COVID-19 RETURN-TO-OPERATIONS RISK ASSESSMENT MODEL DASHBOARD

Samford University

Version 1.1 April 19, 2020

MACRO PARAMETERS

Risk Threshold ("Viral Threshold")	5.0%
Confidence Interval Alpha: (.05 = 95% Confidence)	0.05

ALL N = 174

RESULTS - GLOBAL VIRAL CURVE at Selected Viral Threshold and Alpha

Full Cycle Locations:	34	20%
Ongoing Tail Locations:	114	66%
No Peak Locations	26	15%

Viral Curve Duration

N =	Low	Mean	High
148 Pre-Peak (*using Full Pre-Peak Cycle locations*)	17.31	18.61	19.91
34 Post-Peak (*using Full Post-Peak Locations*)	15.20	18.91	22.62
	32.51	37.52	42.53

Pre-Peak/Post-Peak Correlation Coefficient - All Cases	(0.66)
Pre-Peak/Post-Peak Correlation Coefficient - Full Cycle Cases Only	(0.60)

ALL N = 484

RESULTS - US VIRAL CURVE at Selected Viral Threshold and Alpha

Full Cycle Locations:	14	3%
Ongoing Tail Locations:	422	87%
No Peak Locations	48	10%

Viral Curve Duration

N =	Low	Mean*	High
436 Pre-Peak (*using Full Pre-Peak Cycle locations*)	16.76	17.22	17.68
14 Post-Peak (*using Full Post-Peak Locations*)	3.00	5.93	8.86
	19.75	23.15	26.54

Pre-Peak/Post-Peak Correlation Coefficient - All Cases	(0.63)
Pre-Peak/Post-Peak Correlation Coefficient - Full Cycle Cases Only	(0.11)

** Significant difference in means between global and US Pre-Peak Durations ($p < .05$)*

*** $p < .001$ at all risk thresholds and alphas (1% - 10%; .01 - .10)*

USER PREFEENCES

		ENABLE	Status	*Index*	*Local Var.*	
Use Institutionally Specific Profile based on Origin of Stakeholders?		X	ON			
Increase in Duration due to Curve Lengthening Strategies		X	ON	1.15	-50%	
Asymptomatic "Lurking" (1)		X	ON	1.35	-50%	
Access to Care Indexed to State *(* enter County Beds/K if known)*	AL	X	ON	1.17		*

INDEX ADJUSTMENTS FOR INTERSTATE VARIABILITY and KNOWN RISK GROUPS *(Select with X)*

	ENABLE	Status	*Weight (0-1)*	
Age	X	ON	0.5	*Enable if stakeholders are younger than population average*
Poverty	X	ON	0.5	*Enable if stakeholders are wealthier than population average*
Race	X	ON	0.5	*Enable if percentage of African Americans is below average*
Gender	X	ON	0.5	*Enable if percentage of Males is below average*
Confirmed Cases	x	ON	1	*Normalizes for variations in state incidence rates*
Fatality Rate	X	ON	1	*Normalizes for variations in state fatality rates*

SUMMARY STATISTICS

# Cases at Peak as Percent of Total* **Descriptive Statistics**		**Days to Peak** **Descriptive Statistics**	
MEAN	40.62%	MEAN	31.91
Standard Deviation	20.15%	Standard Deviation	17.07
Count	34.00	Count	174.00
Alpha	0.05	Alpha	0.05
Confidence Interval	6.8%	Confidence Interval	2.54
MEDIAN	40.61%	MEDIAN	28.50
HIGH	47.39%	HIGH	34.45
MEAN	40.6%	MEAN	31.91
LOW	33.85%	LOW	29.38

** Using Full Cycle Cases Only*

At the **Mean Average,** **40.62%** of cases occur prior to the highest peak with the peak occurring **31.91** days after the first reported case or **18.61** days after reaching a threshold of **5.0%** of the peak number of cases. **At global rates,** **493,387** additional cases will appear in the United States after reaching its peak date of **April 10, 2020** when **337,512** confirmed cases were recorded since the first US case on January 23, 2020. At the Mean Average, cases fall below the viral threshold **18.91** days after the peak date or **50.83** days after first onset. On that date, an estimated **3,028** newly confirmed cases would present themselves in the US, representing **0.91** cases per 100,000 residents.

More conservatively, globally **33.85%** of cases occur prior to the highest peak with the peak occurring **34.45** days after the first reported case or **19.91** days after reaching a threshold of **5.0%** of the peak number of cases. **At global rates,** the **659,688** additional cases will appear in the United States after reaching its peak date of **April 10, 2020** when **337,512** confirmed cases were recorded since the first US case on January 23, 2020. At the Mean Average, cases fall below the viral threshold **22.62** days after the peak date or **57.07** days after first onset. On that date, an estimated **3,028** newly confirmed cases would present themselves in the US, representing **0.91** cases per 100,000 residents.

NOTE

For the United States, global Mean Averages offer limited utility due to a host of mitigating factors including: wide episodic variability in general; multiple containment timeframes and strategies; intentional efforts lengthening duration to mitigate stress on healthcare systems ("flattening the curve"), and limited post-peak data. Estimation complexity is compounded by under-testing in some areas and the extent to which misdiagnosed or asymptomatic patients do not appear as confirmed cases ("lurking"). The model therefore adjusts for curve flattening and lurking, at the user's option.

INSTITUTIONAL IMPLICATIONS

MEAN AVERAGE RETURN TO OPERATIONS

		Mean Suggested Return Date
Date of Last Reported First Case - Local / Employee Area	1/1/01	2/27/01
Date of Last Reported First Case - Institution Drawing Area	**1/1/01**	**2/27/01**

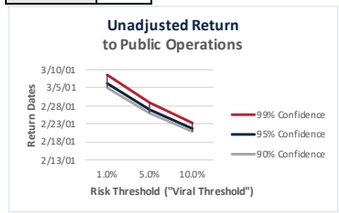
Sensitivity Analysis

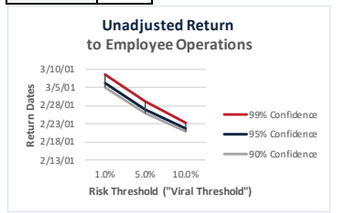
PUBLIC

	2/27/01	Threshold Level 1.0%	5.0%	10.0%
Confidence Interval Alpha	0.01	3/8/01	3/1/01	2/23/01
	0.05	3/6/01	2/27/01	2/21/01
	0.10	3/5/01	2/26/01	2/20/01

EMPLOYEES

	2/27/01	Threshold Level 1.0%	5.0%	10.0%
Confidence Interval Alpha	0.01	3/8/01	3/1/01	2/23/01
	0.05	3/6/01	2/27/01	2/21/01
	0.10	3/5/01	2/26/01	2/20/01





ADJUSTED RETURN TO OPERATIONS DATES

RETURN TO PUBLIC OPERATIONS	**Monday, April 2, 2001**
RETURN TO LOCAL/EMPLOYEE OPERATIONS	**Wednesday, March 7, 2001**

	Mean Suggested Return Date:	*2/27/01*
	Adjustment for Interstate Variability and Institutional Specifics *("Institutional Index")*	*(12.06) Days*
	Revised RTO Date:	*2/15/01*
	Global Curve Lengthening Effect:	*51.67 Days*
	Local Curve Lengthening Effect:	*25.84*
33%	***Weighted Access to Care Impact*** *(if County Beds/K entered uses County level index):*	*(17.39) Days*

Sensitivity Analysis

PUBLIC

	4/2/01	Threshold Level 1.0%	5.0%	10.0%
Confidence Interval Alpha	0.01	4/15/01	4/3/01	3/25/01
	0.05	4/13/01	4/2/01	3/24/01
	0.10	4/13/01	4/1/01	3/24/01

EMPLOYEES

	3/7/01	Threshold Level 1.0%	5.0%	10.0%
Confidence Interval Alpha	0.01	3/17/01	3/8/01	3/2/01
	0.05	3/15/01	3/7/01	3/1/01
	0.10	3/14/01	3/6/01	2/28/01