COVID-19 SAN ANTONIO - ABRIDGED REPORT 24-Jun-2020

This report contains analyses based on data transmitted on Monday, June 22, 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.

.1 Highlights

- There could be 8,000 new hospitalizations in the next three weeks. Another 8,000 one week later. This is due to exponential growth in the number of hospitalizations at a rate of 8.5% daily.

- There could be 15,000 new community transmission cases in the next three weeks. Another 15,000 one week later. This is due to exponential growth in the number of community cases at a rate of exponential growth of 6.5% daily.

- The total number of cases accumulated by the end of summer could be very large (well over 100,000 cases)

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

.2 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.

.3 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.

.4 Scope of Data

This report uses data up to June 18. The latest data batch adds records to 11 dates in the past. Most of the records in this data batch correspond samples collected on June 17 (107 records) and June 22 (65 records). The additions on June 22 change the data with which the report was run on June 21. The last four days of data did not pass quality control, and were removed from analysis.

This model presents projections under conditions reliably measured up to June 18. **These projections will evolve as the situation on the ground evolves**. Unlike previous epidemics, in which the behavior of people did not change substantially by the epidemic, COVID-19 is unique by the profound impact it has on social dynamics. We are certain at this point that local government declarations and regulations affect epidemiological dynamics. However, it is impossible to predict accurately how the public responds. Therefore, this models limits its forecast to four weeks of community transmission and hospitalizations. IMPORTANT: 903 congregated cases were removed from analysis on 24-Jun-2020. These cases are not included in projections.

The file analyzed on June 24, 2020 added the following records to past days:

EpiEventDate	Records
01-Jun-2020	1
10-Jun-2020	1
11-Jun-2020	13
12-Jun-2020	15
13-Jun-2020	16
14-Jun-2020	7
15-Jun-2020	24
16-Jun-2020	59
17-Jun-2020	107
18-Jun-2020	5
22-Jun-2020	65

.5 Hospitalization Summary

The analysis of STRAC data produced the following indicators:

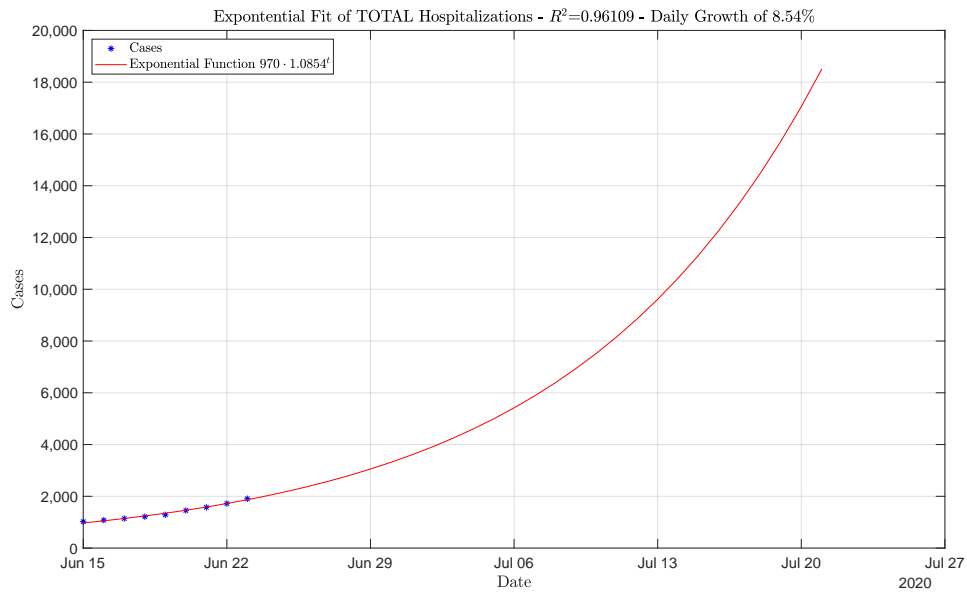| Modeling Hospitalizations UNDER CURRENT CONDITIONS	Value
Hospital admissions daily growth rate	8.5%
Hospital exponential growth's coefficient of determination	0.96109
Hospital admissions doubling time in days	8
Total hospital admissions on 24-Jun-2020	1,906
Projected total hospital admissions in 1 week	3,400
Projected total hospital admissions in 2 weeks	6,000
Projected total hospital admissions in 3 weeks	10,600
Projected total hospital admissions in 4 weeks	18,900

Figure -1: File: partnersSAMHD24-Jun-2020-EXPHospital

.6 Community Transmission Summary

The analysis of SAMHD data produced the following indicators:

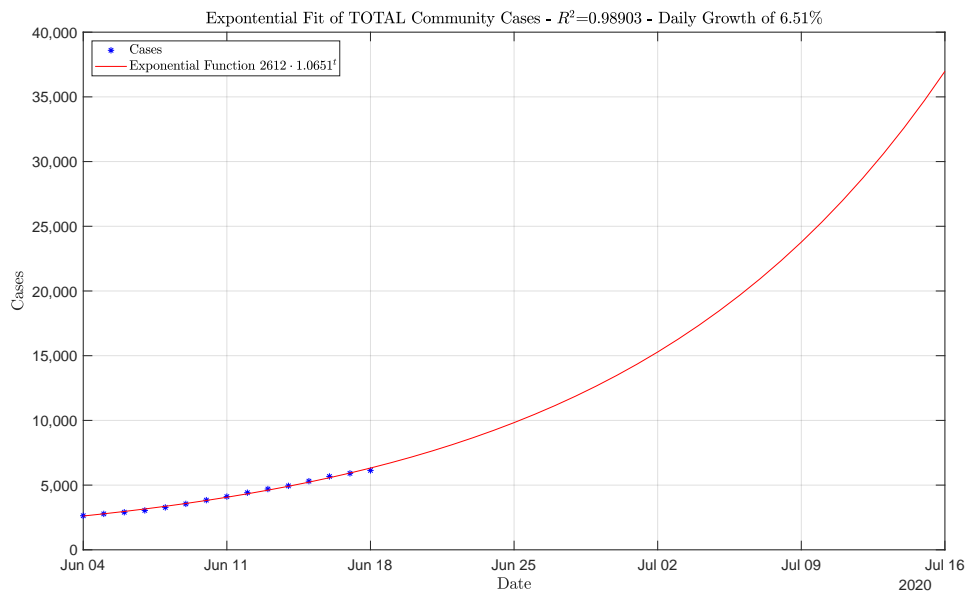| Modeling Community Transmission UNDER CURRENT CONDITIONS	Value
Maximum number of projected total cases	150,000
Maximum number of concurrent active infections	19,000
Effective reproduction number R_e	3.02
Coefficient of Risk Mitigation K	1.3%
Community cases daily growth rate	6.5%
Community exponential growth's coefficient of determination	0.98903
Community doubling time in days	11
Projected total cases in 1 week	10,000
Projected total cases in 2 weeks	15,000
Projected total cases in 3 weeks	23,000
Projected total cases in 4 weeks	36,000

Figure -2:   File: SanAntonio24–Jun–2020–EXPCases

Projected Cases Under Conditions on 24-Jun-2020. $\beta_A =1.17$, $\beta_Y =1.16$, $K_{last} =0.012$, $R_e =3.02$
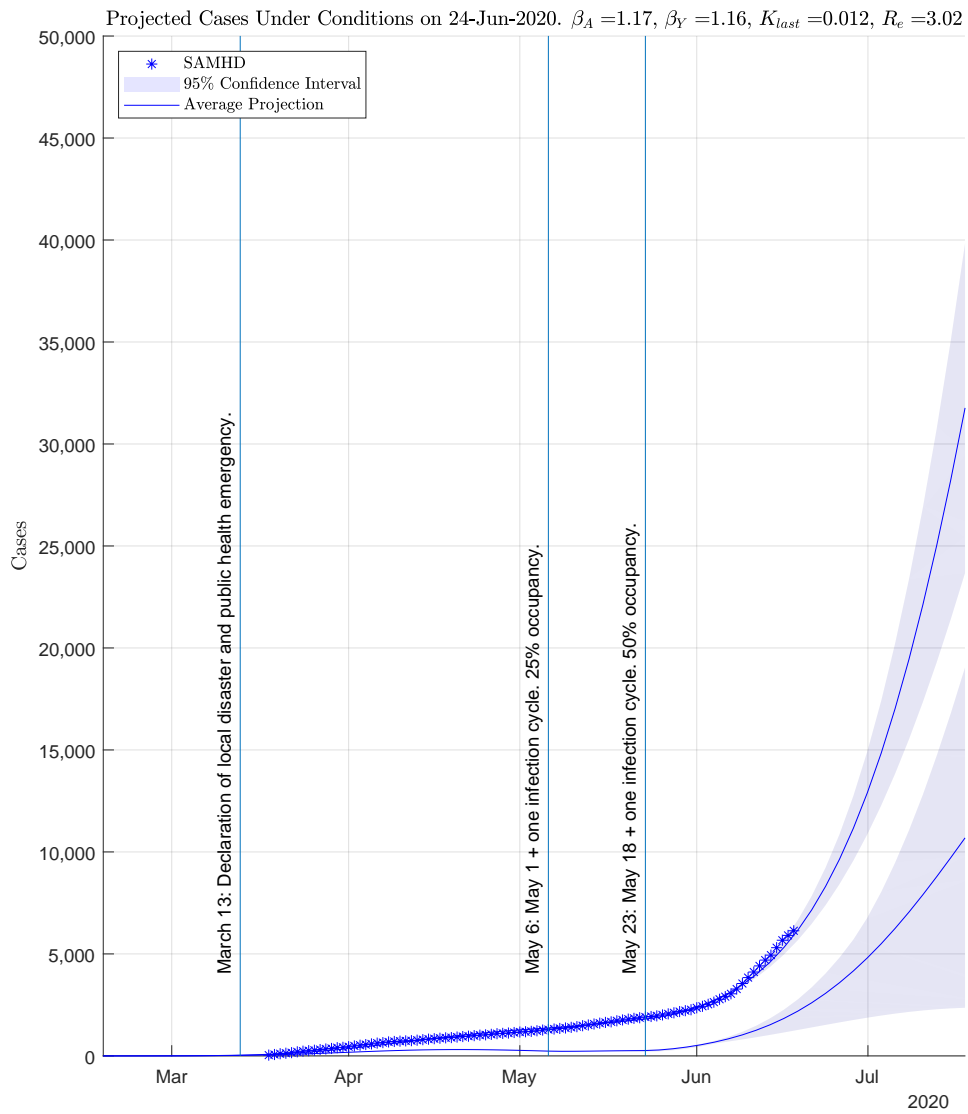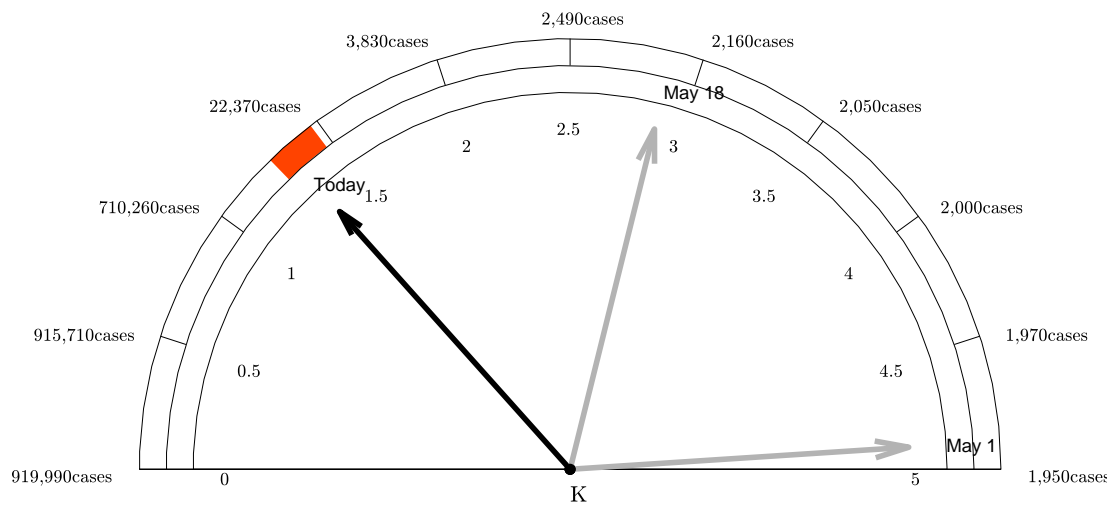

Figure -3: IMPORTANT: 903 congregated cases were removed from analysis on 24–Jun–2020. These cases are not included in projections. File: SanAntonio24–Jun–2020–EVOLUTION

Case Projection by Risk Mitigation Coefficient. $K =$**1.3%**, $R_e =$**3.02**

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

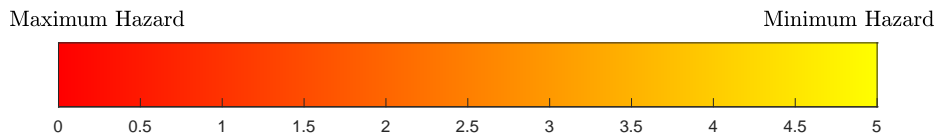Maximum Hazard   Minimum Hazard

Figure -4:   File: SanAntonio24–Jun-2020-INDICATOR-K