions at the household, peer group, and community, across different geographic areas.*

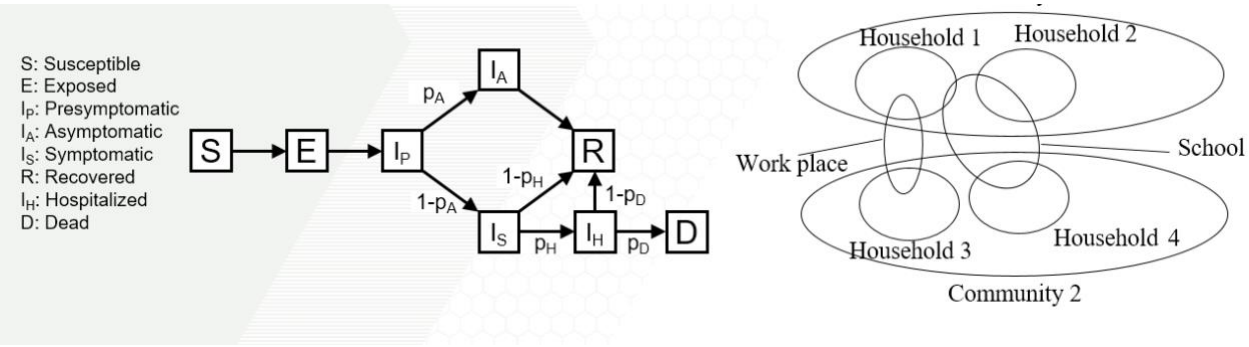

Table A1: *Descriptions and references for the model input parameters*

Parameters	Estimates	References
Probability of Symptomatic	0.50-0.82	6 7 8-10
Probability of Hospitalization	0.016 for age 0-19, 0.18 for age 20-64, 0.30 for age 65+	11
Probability of Death	0 for age 0-19, 0.0515 for age 20-64, 0.3512 for age 65+	11
R_0	2.4	12-14
	2.3	15
β	1.12	13
Exposed Duration	Weibull with mean 4.6 days	16,17
Pre-symptomatic Duration	0.5 days	17
Hospitalized Duration	Exponential with mean 10.4 days	17,18
Symptomatic Duration	Exponential with mean 2.9 days	19
Symptomatic-Asymptomatic Duration Ratio	1.5	17
θ	0.48	20

ω	0.24	20
Percentage of hospitalizations that require ICU	0% for age 0-19, 20.53% for age 20-64, 28.11% for age 65+	11
Percentage of ICU patients that require ventilation	64%	1
ICU Duration (days)	8	21
Ventilation Duration (days)	6	22

Capacity Need Estimation: Description of Model Inputs

To calculate the daily number of hospital beds needed, we take the needs from the previous day after removing patients that have been discharged and add the daily new hospitalizations by age group. The number of patients who are discharged is determined by taking a fraction of the hospitalized population, based on the mean value of the *Hospitalization Duration*. The *Hospitalized Duration* is defined as the average length of stay of a COVID19 patient in the hospital. Calculations for ICU bed needs are found by taking the ICU patients from the previous day after removing individuals that have been discharged from the ICU and adding a percentage of the daily new hospitalizations by age group, where percentages are determined by the age-dependent *Percentage of hospitalizations that require ICU* from *Table A1*. The *Percentage of hospitalizations that require ICU* is the percentage of COVID19 hospital patients that have been transferred to the ICU because of the severity of their illness. This percentage has been considered to be age-dependent and the estimations for each age group are given in *Table A1*. The number of ICU patients that are discharged is a fraction of the current COVID19 ICU population, based on the *ICU Duration* from *Table A1*. The *ICU Duration* is the average length of stay in the ICU for a COVID19 patient. Lastly, the calculations for ventilator needs are determined by taking the ICU patients from the previous day that are on ventilation after removing the ICU patients who have stopped ventilation and adding a percentage of the daily new ICU patients, based on the *Percentage of ICU patients that require ventilation* from *Table A1*. The *Percentage of ICU patients that require ventilation* is defined as the percent of COVID19 patients in the ICU whose illness severity requires respiratory support through mechanical ventilation or ECMO services. The fraction of ventilation patients who are removed from ventilation services is calculated from the average length of time on ventilation for a COVID19 patient, referred to as *Ventilation Duration* in *Table A1*.

Calibration and Validation of the Model

SIP intervention at the state level in Georgia was not implemented on March 16th; however most of the businesses, profit and non-profit organizations, and governmental organizations have enacted various interventions to establish VQ; starting on April 3, 2020[6], the entire state of Georgia enacted statewide directives for SIP until April 30, 2020; new guidance was issued by the Governor of Georgia on April 20, 2020 that gyms, bowling alleys, tattoo parlors, barbers, hair and nail salons, and massage therapists may reopen for business on April 24, 2020, and theaters and dine-in restaurants may reopen for business on April 27, 2020[7].

Due to high variations in preliminary COVID19 estimates, we calibrated our model and adjusted disease parameters according to confirmed COVID19 infections, hospitalizations and deaths in the state of Georgia. Percentage of symptomatic cases was adjusted based on the literature and confirmed cases. Probability of hospitalization was calculated and adjusted based on CDC report [11] and [1] to capture the age specific hospitalization probabilities and better mimic the current condition in the state of Georgia, to that end we multiplied probabilities provided in [11] with 1/3.

6 See https://gov.georgia.gov/document/2020-executive-order/04022001/download.
7 See https://www.georgia.org/covid19bizguide.

In *Figure B1*, we present the cumulative number of deaths confirmed by the state of Georgia in comparison to our projections and the confirmed COVID19 cases in Georgia multiplied by 8 to account for under-testing and existence of asymptomatic cases. Georgia results are shifted one week earlier to account for the infection incubation period in comparison to our daily infection estimates.

One way to assess the validity of the model was to examine the how our model performed on urban versus rural counties. For example, DeKalb County, an urban county, experiences the earliest peak day on June 29th under Scenario 1, but under Scenario 4 or 7, the peak shifted to July 9th-18th. Increasing VQ compliance to mid or high would push the peak day to July 7th and August 3rd, respectively. On the other hand, Lanier County, a rural county, has its earliest peak on July 6th under Scenario 1, but under Scenario 4 or 7, the peak shifts to July 15th-29th. However, increasing VQ compliance to mid or high would push the peak day to July 15th and August 11th.

For instance, peak infection percentage in Fulton County increases from 0.81% to 0.82% from Scenario 1 to 4 and decreases from 0.82% to 0.79% from Scenario 4 to 7. Similar fluctuations can be observed in other urban and rural counties. The rural county of Webster has a peak percentage decrease from 0.82% to 0.57% from Scenario 1 to 4 and increase from 0.57% to 0.74% from Scenario 4 to 7. Increasing VQ compliance from low to mid and from mid to high provides approximately a 10% and 26-37% decrease, respectively, in peak infection percentage.

County-level risk factors were calculated and are visualized in *Figure A2.*

Figure A2: *County-level risk factor (left) and its multiplier (right) derived by applying the principal component analysis on several factors known to impact a higher risk of complications and severe outcomes for COVID19 infections, including prevalence of asthma, diabetes, obesity, smoking, cardiovascular disease and chronic conditions in general*

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Online Supplement B: Supplemental Figures, Tables and Results

This supplemental material provides additional figures and tables complementing the results presented in the main manuscript.

Figure B1: *Cumulative number of COVID19 deaths (left plot) and infections (right plot) of Scenarios 1, 2, 3 with respect to confirmed numbers of Georgia. On left, the actual COVID19 deaths in Georgia is plotted whereas on right, the confirmed COVID19 cases in Georgia multiplied by 8 to account for under-testing and existence of*

asymptomatic cases and moved one week earlier to account for incubation period.

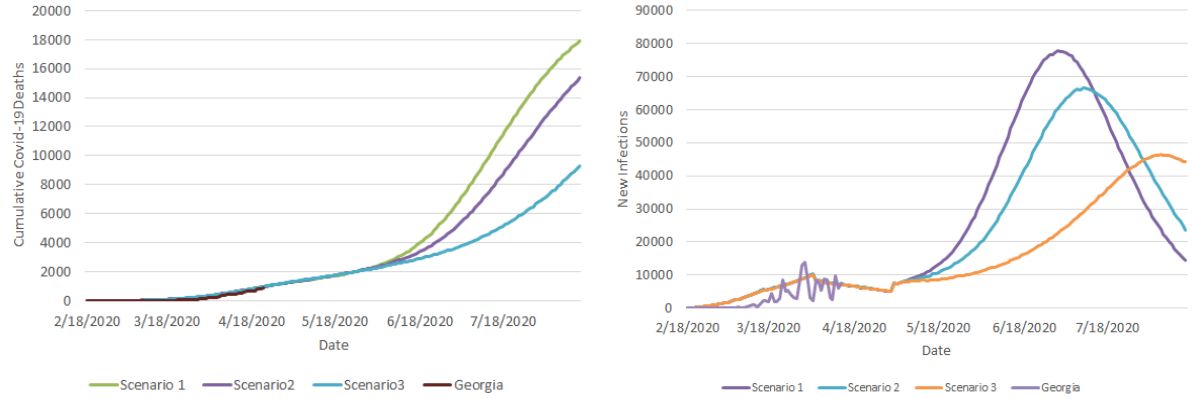
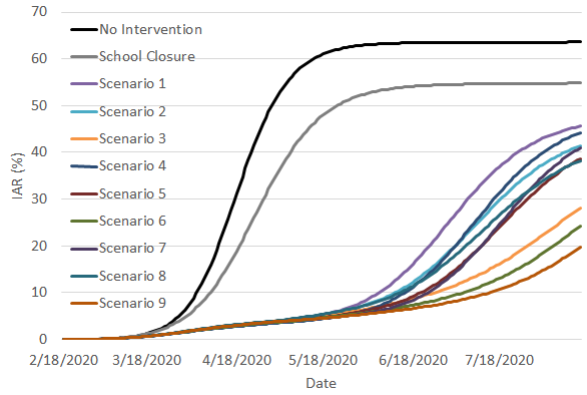
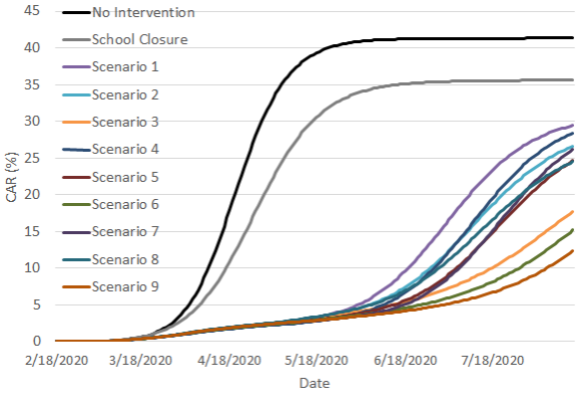
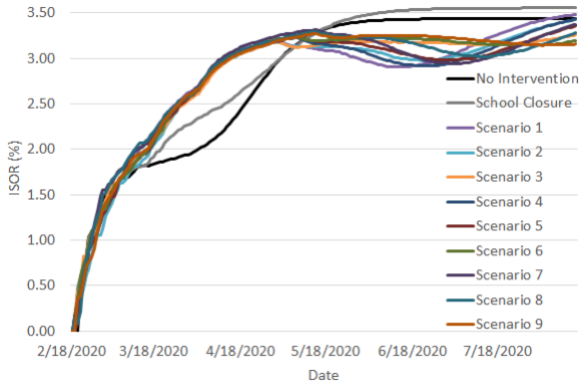


Figure B2: *State Level Outcomes: IAR (first row left plot), CAR (first row right plot), ISOR (second row left plot), IFR (second row right plot), hospital bed capacity (third row left plot), ICUB (third row right plot), V (fourth row center plot) across all scenarios (including the baseline scenarios)*


IAR (%)
Date
No Intervention
School Closure
Scenario 1
Scenario 2
Scenario 3
Scenario 4
Scenario 5
Scenario 6
Scenario 7
Scenario 8
Scenario 9
2/18/2020
3/18/2020
4/18/2020
5/18/2020
6/18/2020
7/18/2020


CAR (%)
Date
No Intervention
School Closure
Scenario 1
Scenario 2
Scenario 3
Scenario 4
Scenario 5
Scenario 6
Scenario 7
Scenario 8
Scenario 9
2/18/2020
3/18/2020
4/18/2020
5/18/2020
6/18/2020
7/18/2020


ISOR (%)
Date
No Intervention
School Closure
Scenario 1
Scenario 2
Scenario 3
Scenario 4
Scenario 5
Scenario 6
Scenario 7
Scenario 8
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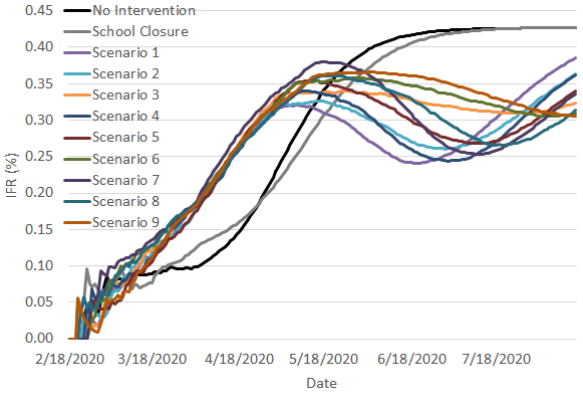
7/18/2020


IFR (%)
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School Closure
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Scenario 3
Scenario 4
Scenario 5
Scenario 6
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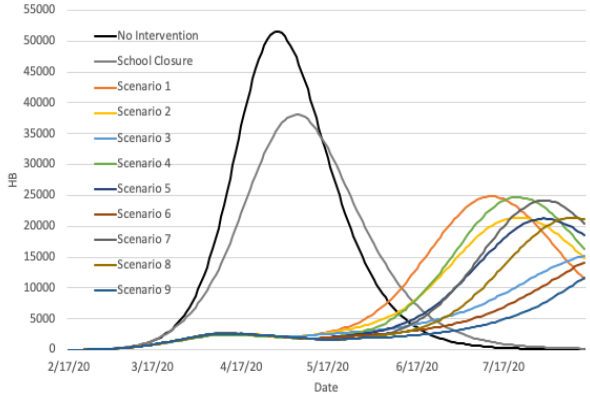
7/18/2020


HB
Date
No Intervention
School Closure
Scenario 1
Scenario 2
Scenario 3
Scenario 4
Scenario 5
Scenario 6
Scenario 7
Scenario 8
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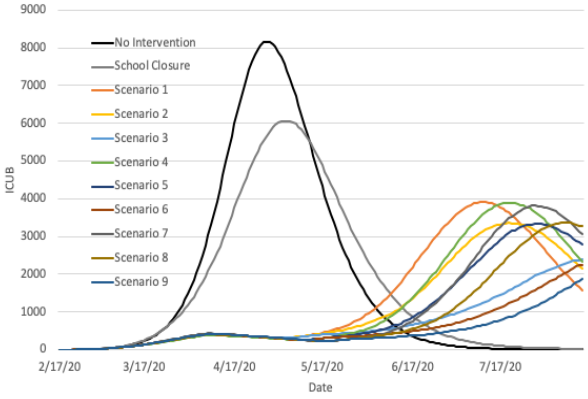
7/17/20


ICUB
Date
No Intervention
School Closure
Scenario 1
Scenario 2
Scenario 3
Scenario 4
Scenario 5
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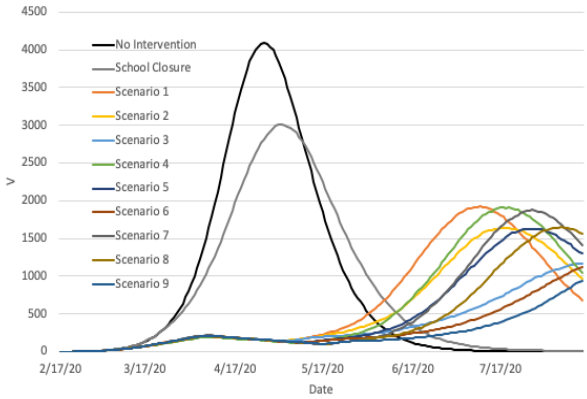
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Date
No Intervention
School Closure
Scenario 1
Scenario 2
Scenario 3
Scenario 4
Scenario 5
Scenario 6
Scenario 7
Scenario 8
Scenario 9
2/17/20
3/17/20
4/17/20
5/17/20
6/17/20
7/17/20

Figure B3: *State level Outcomes: Daily new COVID 19 infections when Low VQ is combined with 4 week (Scenario 1), 5 week (Scenario 4), 6 week (Scenario 7) SIP (top left plot), Mid VQ is combined with 4 week (Scenario 2), 5 week (Scenario 5), 6 week (Scenario 8) SIP (top right plot), High VQ is combined with 4 week (Scenario 3), 5 week (Scenario 6), 6 week (Scenario 9) SIP (bottom center plot)*

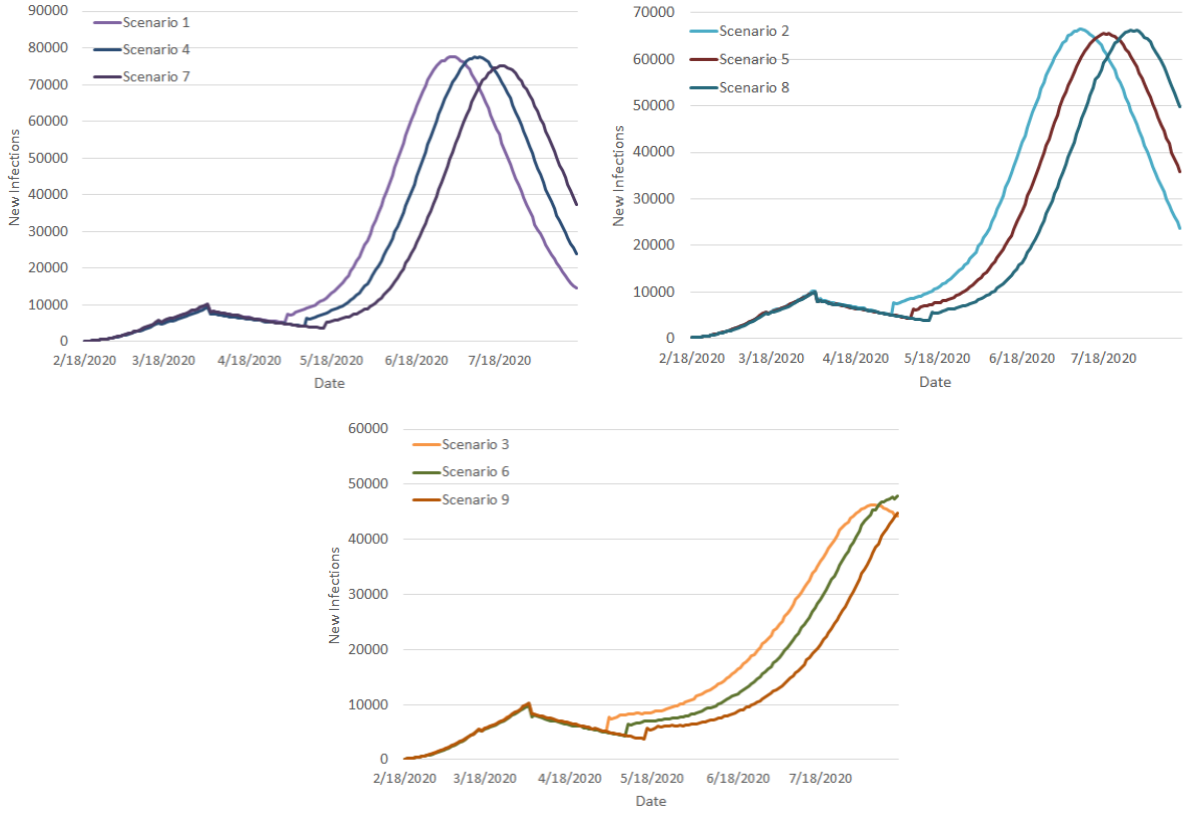

Figure B4: *Three maps of Georgia at the county level recording the number of projected new cases per 100,000 people for May 15, 2020, June 15, 2020, and July 11, 2020*

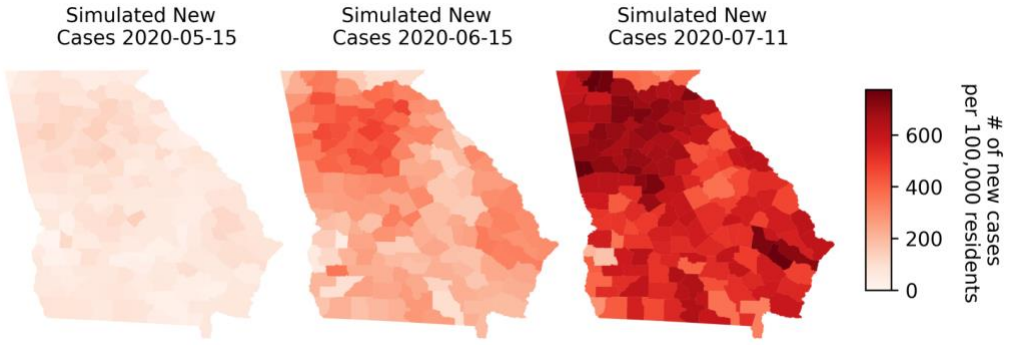

Figure B5: *Georgia map of the 14 coordinating hospital regions* [23]

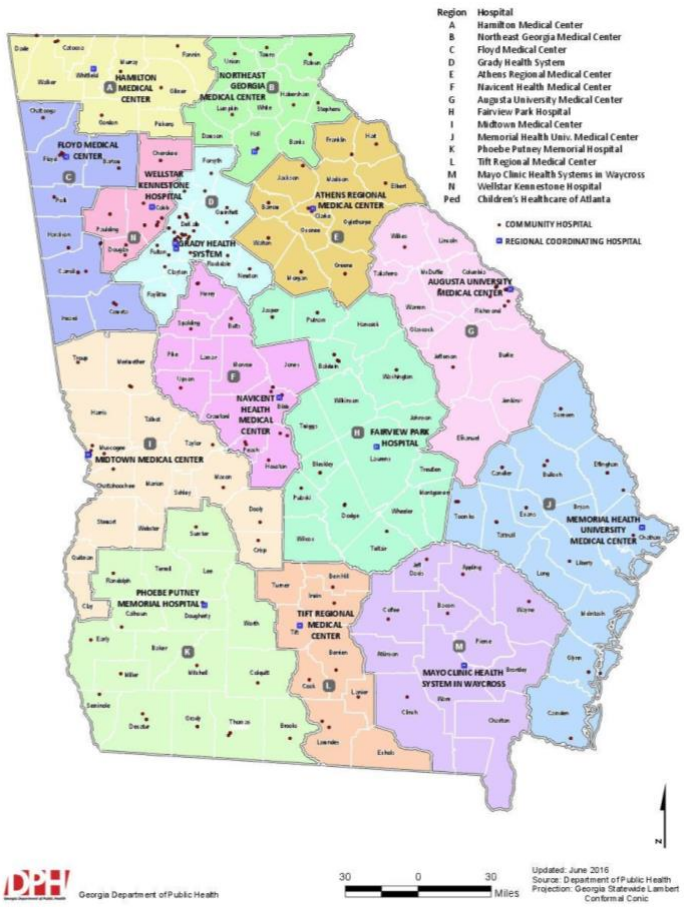

Table B1: *Peak Day in each county in the State of Georgia under all scenarios tested with urban counties highlighted in green*

County Name	NI	SC	1	2	3	4	5	6	7	8	9
Appling	30-Apr	10-May	30-Jun	28-Jul	12-Aug	27-Jul	12-Aug	14-Aug	4-Aug	12-Aug	15-Aug
Atkinson	27-Apr	29-Apr	2-Jul	16-Jul	10-Aug	19-Jul	2-Aug	6-Aug	25-Jul	29-Jul	13-Aug
Bacon	21-Apr	9-May	16-Jul	21-Jul	4-Aug	19-Jul	2-Aug	15-Aug	29-Jul	9-Aug	15-Aug
Baker	1-May	28-Apr	20-Jul	17-Jul	15-Aug	26-Jul	14-Jul	13-Aug	29-Jul	4-Aug	27-Jul
Baldwin	30-Apr	6-May	14-Jul	19-Jul	31-Jul	19-Jul	25-Jul	15-Aug	27-Jul	9-Aug	15-Aug
Banks	22-Apr	24-Apr	1-Jul	7-Jul	10-Aug	6-Jul	11-Jul	12-Aug	14-Jul	24-Jul	10-Aug
Barrow	17-Apr	21-Apr	28-Jun	10-Jul	14-Aug	8-Jul	18-Jul	9-Aug	18-Jul	28-Jul	15-Aug
Bartow	17-Apr	25-Apr	30-Jun	6-Jul	5-Aug	9-Jul	12-Jul	11-Aug	16-Jul	26-Jul	15-Aug
Ben Hill	28-Apr	1-May	26-Jul	22-Jul	13-Aug	6-Aug	12-Aug	15-Aug	9-Aug	9-Aug	15-Aug
Berrien	25-Apr	29-Apr	16-Jul	18-Jul	10-Aug	13-Jul	27-Jul	14-Aug	29-Jul	1-Aug	13-Aug
Bibb	26-Apr	1-May	5-Jul	17-Jul	8-Aug	21-Jul	24-Jul	10-Aug	24-Jul	3-Aug	14-Aug
Bleckley	18-Apr	27-Apr	10-Jul	22-Jul	15-Aug	28-Jul	3-Aug	12-Aug	24-Jul	11-Aug	13-Aug
Brantley	24-Apr	26-Apr	30-Jun	25-Jul	7-Aug	16-Jul	21-Jul	13-Aug	21-Jul	12-Aug	15-Aug

County Name	NI	SC	1	2	3	4	5	6	7	8	9
Brooks	21-Apr	26-Apr	22-Jul	17-Jul	12-Aug	21-Jul	4-Aug	9-Aug	27-Jul	14-Aug	15-Aug
Bryan	19-Apr	27-Apr	5-Jul	24-Jul	11-Aug	17-Jul	15-Jul	15-Aug	15-Jul	1-Aug	13-Aug
Bulloch	17-Apr	30-Apr	1-Jul	20-Jul	7-Aug	21-Jul	28-Jul	15-Aug	22-Jul	5-Aug	15-Aug
Burke	25-Apr	29-Apr	16-Jul	24-Jul	13-Aug	21-Jul	22-Jul	9-Aug	31-Jul	6-Aug	14-Aug
Butts	16-Apr	27-Apr	26-Jun	7-Jul	3-Aug	9-Jul	11-Jul	13-Aug	12-Jul	4-Aug	10-Aug
Calhoun	28-Apr	27-Apr	23-Jul	18-Jul	14-Aug	13-Jul	24-Jul	9-Aug	9-Aug	8-Aug	15-Aug
Camden	25-Apr	30-Apr	20-Jul	2-Aug	14-Aug	9-Jul	26-Jul	15-Aug	27-Jul	8-Aug	14-Aug
Candler	26-Apr	3-May	7-Jul	26-Jul	8-Aug	12-Jul	1-Aug	13-Aug	22-Jul	8-Aug	13-Aug
Carroll	16-Apr	26-Apr	29-Jun	12-Jul	4-Aug	13-Jul	15-Jul	11-Aug	19-Jul	1-Aug	14-Aug
Catoosa	23-Apr	26-Apr	7-Jul	15-Jul	8-Aug	15-Jul	23-Jul	12-Aug	25-Jul	31-Jul	15-Aug
Charlton	5-May	27-Apr	28-Jul	30-Jul	14-Aug	20-Jul	5-Aug	15-Aug	12-Aug	5-Aug	15-Aug
Chatham	23-Apr	28-Apr	5-Jul	14-Jul	7-Aug	20-Jul	20-Jul	13-Aug	22-Jul	4-Aug	15-Aug
Chattahoochee	28-Apr	11-May	12-Jul	15-Jul	6-Aug	29-Jul	31-Jul	10-Aug	3-Aug	10-Aug	13-Aug
Chattooga	22-Apr	24-Apr	8-Jul	23-Jul	12-Aug	13-Jul	24-Jul	15-Aug	24-Jul	30-Jul	15-Aug
Cherokee	16-Apr	22-Apr	1-Jul	7-Jul	3-Aug	8-Jul	15-Jul	15-Aug	20-Jul	24-Jul	14-Aug
Clarke	20-Apr	24-Apr	3-Jul	10-Jul	10-Aug	7-Jul	26-Jul	15-Aug	24-Jul	31-Jul	15-Aug
Clay	5-May	7-May	14-Jul	29-Jul	8-Aug	27-Jul	9-Aug	15-Aug	11-Aug	8-Aug	2-Aug
Clayton	15-Apr	25-Apr	30-Jun	3-Jul	1-Aug	7-Jul	18-Jul	13-Aug	15-Jul	27-Jul	14-Aug
Clinch	1-May	11-May	25-Jul	5-Aug	31-Jul	27-Jul	8-Aug	15-Aug	4-Aug	13-Aug	11-Aug
Cobb	16-Apr	23-Apr	2-Jul	7-Jul	30-Jul	4-Jul	16-Jul	14-Aug	16-Jul	25-Jul	12-Aug
Coffee	22-Apr	1-May	15-Jul	2-Aug	8-Aug	25-Jul	4-Aug	12-Aug	29-Jul	3-Aug	14-Aug
Colquitt	29-Apr	29-Apr	10-Jul	17-Jul	10-Aug	28-Jul	26-Jul	15-Aug	28-Jul	8-Aug	14-Aug
Columbia	20-Apr	26-Apr	7-Jul	15-Jul	13-Aug	13-Jul	24-Jul	15-Aug	24-Jul	5-Aug	15-Aug
Cook	27-Apr	3-May	12-Jul	25-Jul	12-Aug	16-Jul	27-Jul	12-Aug	22-Jul	9-Aug	13-Aug
Coweta	16-Apr	24-Apr	30-Jun	6-Jul	3-Aug	13-Jul	13-Jul	15-Aug	20-Jul	28-Jul	15-Aug
Crawford	25-Apr	2-May	5-Jul	15-Jul	15-Aug	13-Jul	28-Jul	13-Aug	26-Jul	13-Aug	14-Aug
Crisp	24-Apr	6-May	13-Jul	28-Jul	8-Aug	18-Jul	3-Aug	11-Aug	28-Jul	12-Aug	12-Aug
Dade	25-Apr	11-May	18-Jul	28-Jul	15-Aug	5-Aug	29-Jul	15-Aug	29-Jul	9-Aug	15-Aug
Dawson	18-Apr	24-Apr	28-Jun	1-Jul	30-Jul	13-Jul	16-Jul	4-Aug	18-Jul	28-Jul	15-Aug
Decatur	1-May	6-May	12-Jul	28-Jul	13-Aug	28-Jul	26-Jul	10-Aug	13-Aug	8-Aug	15-Aug
DeKalb	17-Apr	21-Apr	29-Jun	7-Jul	3-Aug	9-Jul	17-Jul	10-Aug	18-Jul	28-Jul	15-Aug
Dodge	18-Apr	30-Apr	10-Jul	25-Jul	14-Aug	20-Jul	30-Jul	4-Aug	29-Jul	5-Aug	12-Aug
Dooly	26-Apr	28-Apr	8-Jul	8-Jul	2-Aug	23-Jul	31-Jul	4-Aug	14-Jul	9-Aug	13-Aug
Dougherty	24-Apr	25-Apr	9-Jul	20-Jul	13-Aug	20-Jul	31-Jul	15-Aug	29-Jul	5-Aug	15-Aug
Douglas	15-Apr	23-Apr	30-Jun	7-Jul	28-Jul	7-Jul	20-Jul	11-Aug	16-Jul	29-Jul	14-Aug
Early	3-May	3-May	24-Jul	29-Jul	15-Aug	31-Jul	9-Aug	15-Aug	14-Aug	1-Aug	15-Aug
Echols	23-Apr	8-May	15-Jul	25-Jul	12-Aug	15-Jul	5-Aug	12-Aug	1-Aug	30-Jul	13-Aug
Effingham	19-Apr	26-Apr	4-Jul	19-Jul	11-Aug	12-Jul	27-Jul	15-Aug	20-Jul	1-Aug	12-Aug
Elbert	22-Apr	1-May	8-Jul	19-Jul	15-Aug	8-Jul	30-Jul	15-Aug	26-Jul	7-Aug	13-Aug
Emanuel	25-Apr	24-Apr	13-Jul	25-Jul	8-Aug	2-Aug	29-Jul	12-Aug	5-Aug	5-Aug	11-Aug
Evans	23-Apr	25-Apr	14-Jul	2-Jul	4-Aug	17-Jul	19-Jul	29-Jul	26-Jul	13-Aug	13-Aug
Fannin	29-Apr	6-May	7-Jul	27-Jul	8-Aug	27-Jul	17-Jul	15-Aug	23-Jul	9-Aug	15-Aug
Fayette	17-Apr	25-Apr	1-Jul	8-Jul	4-Aug	11-Jul	15-Jul	12-Aug	15-Jul	23-Jul	15-Aug
Floyd	20-Apr	29-Apr	2-Jul	8-Jul	14-Aug	13-Jul	26-Jul	14-Aug	25-Jul	3-Aug	15-Aug

County Name	NI	SC	1	2	3	4	5	6	7	8	9
Forsyth	19-Apr	22-Apr	27-Jun	10-Jul	31-Jul	12-Jul	15-Jul	8-Aug	16-Jul	28-Jul	13-Aug
Franklin	23-Apr	26-Apr	26-Jun	14-Jul	12-Aug	13-Jul	22-Jul	12-Aug	22-Jul	27-Jul	13-Aug
Fulton	17-Apr	25-Apr	29-Jun	8-Jul	3-Aug	9-Jul	17-Jul	11-Aug	16-Jul	25-Jul	15-Aug
Gilmer	22-Apr	28-Apr	6-Jul	11-Jul	13-Aug	9-Jul	15-Jul	15-Aug	21-Jul	5-Aug	14-Aug
Glascock	29-Apr	5-May	7-Jul	25-Jul	8-Aug	26-Jul	2-Aug	12-Aug	19-Jul	10-Aug	11-Aug
Glynn	26-Apr	26-Apr	14-Jul	23-Jul	10-Aug	11-Jul	5-Aug	15-Aug	24-Jul	4-Aug	14-Aug
Gordon	19-Apr	25-Apr	30-Jun	5-Jul	15-Aug	16-Jul	17-Jul	11-Aug	15-Jul	25-Jul	14-Aug
Grady	30-Apr	8-May	19-Jul	23-Jul	8-Aug	27-Jul	1-Aug	15-Aug	4-Aug	2-Aug	14-Aug
Greene	28-Apr	26-Apr	18-Jul	12-Jul	15-Aug	18-Jul	27-Jul	11-Aug	2-Aug	7-Aug	14-Aug
Gwinnett	15-Apr	23-Apr	25-Jun	5-Jul	2-Aug	6-Jul	14-Jul	13-Aug	18-Jul	26-Jul	15-Aug
Habersham	22-Apr	23-Apr	28-Jun	3-Jul	5-Aug	11-Jul	25-Jul	7-Aug	22-Jul	28-Jul	15-Aug
Hall	16-Apr	21-Apr	30-Jun	6-Jul	5-Aug	7-Jul	11-Jul	13-Aug	15-Jul	24-Jul	15-Aug
Hancock	2-May	2-May	23-Jul	21-Jul	11-Aug	24-Jul	4-Aug	11-Aug	22-Jul	2-Aug	14-Aug
Haralson	21-Apr	28-Apr	27-Jun	10-Jul	3-Aug	12-Jul	19-Jul	10-Aug	22-Jul	30-Jul	13-Aug
Harris	19-Apr	4-May	6-Jul	17-Jul	9-Aug	21-Jul	1-Aug	14-Aug	25-Jul	1-Aug	15-Aug
Hart	26-Apr	28-Apr	9-Jul	15-Jul	15-Aug	14-Jul	27-Jul	14-Aug	29-Jul	6-Aug	13-Aug
Heard	23-Apr	26-Apr	1-Jul	5-Jul	12-Aug	10-Jul	3-Aug	15-Aug	12-Jul	26-Jul	15-Aug
Henry	15-Apr	22-Apr	27-Jun	7-Jul	1-Aug	4-Jul	16-Jul	13-Aug	15-Jul	26-Jul	14-Aug
Houston	23-Apr	27-Apr	2-Jul	8-Jul	5-Aug	15-Jul	19-Jul	9-Aug	18-Jul	3-Aug	15-Aug
Irwin	25-Apr	1-May	10-Jul	27-Jul	13-Aug	23-Jul	24-Jul	6-Aug	30-Jul	12-Aug	13-Aug
Jackson	17-Apr	20-Apr	30-Jun	8-Jul	7-Aug	4-Jul	18-Jul	12-Aug	20-Jul	21-Jul	14-Aug
Jasper	18-Apr	23-Apr	29-Jun	14-Jul	11-Aug	8-Jul	17-Jul	8-Aug	21-Jul	5-Aug	7-Aug
Jeff Davis	30-Apr	7-May	7-Jul	26-Jul	13-Aug	29-Jul	12-Aug	4-Aug	24-Jul	13-Aug	12-Aug
Jefferson	28-Apr	2-May	20-Jul	30-Jul	15-Aug	23-Jul	2-Aug	15-Aug	22-Jul	6-Aug	15-Aug
Jenkins	27-Apr	2-May	12-Jul	9-Jul	10-Aug	22-Jul	14-Jul	1-Aug	24-Jul	3-Aug	14-Aug
Johnson	26-Apr	1-May	13-Jul	28-Jul	13-Aug	26-Jul	26-Jul	15-Aug	5-Aug	14-Aug	15-Aug
Jones	26-Apr	30-Apr	8-Jul	13-Jul	12-Aug	21-Jul	31-Jul	12-Aug	29-Jul	29-Jul	15-Aug
Lamar	20-Apr	25-Apr	9-Jul	10-Jul	11-Aug	8-Jul	22-Jul	14-Aug	27-Jul	1-Aug	14-Aug
Lanier	25-Apr	4-May	6-Jul	15-Jul	11-Aug	15-Jul	25-Jul	13-Aug	29-Jul	8-Aug	15-Aug
Laurens	21-Apr	29-Apr	18-Jul	25-Jul	15-Aug	13-Jul	1-Aug	15-Aug	28-Jul	10-Aug	14-Aug
Lee	26-Apr	20-Apr	14-Jul	15-Jul	10-Aug	22-Jul	7-Aug	15-Aug	28-Jul	4-Aug	14-Aug
Liberty	20-Apr	26-Apr	23-Jun	11-Jul	25-Jul	17-Jul	20-Jul	11-Aug	16-Jul	4-Aug	15-Aug
Lincoln	28-Apr	6-May	9-Jul	19-Jul	7-Aug	16-Jul	28-Jul	15-Aug	2-Aug	10-Aug	14-Aug
Long	24-Apr	27-Apr	19-Jun	14-Jul	4-Aug	13-Jul	18-Jul	15-Aug	20-Jul	27-Jul	12-Aug
Lowndes	22-Apr	26-Apr	10-Jul	22-Jul	9-Aug	20-Jul	9-Aug	13-Aug	28-Jul	7-Aug	13-Aug
Lumpkin	23-Apr	26-Apr	3-Jul	11-Jul	7-Aug	7-Jul	18-Jul	12-Aug	25-Jul	24-Jul	13-Aug
McDuffie	25-Apr	1-May	9-Jul	26-Jul	1-Aug	21-Jul	27-Jul	13-Aug	26-Jul	4-Aug	13-Aug
McIntosh	26-Apr	28-Apr	11-Jul	20-Jul	3-Aug	17-Jul	28-Jul	15-Aug	19-Jul	5-Aug	14-Aug
Macon	1-May	3-May	4-Jul	24-Jul	8-Aug	20-Jul	18-Jul	2-Aug	1-Aug	24-Jul	15-Aug
Madison	21-Apr	27-Apr	4-Jul	13-Jul	7-Aug	15-Jul	24-Jul	13-Aug	28-Jul	4-Aug	15-Aug
Marion	29-Apr	26-Apr	17-Jul	21-Jul	10-Aug	7-Aug	1-Aug	14-Aug	10-Aug	3-Aug	14-Aug
Meriwether	24-Apr	27-Apr	23-Jun	17-Jul	15-Aug	12-Jul	24-Jul	15-Aug	21-Jul	5-Aug	13-Aug
Miller	1-May	8-May	19-Jul	31-Jul	14-Aug	28-Jul	10-Aug	30-Jul	8-Aug	15-Aug	15-Aug
Mitchell	28-Apr	27-Apr	13-Jul	23-Jul	12-Aug	26-Jul	27-Jul	13-Aug	2-Aug	12-Aug	14-Aug
Monroe	22-Apr	2-May	28-Jun	19-Jul	8-Aug	14-Jul	27-Jul	10-Aug	21-Jul	2-Aug	13-Aug

County Name	NI	SC	1	2	3	4	5	6	7	8	9
Montgomery	21-Apr	12-May	8-Jul	2-Aug	11-Aug	23-Jul	30-Jul	13-Aug	7-Aug	13-Aug	14-Aug
Morgan	20-Apr	26-Apr	24-Jun	19-Jul	31-Jul	18-Jul	14-Jul	12-Aug	24-Jul	28-Jul	13-Aug
Murray	17-Apr	22-Apr	30-Jun	7-Jul	3-Aug	9-Jul	21-Jul	15-Aug	16-Jul	30-Jul	14-Aug
Muscogee	25-Apr	3-May	10-Jul	23-Jul	15-Aug	25-Jul	2-Aug	15-Aug	28-Jul	9-Aug	14-Aug
Newton	16-Apr	26-Apr	28-Jun	5-Jul	27-Jul	11-Jul	14-Jul	9-Aug	17-Jul	22-Jul	15-Aug
Oconee	16-Apr	22-Apr	30-Jun	18-Jul	11-Aug	9-Jul	30-Jul	12-Aug	21-Jul	24-Jul	13-Aug
Oglethorpe	17-Apr	19-Apr	5-Jul	7-Jul	15-Aug	12-Jul	20-Jul	13-Aug	26-Jul	18-Jul	14-Aug
Paulding	16-Apr	22-Apr	27-Jun	5-Jul	30-Jul	5-Jul	13-Jul	8-Aug	17-Jul	29-Jul	12-Aug
Peach	24-Apr	1-May	2-Jul	10-Jul	6-Aug	1-Aug	22-Jul	15-Aug	26-Jul	5-Aug	14-Aug
Pickens	21-Apr	19-Apr	27-Jun	11-Jul	6-Aug	11-Jul	19-Jul	10-Aug	17-Jul	6-Aug	13-Aug
Pierce	26-Apr	3-May	15-Jul	30-Jul	2-Aug	24-Jul	25-Jul	12-Aug	2-Aug	8-Aug	14-Aug
Pike	17-Apr	22-Apr	7-Jul	18-Jul	6-Aug	19-Jul	18-Jul	14-Aug	20-Jul	28-Jul	13-Aug
Polk	19-Apr	30-Apr	5-Jul	12-Jul	7-Aug	10-Jul	27-Jul	12-Aug	11-Jul	2-Aug	15-Aug
Pulaski	24-Apr	30-Apr	15-Jul	19-Jul	4-Aug	11-Jul	4-Aug	3-Aug	26-Jul	11-Aug	15-Aug
Putnam	23-Apr	2-May	6-Jul	17-Jul	2-Aug	12-Jul	26-Jul	7-Aug	30-Jul	25-Jul	15-Aug
Quitman	7-May	7-May	8-Aug	21-Jul	11-Aug	28-Jul	27-Jul	2-Aug	9-Aug	31-Jul	15-Aug
Rabun	29-Apr	10-May	13-Jul	19-Jul	13-Aug	19-Jul	12-Aug	15-Aug	31-Jul	27-Jul	15-Aug
Randolph	15-May	18-May	24-Jul	5-Aug	9-Aug	10-Aug	15-Aug	14-Aug	13-Aug	1-Aug	14-Aug
Richmond	22-Apr	30-Apr	11-Jul	18-Jul	11-Aug	10-Jul	27-Jul	14-Aug	25-Jul	5-Aug	15-Aug
Rockdale	16-Apr	25-Apr	29-Jun	7-Jul	4-Aug	5-Jul	19-Jul	12-Aug	17-Jul	29-Jul	15-Aug
Schley	24-Apr	6-May	13-Jul	22-Jul	13-Aug	26-Jul	30-Jul	4-Aug	1-Aug	6-Aug	14-Aug
Screven	20-Apr	1-May	14-Jul	27-Jul	12-Aug	20-Jul	19-Jul	11-Aug	21-Jul	12-Aug	15-Aug
Seminole	4-May	3-May	24-Jul	7-Aug	14-Aug	23-Jul	4-Aug	31-Jul	12-Aug	12-Aug	15-Aug
Spalding	19-Apr	25-Apr	25-Jun	5-Jul	6-Aug	7-Jul	24-Jul	13-Aug	14-Jul	29-Jul	15-Aug
Stephens	27-Apr	28-Apr	6-Jul	11-Jul	11-Aug	17-Jul	25-Jul	15-Aug	24-Jul	4-Aug	8-Aug
Stewart	2-May	9-May	3-Jul	20-Jul	13-Aug	15-Jul	8-Aug	15-Aug	25-Jul	14-Aug	13-Aug
Sumter	25-Apr	30-Apr	17-Jul	18-Jul	14-Aug	20-Jul	31-Jul	14-Aug	2-Aug	15-Aug	11-Aug
Talbot	23-Apr	1-May	9-Jul	19-Jul	14-Aug	22-Jul	9-Aug	15-Aug	31-Jul	3-Aug	7-Aug
Taliaferro	25-Apr	25-Apr	22-Jul	19-Jul	7-Aug	19-Jul	10-Aug	15-Aug	26-Jul	1-Aug	15-Aug
Tattnall	27-Apr	3-May	12-Jul	14-Jul	9-Aug	19-Jul	23-Jul	15-Aug	20-Jul	8-Aug	14-Aug
Taylor	26-Apr	4-May	9-Jul	9-Jul	15-Aug	2-Aug	2-Aug	9-Aug	22-Jul	6-Aug	14-Aug
Telfair	27-Apr	2-May	13-Jul	22-Jul	11-Aug	19-Jul	31-Jul	10-Aug	27-Jul	8-Aug	14-Aug
Terrell	26-Apr	28-Apr	15-Jul	15-Jul	15-Aug	31-Jul	7-Aug	9-Aug	11-Aug	5-Aug	15-Aug
Thomas	24-Apr	4-May	12-Jul	30-Jul	15-Aug	31-Jul	8-Aug	13-Aug	11-Aug	2-Aug	14-Aug
Tift	22-Apr	30-Apr	2-Jul	18-Jul	6-Aug	15-Jul	19-Jul	15-Aug	27-Jul	2-Aug	15-Aug
Toombs	24-Apr	4-May	21-Jul	20-Jul	6-Aug	28-Jul	9-Aug	14-Aug	17-Jul	15-Aug	15-Aug
Towns	3-May	20-May	15-Jul	20-Jul	5-Aug	4-Aug	4-Aug	14-Aug	29-Jul	14-Aug	12-Aug
Treutlen	27-Apr	30-Apr	10-Jul	21-Jul	11-Aug	24-Jul	30-Jul	10-Aug	18-Jul	6-Aug	13-Aug
Troup	21-Apr	3-May	6-Jul	14-Jul	14-Aug	20-Jul	28-Jul	9-Aug	22-Jul	7-Aug	15-Aug
Turner	29-Apr	3-May	8-Jul	21-Jul	8-Aug	17-Jul	29-Jul	8-Aug	24-Jul	12-Aug	4-Aug
Twiggs	29-Apr	1-May	5-Jul	16-Jul	15-Aug	18-Jul	23-Jul	12-Aug	17-Jul	31-Jul	13-Aug
Union	1-May	9-May	23-Jul	30-Jul	15-Aug	19-Jul	15-Aug	11-Aug	3-Aug	8-Aug	12-Aug
Upson	24-Apr	1-May	28-Jun	21-Jul	11-Aug	20-Jul	21-Jul	14-Aug	21-Jul	4-Aug	15-Aug
Walker	25-Apr	2-May	10-Jul	20-Jul	14-Aug	22-Jul	23-Jul	14-Aug	23-Jul	28-Jul	14-Aug

County Name	NI	SC	1	2	3	4	5	6	7	8	9
Walton	18-Apr	24-Apr	30-Jun	4-Jul	4-Aug	7-Jul	19-Jul	8-Aug	15-Jul	28-Jul	13-Aug
Ware	20-Apr	5-May	11-Jul	22-Jul	13-Aug	16-Jul	22-Jul	15-Aug	24-Jul	12-Aug	15-Aug
Warren	2-May	9-May	6-Jul	27-Jul	11-Aug	29-Jul	27-Jul	8-Aug	14-Jul	8-Aug	9-Aug
Washington	26-Apr	5-May	21-Jul	6-Aug	6-Aug	26-Jul	28-Jul	15-Aug	30-Jul	10-Aug	15-Aug
Wayne	22-Apr	3-May	7-Jul	7-Jul	14-Aug	17-Jul	25-Jul	13-Aug	22-Jul	8-Aug	10-Aug
Webster	3-May	11-May	29-Jul	3-Aug	13-Aug	3-Jul	10-Aug	1-Aug	1-Aug	26-Jul	14-Aug
Wheeler	22-Apr	3-May	18-Jul	20-Jul	11-Aug	14-Jul	6-Aug	5-Aug	21-Jul	11-Aug	13-Aug
White	20-Apr	27-Apr	1-Jul	5-Jul	6-Aug	10-Jul	18-Jul	6-Aug	24-Jul	25-Jul	14-Aug
Whitfield	20-Apr	22-Apr	30-Jun	14-Jul	7-Aug	7-Jul	16-Jul	15-Aug	21-Jul	27-Jul	15-Aug
Wilcox	28-Apr	7-May	8-Jul	8-Jul	14-Aug	17-Jul	19-Jul	10-Aug	27-Jul	4-Aug	15-Aug
Wilkes	30-Apr	10-May	7-Jul	27-Jul	14-Aug	2-Aug	10-Aug	23-Jul	1-Aug	11-Aug	15-Aug
Wilkinson	25-Apr	6-May	5-Jul	25-Jul	14-Aug	24-Jul	26-Jul	15-Aug	25-Jul	14-Aug	15-Aug
Worth	24-Apr	2-May	10-Jul	25-Jul	4-Aug	24-Jul	26-Jul	14-Aug	28-Jul	10-Aug	14-Aug

Table B2: *Peak Infection Percentage in each county in the State of Georgia under all scenarios tested with urban counties highlighted in green*

County Name	NI	SC	1	2	3	4	5	6	7	8	9
Appling	1.45	0.99	0.64	0.60	0.50	0.86	0.55	0.54	0.69	0.57	0.23
Atkinson	2.10	1.18	0.75	0.65	0.50	0.94	0.71	0.48	0.84	0.69	0.37
Bacon	1.59	1.17	0.67	0.64	0.37	0.69	0.55	0.50	0.87	0.76	0.43
Baker	1.58	1.01	0.89	0.86	0.51	0.70	0.66	0.45	0.70	0.76	0.28
Baldwin	1.55	1.16	0.76	0.58	0.46	0.74	0.65	0.53	0.80	0.74	0.45
Banks	1.82	1.29	0.88	0.76	0.58	0.92	0.70	0.62	0.80	0.76	0.49
Barrow	2.12	1.39	0.87	0.74	0.48	0.87	0.73	0.53	0.85	0.74	0.52
Bartow	2.00	1.34	0.89	0.69	0.50	0.83	0.72	0.50	0.81	0.78	0.51
Ben Hill	1.37	1.09	0.64	0.71	0.43	0.77	0.52	0.38	0.70	0.59	0.28
Berrien	1.79	1.03	0.63	0.72	0.46	0.83	0.66	0.52	0.74	0.73	0.35
Bibb	1.69	1.09	0.72	0.63	0.49	0.73	0.65	0.46	0.72	0.60	0.34
Bleckley	1.75	1.10	0.79	0.71	0.55	0.76	0.63	0.51	0.81	0.67	0.36
Brantley	1.73	1.12	0.65	0.71	0.46	0.77	0.67	0.39	0.84	0.68	0.48
Brooks	1.58	1.07	0.67	0.68	0.46	0.76	0.62	0.50	0.71	0.64	0.32
Bryan	1.90	1.13	0.71	0.56	0.43	0.80	0.72	0.46	0.76	0.65	0.44
Bulloch	1.73	1.25	0.80	0.61	0.48	0.75	0.76	0.47	0.78	0.69	0.43
Burke	1.85	1.19	0.74	0.68	0.46	0.80	0.69	0.50	0.78	0.64	0.39
Butts	2.01	1.49	0.95	0.81	0.54	0.83	0.87	0.53	0.83	0.75	0.44
Calhoun	1.54	0.95	0.81	0.64	0.40	0.68	0.70	0.43	0.80	0.75	0.33
Camden	1.53	1.13	0.69	0.67	0.63	0.74	0.69	0.42	0.70	0.64	0.48
Candler	1.71	1.33	0.82	0.68	0.55	0.78	0.64	0.47	0.77	0.65	0.44
Carroll	2.03	1.34	0.86	0.72	0.53	0.80	0.72	0.52	0.74	0.72	0.43
Catoosa	1.64	1.14	0.68	0.73	0.49	0.73	0.62	0.42	0.78	0.65	0.46
Charlton	1.65	1.08	0.85	0.61	0.48	0.69	0.74	0.36	0.77	0.62	0.39
Chatham	1.74	1.18	0.74	0.63	0.44	0.78	0.68	0.46	0.75	0.63	0.43
Chattahoochee	1.52	1.23	0.84	0.71	0.58	0.69	0.66	0.48	0.74	0.75	0.37
Chattooga	1.89	1.26	0.73	0.71	0.45	0.83	0.67	0.49	0.82	0.65	0.41

Cherokee	2.04	1.36	0.88	0.74	0.51	0.87	0.72	0.50	0.83	0.73	0.47
Clarke	1.85	1.23	0.80	0.69	0.52	0.82	0.71	0.47	0.81	0.67	0.45
Clay	1.41	0.86	0.86	0.60	0.26	0.70	0.71	0.43	0.63	0.60	0.20
Clayton	2.21	1.43	0.89	0.73	0.48	0.89	0.72	0.54	0.78	0.73	0.48
Clinch	1.36	1.12	0.77	0.76	0.37	0.71	0.43	0.36	0.71	0.68	0.21
Cobb	2.06	1.38	0.86	0.72	0.50	0.85	0.72	0.52	0.83	0.73	0.50
Coffee	1.62	1.13	0.64	0.60	0.45	0.71	0.67	0.47	0.72	0.65	0.34
Colquitt	1.50	1.04	0.68	0.65	0.53	0.71	0.63	0.27	0.63	0.58	0.38
Columbia	1.82	1.22	0.75	0.67	0.53	0.74	0.64	0.45	0.69	0.59	0.39
Cook	1.66	1.08	0.66	0.82	0.43	0.73	0.59	0.45	0.76	0.66	0.35
Coweta	2.08	1.39	0.89	0.73	0.48	0.84	0.72	0.54	0.83	0.73	0.46
Crawford	1.82	1.17	0.78	0.72	0.47	0.76	0.70	0.52	0.74	0.59	0.41
Crisp	1.48	1.04	0.67	0.67	0.55	0.73	0.55	0.44	0.73	0.67	0.40
Dade	1.37	1.03	0.54	0.65	0.43	0.68	0.62	0.36	0.74	0.61	0.32
Dawson	1.94	1.33	0.81	0.71	0.48	0.83	0.78	0.47	0.92	0.70	0.46
Decatur	1.59	0.98	0.61	0.58	0.37	0.70	0.65	0.41	0.63	0.67	0.26
DeKalb	2.01	1.33	0.85	0.71	0.48	0.84	0.70	0.50	0.81	0.70	0.49
Dodge	1.53	1.16	0.73	0.65	0.48	0.70	0.62	0.43	0.69	0.68	0.34
Dooly	1.80	1.26	0.73	0.73	0.59	0.74	0.70	0.46	0.73	0.79	0.43
Dougherty	1.58	0.94	0.66	0.63	0.46	0.67	0.60	0.37	0.66	0.56	0.29
Douglas	2.07	1.44	0.86	0.74	0.51	0.84	0.70	0.53	0.82	0.73	0.51
Early	1.42	0.94	0.63	0.55	0.45	0.76	0.58	0.36	0.69	0.59	0.19
Echols	1.79	1.11	0.84	0.77	0.78	1.01	0.85	0.63	0.95	0.86	0.55
Effingham	1.86	1.26	0.84	0.64	0.46	0.81	0.70	0.55	0.90	0.68	0.43
Elbert	1.57	1.05	0.81	0.67	0.48	0.71	0.61	0.44	0.66	0.55	0.29
Emanuel	1.56	0.98	0.64	0.79	0.52	0.64	0.60	0.41	0.80	0.67	0.34
Evans	1.76	1.20	0.68	0.71	0.50	0.66	0.76	0.41	0.77	0.70	0.39
Fannin	1.31	0.92	0.61	0.50	0.35	0.75	0.49	0.40	0.57	0.59	0.22
Fayette	2.00	1.28	0.84	0.73	0.49	0.83	0.67	0.53	0.80	0.71	0.43
Floyd	1.85	1.14	0.78	0.67	0.43	0.75	0.69	0.53	0.79	0.63	0.41
Forsyth	2.20	1.41	0.92	0.78	0.52	0.87	0.73	0.49	0.85	0.76	0.50
Franklin	1.88	1.20	0.78	0.68	0.46	0.78	0.64	0.49	0.81	0.65	0.34
Fulton	1.98	1.31	0.81	0.68	0.47	0.82	0.69	0.49	0.79	0.69	0.46
Gilmer	1.67	1.10	0.72	0.68	0.48	0.73	0.62	0.46	0.78	0.63	0.44
Glascock	2.19	1.15	0.81	0.73	0.58	0.73	0.80	0.33	0.81	0.66	0.35
Glynn	1.55	0.92	0.66	0.62	0.40	0.74	0.62	0.40	0.72	0.67	0.38
Gordon	1.93	1.36	0.82	0.68	0.49	0.84	0.69	0.48	0.87	0.69	0.46
Grady	1.37	1.03	0.80	0.70	0.44	0.65	0.63	0.33	0.63	0.54	0.24
Greene	1.41	1.00	0.70	0.52	0.42	0.63	0.59	0.27	0.65	0.60	0.38
Gwinnett	2.19	1.46	0.88	0.74	0.47	0.86	0.72	0.52	0.83	0.74	0.52
Habersham	1.83	1.21	0.78	0.67	0.55	0.89	0.69	0.47	0.71	0.67	0.45
Hall	2.11	1.40	0.85	0.76	0.51	0.87	0.70	0.52	0.78	0.72	0.48
Hancock	1.63	1.07	0.74	0.57	0.52	0.66	0.74	0.45	0.86	0.76	0.49
Haralson	1.91	1.42	0.97	0.74	0.57	0.87	0.74	0.58	0.80	0.89	0.46
Harris	1.52	1.20	0.63	0.68	0.51	0.68	0.59	0.39	0.73	0.67	0.32
Hart	1.65	1.16	0.82	0.66	0.52	0.72	0.68	0.50	0.82	0.70	0.30
Heard	2.02	1.26	0.86	0.82	0.43	0.86	0.68	0.54	0.82	0.74	0.46

Henry	2.09	1.40	0.90	0.71	0.47	0.88	0.76	0.54	0.81	0.75	0.48
Houston	1.84	1.19	0.77	0.61	0.51	0.78	0.66	0.44	0.77	0.66	0.44
Irwin	1.67	1.03	0.57	0.63	0.44	0.72	0.53	0.45	0.80	0.59	0.21
Jackson	1.96	1.39	0.81	0.72	0.48	0.84	0.70	0.48	0.84	0.71	0.48
Jasper	2.05	1.35	0.90	0.78	0.50	0.84	0.69	0.63	0.97	0.73	0.44
Jeff Davis	1.55	1.06	0.73	0.67	0.60	0.71	0.65	0.47	0.70	0.71	0.27
Jefferson	1.68	1.21	0.83	0.66	0.55	0.82	0.60	0.36	0.70	0.63	0.35
Jenkins	1.86	1.38	0.75	0.73	0.47	0.70	0.73	0.44	0.74	0.57	0.47
Johnson	1.63	1.17	0.76	0.66	0.49	0.89	0.67	0.41	0.82	0.72	0.37
Jones	1.76	1.18	0.80	0.72	0.54	0.81	0.67	0.48	0.85	0.69	0.53
Lamar	1.89	1.22	0.77	0.74	0.51	0.86	0.71	0.57	0.72	0.66	0.39
Lanier	1.71	1.11	0.81	0.73	0.47	0.70	0.71	0.59	0.81	0.76	0.43
Laurens	1.46	1.03	0.71	0.66	0.54	0.74	0.60	0.41	0.68	0.57	0.37
Lee	1.73	1.05	0.76	0.70	0.50	0.71	0.64	0.43	0.73	0.76	0.33
Liberty	1.90	1.25	0.79	0.72	0.53	0.86	0.82	0.50	0.79	0.75	0.56
Lincoln	1.42	0.98	0.71	0.66	0.56	0.81	0.58	0.45	0.72	0.70	0.34
Long	2.00	1.35	0.79	0.85	0.61	0.87	0.83	0.60	0.91	0.76	0.57
Lowndes	1.63	1.07	0.63	0.67	0.48	0.72	0.62	0.53	0.68	0.76	0.40
Lumpkin	1.94	1.39	0.87	0.68	0.50	0.88	0.72	0.61	0.79	0.62	0.48
McDuffie	1.71	1.06	0.73	0.66	0.46	0.72	0.67	0.45	0.73	0.63	0.41
McIntosh	1.59	1.08	0.67	0.63	0.50	0.76	0.60	0.45	0.74	0.64	0.42
Macon	1.59	1.00	0.63	0.56	0.43	0.74	0.65	0.33	0.73	0.57	0.43
Madison	1.86	1.21	0.92	0.71	0.52	0.88	0.74	0.53	0.83	0.70	0.53
Marion	1.66	0.99	0.74	0.61	0.40	0.81	0.62	0.42	0.74	0.58	0.36
Meriwether	1.69	1.19	0.75	0.71	0.38	0.79	0.65	0.42	0.80	0.69	0.43
Miller	1.48	1.02	0.62	0.61	0.38	0.69	0.72	0.27	0.67	0.86	0.21
Mitchell	1.59	1.12	0.78	0.64	0.49	0.70	0.67	0.40	0.66	0.61	0.37
Monroe	1.90	1.24	0.81	0.77	0.54	0.76	0.70	0.51	0.73	0.67	0.41
Montgomery	1.64	1.06	0.72	0.72	0.60	0.75	0.72	0.43	0.75	0.70	0.34
Morgan	1.84	1.21	0.80	0.70	0.51	0.87	0.65	0.42	0.81	0.73	0.57
Murray	1.88	1.33	0.85	0.80	0.43	0.83	0.69	0.48	0.90	0.73	0.52
Muscogee	1.51	1.07	0.60	0.58	0.42	0.66	0.54	0.37	0.68	0.56	0.28
Newton	2.08	1.46	0.91	0.75	0.48	0.83	0.71	0.54	0.88	0.71	0.45
Oconee	2.05	1.20	0.83	0.64	0.56	0.89	0.73	0.50	0.83	0.72	0.47
Oglethorpe	1.86	1.18	0.79	0.69	0.59	0.83	0.71	0.44	0.79	0.70	0.43
Paulding	2.22	1.40	0.87	0.75	0.53	0.89	0.73	0.52	0.84	0.75	0.52
Peach	1.83	1.14	0.76	0.60	0.55	0.73	0.68	0.48	0.78	0.67	0.35
Pickens	1.77	1.19	0.83	0.72	0.50	0.86	0.73	0.44	0.75	0.67	0.46
Pierce	1.48	0.96	0.69	0.71	0.44	0.75	0.60	0.37	0.69	0.56	0.39
Pike	1.85	1.34	0.74	0.75	0.50	0.95	0.72	0.54	0.92	0.80	0.45
Polk	2.01	1.32	0.86	0.68	0.51	0.78	0.73	0.47	0.75	0.71	0.46
Pulaski	1.72	1.28	0.72	0.68	0.55	0.77	0.61	0.47	0.78	0.85	0.43
Putnam	1.60	1.11	0.81	0.61	0.49	0.67	0.57	0.48	0.77	0.69	0.42
Quitman	1.17	0.85	0.55	0.43	0.50	0.82	0.55	0.27	0.69	0.62	0.30
Rabun	1.27	0.93	0.64	0.56	0.41	0.59	0.55	0.42	0.60	0.51	0.22
Randolph	1.13	0.65	0.50	0.43	0.24	0.60	0.43	0.18	0.41	0.35	0.22
Richmond	1.67	1.18	0.72	0.65	0.50	0.71	0.61	0.44	0.67	0.56	0.39

Rockdale	2.13	1.39	0.92	0.70	0.51	0.83	0.73	0.49	0.84	0.73	0.49
Schley	1.86	1.00	0.84	0.73	0.33	0.80	0.60	0.33	0.83	0.73	0.40
Screven	1.71	1.19	0.89	0.65	0.43	0.79	0.77	0.39	0.90	0.64	0.35
Seminole	1.56	0.92	0.56	0.53	0.31	0.64	0.67	0.29	0.73	0.60	0.18
Spalding	1.93	1.32	0.84	0.77	0.48	0.85	0.73	0.54	0.82	0.70	0.43
Stephens	1.85	1.17	0.73	0.73	0.46	0.74	0.64	0.51	0.70	0.83	0.36
Stewart	1.54	1.30	0.76	0.74	0.56	0.77	0.66	0.56	0.73	0.57	0.31
Sumter	1.65	0.94	0.66	0.64	0.43	0.77	0.65	0.39	0.65	0.67	0.31
Talbot	1.57	1.13	0.75	0.67	0.36	0.79	0.72	0.33	0.83	0.54	0.34
Taliaferro	1.68	1.11	0.76	0.87	0.73	0.84	0.57	0.49	0.73	0.92	0.33
Tattnall	1.86	1.17	0.76	0.77	0.59	0.81	0.80	0.51	0.74	0.80	0.45
Taylor	1.62	1.04	0.83	0.66	0.46	0.78	0.71	0.45	0.74	0.72	0.48
Telfair	1.43	1.11	0.73	0.75	0.56	0.80	0.74	0.47	0.64	0.65	0.34
Terrell	1.57	1.04	0.70	0.62	0.46	0.70	0.70	0.30	0.83	0.56	0.29
Thomas	1.41	0.99	0.62	0.56	0.44	0.69	0.59	0.34	0.61	0.59	0.35
Tift	1.85	1.13	0.71	0.72	0.46	0.79	0.61	0.37	0.70	0.67	0.39
Toombs	1.72	1.07	0.68	0.63	0.49	0.66	0.52	0.45	0.72	0.59	0.32
Towns	1.09	0.82	0.51	0.43	0.29	0.45	0.37	0.21	0.56	0.42	0.25
Treutlen	1.42	1.06	0.80	0.83	0.54	0.91	0.64	0.47	0.75	0.71	0.48
Troup	1.79	1.17	0.75	0.66	0.43	0.80	0.62	0.44	0.75	0.70	0.39
Turner	1.78	1.08	0.78	0.74	0.62	0.70	0.63	0.36	0.77	0.77	0.41
Twiggs	1.65	1.12	0.76	0.72	0.51	0.81	0.66	0.52	0.76	0.66	0.38
Union	1.20	0.85	0.55	0.49	0.30	0.54	0.43	0.25	0.53	0.47	0.24
Upson	1.74	1.16	0.67	0.64	0.50	0.73	0.67	0.51	0.73	0.65	0.42
Walker	1.45	1.08	0.70	0.70	0.41	0.76	0.59	0.42	0.69	0.66	0.39
Walton	2.09	1.38	0.88	0.70	0.48	0.84	0.72	0.53	0.84	0.66	0.44
Ware	1.43	1.01	0.74	0.66	0.47	0.73	0.61	0.38	0.73	0.62	0.33
Warren	1.55	1.13	0.65	0.72	0.45	0.65	0.64	0.35	0.71	0.63	0.51
Washington	1.52	1.17	0.79	0.58	0.36	0.78	0.64	0.36	0.80	0.67	0.34
Wayne	1.61	1.06	0.77	0.59	0.53	0.72	0.67	0.51	0.70	0.72	0.47
Webster	1.26	0.99	0.82	0.55	0.55	0.57	0.82	0.29	0.75	0.57	0.21
Wheeler	1.40	1.04	0.80	0.78	0.47	0.84	0.66	0.39	0.77	0.59	0.38
White	1.86	1.20	0.76	0.68	0.45	0.83	0.63	0.50	0.77	0.64	0.43
Whitfield	1.84	1.27	0.83	0.78	0.48	0.80	0.64	0.44	0.82	0.69	0.47
Wilcox	1.36	1.19	0.69	0.55	0.44	0.72	0.62	0.41	0.73	0.72	0.37
Wilkes	1.48	0.96	0.60	0.51	0.67	0.65	0.46	0.22	0.63	0.55	0.19
Wilkinson	1.73	1.13	0.85	0.59	0.55	0.79	0.62	0.49	0.91	0.69	0.42
Worth	1.64	0.91	0.74	0.61	0.49	0.73	0.60	0.43	0.69	0.59	0.37