COVID-19 SAN ANTONIO - ABRIDGED REPORT 26-Jun-2020

This report contains analyses based on data transmitted on Friday, June 26, by San Antonio Metro Health Department (SAMHD) and the South Texas Regional Advisory Council (STRAC) to the University of Texas at San Antonio. This report supersedes previous reports.

Highlights

- This model presents projections using data reliably measured up to June 20, 2020. **These projections will evolve as the situation on the ground evolves**. The current lag between modeling and data is 6 days for SAMHD and 0 days for STRAC.

- The effect of Judge Wolff's second declaration of emergency on June 17 will be measurable by June 30. Our hope is that it will reverse the trend. The following numbers could decline if the community follows directives to use facemasks, practice physical distance, and exercise frequent handwashing.

- The **demand** for hospital admissions could be over $7,000 \pm 1,000$ over the next three weeks. Another $5,000 \pm 1,000$ one week later. This is due to exponential growth in the number of hospitalizations at a rate of approximately 8% daily. This demand would surpass San Antonio's hospital capacity.

- There could be $20,000 \pm 2,000$ new community transmission cases in the next three weeks. Another $20,000 \pm 3,000$ one week later. This is due to exponential growth in the number of community cases at a rate of exponential growth of approximately 7% daily.

- The total number of cases accumulated by the end of summer could be very large (well over 100,000 cases, up to $220,000 \pm 30,000$).

Model Characteristics

- *Calibration period of one week*: This means that after a major event, it takes one week of data to have a reliable prediction.

- *Window of predictability of one month*: This means that once the model is calibrated, the projections of case numbers are very unlikely to change for about four weeks until a major event occurs.

Major Events Influencing Community Transmission

- **Date of event**: Feb 13. **Date of observed effect**: February 18. This date was found computationally. A retrospective analysis revealed that the only reported event on February 13 was a positive test from an evacuee at JBSA-Lackland in San Antonio.

- **Date of event**: March 13: Declaration of local disaster and public health emergency by the County Judge.

- **Date of event**: May 1. **Date of observed effect**: May 6. Businesses open at 25% occupancy.

- **Date of event**: May 18: **Date of observed effect**: May 23. Businesses open at 50% occupancy.

- **Date of event**: June 17. **Date of likely observation of effect**: Approximately two to three infectious periods, or 10 to 15 days, by end of June or beginning of July.

Scope of Data

This report uses data up to June 20. The latest data batch adds records to 13 dates in the past. Most of the records in this data batch correspond samples collected on June 17 (82 records) and June 20 (81 records). The additions on June 26 changed the data with which the report was run on June 24. The last six days of data did not pass quality control, and were removed from analysis.

The epidemiological event date is used in analysis for every record. This epidemiological event date, E, is defined as:

1. E = Date of onset.

2. If date of onset is not available, then E = date of sample collection.

3. If date of sample collection is not available, then E = date of lab report.

4. If date of lab report is note available, then E = date entered in the database.

IMPORTANT: 914 congregated cases were removed from analysis on 26-Jun-2020. These cases are not included in projections.

The file analyzed on June 27, 2020 added the following records to past days:

EpiEventDate	Records
07-Jun-2020	3
09-Jun-2020	3
11-Jun-2020	13
14-Jun-2020	2
15-Jun-2020	22
16-Jun-2020	34
17-Jun-2020	82
18-Jun-2020	70
19-Jun-2020	70
20-Jun-2020	81
21-Jun-2020	37
22-Jun-2020	32
25-Jun-2020	1

Hospitalization Summary

The analysis of STRAC data produced the following indicators:

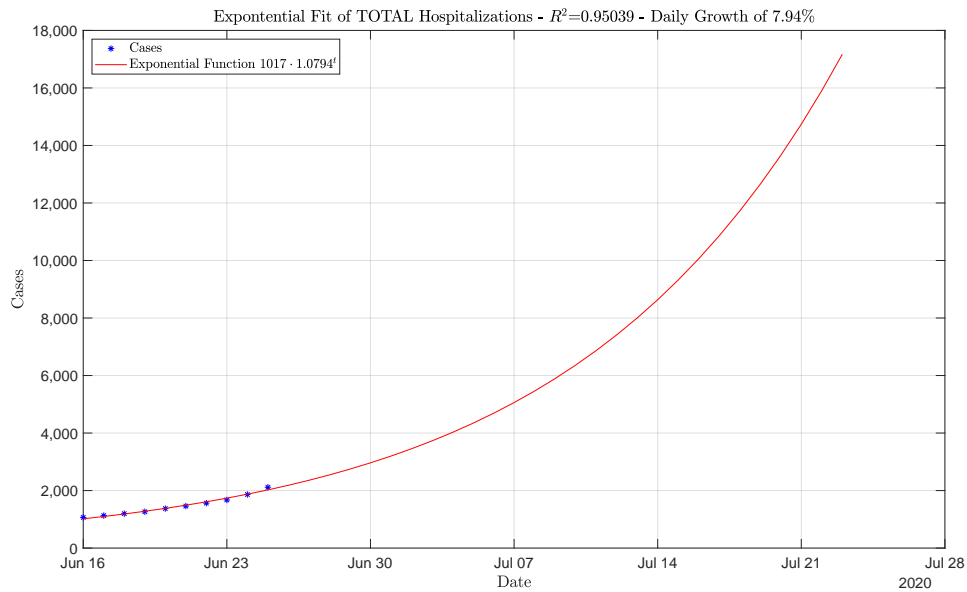| Modeling Hospitalizations UNDER CURRENT CONDITIONS	Value
Hospital admissions daily growth rate	7.9%
Hospital exponential growth's coefficient of determination	0.95039
Hospital admissions doubling time in days	9
Total hospital admissions on 26-Jun-2020	2,115
Projected total hospital admissions in 1 week	3,600
Projected total hospital admissions in 2 weeks	6,200
Projected total hospital admissions in 3 weeks	10,500
Projected total hospital admissions in 4 weeks	18,000

Figure -1: File: partnersSAMHD26-Jun-2020-EXPHospital

Community Transmission Summary

The analysis of SAMHD data produced the following indicators:

| Modeling Community Transmission UNDER CURRENT CONDITIONS	Value
Maximum number of total cases by end of summer	232,000
Maximum number of people infected at the same time	31,000
Effective reproduction number R_e	2.92
Coefficient of Risk Mitigation K	1.3%
Community exponential growth's coefficient of determination	0.99139
Community cases daily growth rate	7%
Community doubling time in days	10
Projected total cases in 1 week	12,000
Projected total cases in 2 weeks	19,000
Projected total cases in 3 weeks	30,000
Projected total cases in 4 weeks	49,000
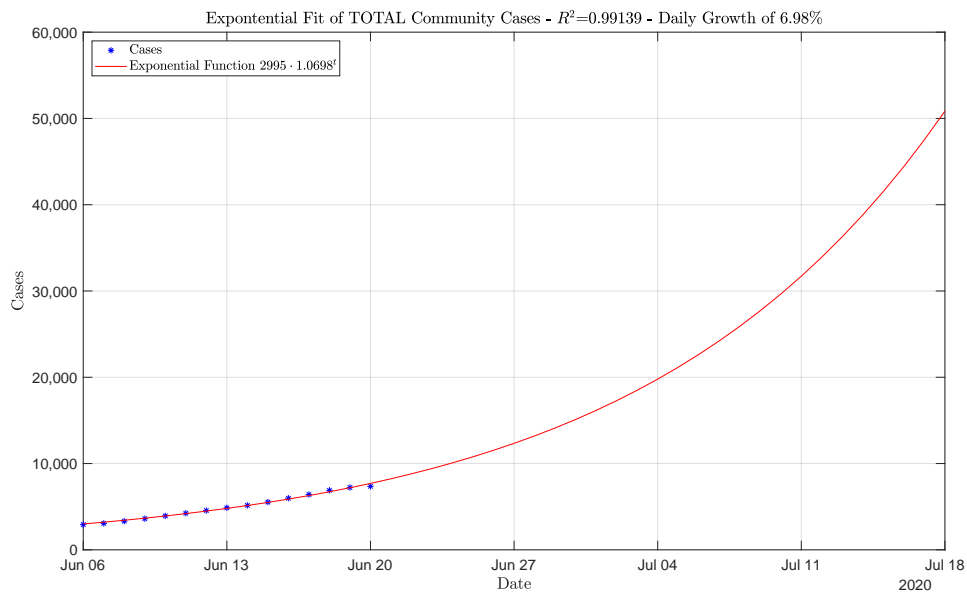
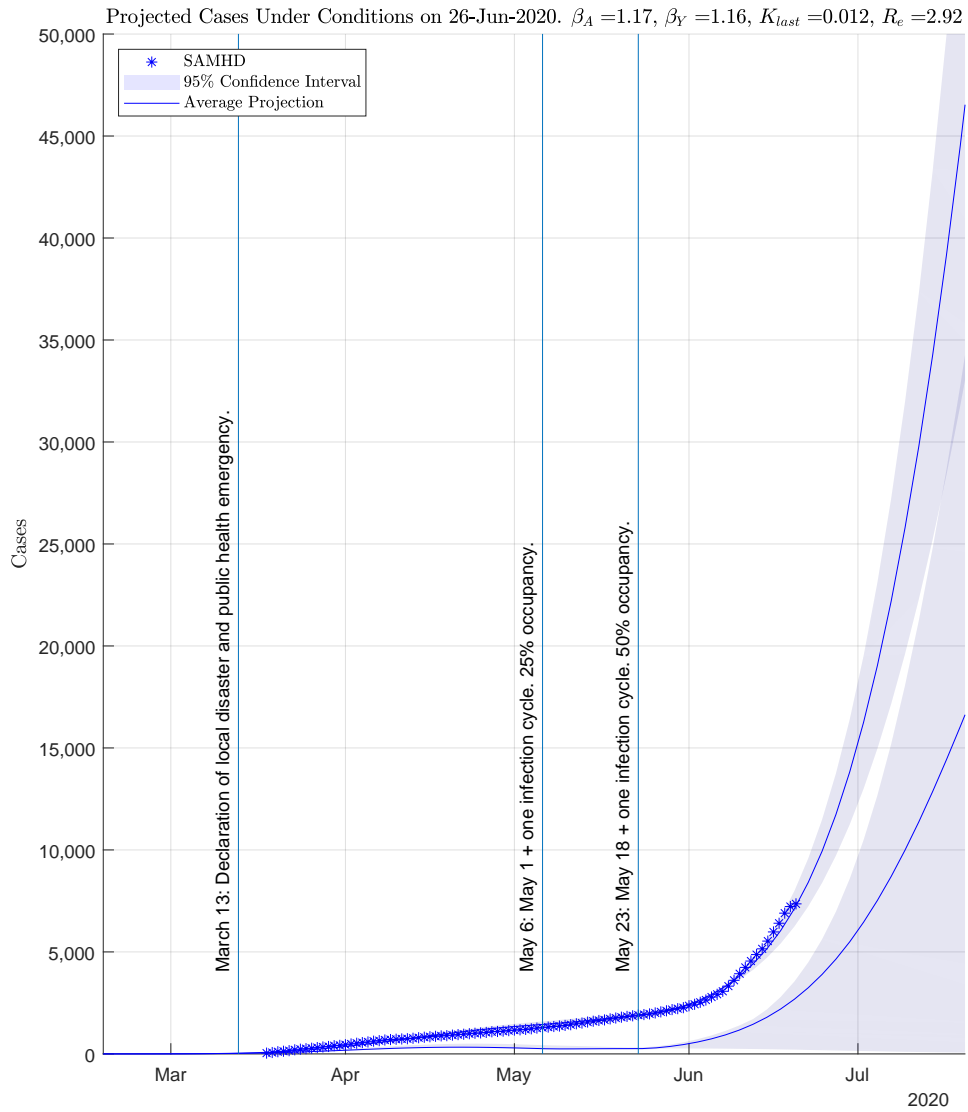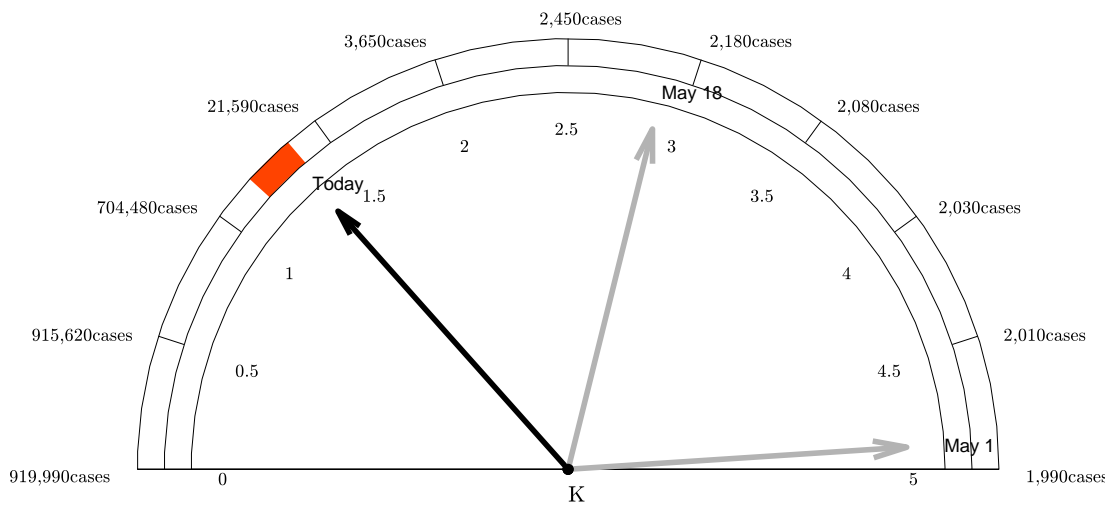Figure -2:   File: SanAntonio26-Jun-2020-EXPCases

Figure -3: IMPORTANT: 914 congregated cases were removed from analysis on 26-Jun-2020. These cases are not included in projections. File: SanAntonio26-Jun-2020-EVOLUTION

Case Projection by Risk Mitigation Coefficient. $K =$**1.3%**, $R_e =$**2.92**

Colored annular wedge representes confidence interval for projected number of cases. Color represents hazard.

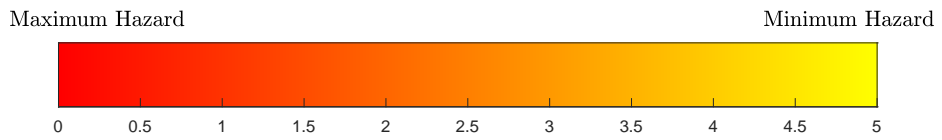Maximum Hazard   Minimum Hazard

Figure -4:   File: SanAntonio26-Jun-2020-INDICATOR-K