🧼 OliverWyman

RESPONDING TO COVID-19

Almanac Highlights

For complete Almanac, please contact COVID19info@oliverwyman.com

May 6, 2021 update

INTRODUCTION: COVID-19 ALMANAC



Context and purpose

The novel coronavirus has infected millions of people globally and is taking a severe toll on individuals, families, and economies as productivity drops and stock markets reflect increased global uncertainty

This document provides some **baseline facts** and guidance for business leaders as to critical questions to address in the immediate and near-term to ensure the continuity of their business and the safety, health, and wellbeing of their workforce and customers

What is it?

COVID-19 is the name for the illness caused by the novel coronavirus that originated in Wuhan, China in December 2019

It is from the same family of viruses that cause some common colds, as well as Severe Acute Respiratory Syndrome (SARS) and Middle East Respiratory Syndrome (MERS)

It is considered **similar to other respiratory infections such as influenzas**; symptoms range from fever, cough, shortness of breath to more severe cases of pneumonia and organ failure

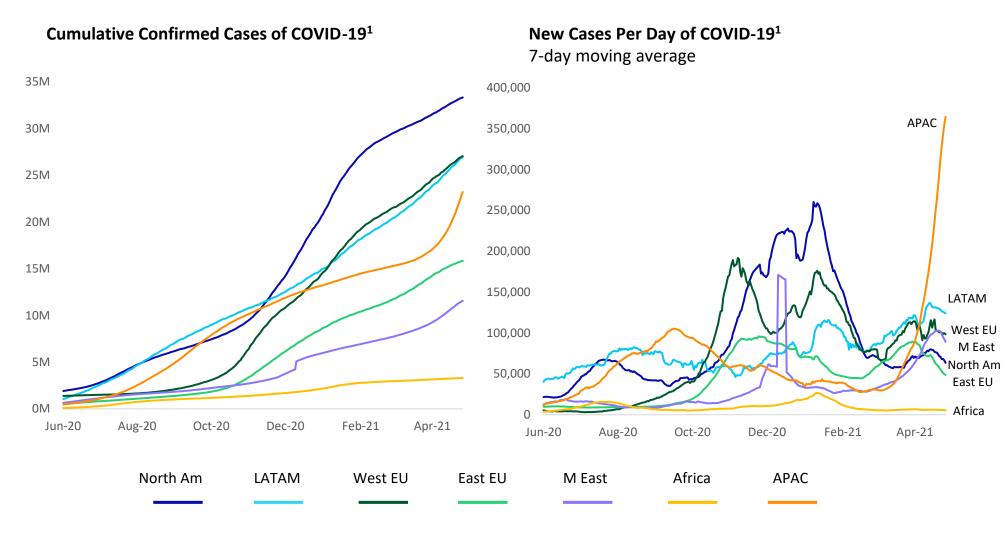
OLIVER WYMAN'S CORONAVIRUS ALMANAC

This Almanac contains the latest perspectives on key areas related to the COVID-19 pandemic

Section	Key Topics	Summary
Epidemiologic perspectives Sample pages: 4-6	 Epidemiological background Up-to-date statistics by geography 	 The virus displays unique and deadlier characteristics than other known diseases The pace and maturity of infection is highly variable by region, largely hinging on speed and strength of government response
An end to the cycle: therapeutics, vaccines and cumulative immunity Sample page: 7	 Therapeutics in development Vaccine development timeline and current state Key considerations and unknowns 	 Effective therapies and vaccination will be critical to bring economies and communities fully "back to normal"
Tracking the Impact of Variants Sample pages: 8-9	 Categories of known variants and their mutations Spread globally and in the U.S. 	 Variants should be categorized by the mutations they exhibit rather than their geographic origins Different variants present different risks and require different responses
Global News Sample pages: 10-13	Global developmentsOn-going risk across the globe	 As countries vaccinate and reopen, we are tracking progress, synthesizing best practices and projecting anticipated trajectory
US News Sample pages: 14-18	 US opening approach and initial learnings Risk of future disruptions 	 As the US begins to exit out of the pandemic, we are tracking outcomes, vaccination progress, and modeling out progress to the possible herd immunity threshold
Pandemic Navigator Sample pages: 19-20	 Overview Example capabilities Web-based version to explore 	 Oliver Wyman has developed a unique time-dependent SIR model to forecast the spread of the virus at the state and county level called the Pandemic Navigator Core Model Pandemic Navigator provides business leaders and policymakers with the data needed to make informed decisions through the crisis A sample of the Pandemic Navigator is freely available online
Testing and Diagnostics Sample page: 21	 Current landscape of available tests Emerging tech profiles & development news 	 The diagnostic landscape is evolving rapidly to provide more convenient, scalable testing options The emergence of testing and vaccine passports / tracking methodology is critical in the progress to normalcy
Returning to Work Sample page: 22	 Different employer plans with respect to vaccination Industry deep dives 	 Employers have a varied degree of involvement with vaccinations, and it depends heavily on industry and the nature of their work Deep dives on specific industries and companies within those industries can provide broader insight as to the general employer-vaccination landscape

COVID-19 TRENDS AND SPREAD OF THE DISEASE

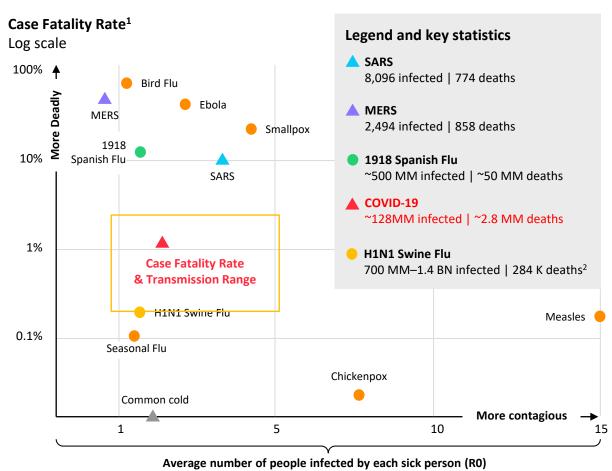
Cases are rising rapidly in the APAC region, largely driven by exponential case growth in India, while the rest of the world is largely seeing plateauing or declining new cases



1. Data from OW Pandemic Navigator

HOW DOES COVID-19 COMPARE TO OTHER DISEASE OUTBREAKS?

COVID-19 is currently more deadly and contagious than the Flu, but the science on transmission and mortality continues to evolve



Additional details

- R-naught (R0) represents the average number of cases an infected person will cause
 - R0 for the seasonal flu is around 1.3^2
 - Estimates for initial R0 for SARS-CoV-2 have ranged between 2 and 3³ on the lower end and closer to 5.7 on the higher end⁶
 - R0 is time and region dependent, varying significantly based on country and individual measures used to contain the virus (e.g., wearing masks, socially distancing, shutting down businesses)
- Early evidence suggests COVID-19's transmission is highly variable, with most infections resulting in no subsequent infections and a few resulting in many⁷
- The global case fatality rate for confirmed COVID-19 cases is currently 2.0%⁵; the rate varies significantly by country (e.g., Italy – 3.1%, South Korea – 1.7%⁵)
- We expect case fatality rates to fluctuate as vaccination continues, treatment options improve, testing expands, demographics of the ill change, and existing cases are resolved

Denotes Coronaviruses

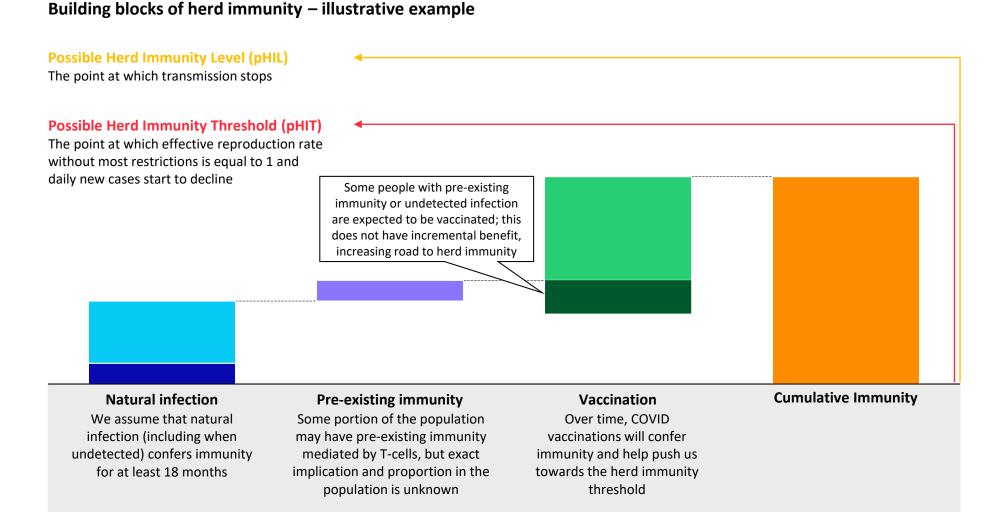
1. New York Times (link) for fatality and R-naught comparisons, CDC timelines for case numbers (selected link: CDC <u>SARS</u> timeline); 2. Updated CDC estimates (link); 3. The R0 for the coronavirus was estimated by the WHO to be between 1.4–2.5 (end of January estimate) (link), other organizations have estimated an R0 ranging between 2–3 or higher (link); 4. CDC Paper (link); 5. Calculated as Number of Deaths/Total Confirmed Cases as reported by John Hopkins University. 6. Emerging Infectious Diseases (link) 7. Science (link)

AT A GLANCE: SUMMARY FACTS

	Key facts	Key unknowns
Contagion	 Initial estimates suggested COVID-19 R0 is between 2 and 3 (with edge of range estimates closer to 1.4 and 3.6), which means each person infects 2–3 others¹; R0 for the seasonal flu is around 1.3² The CDC estimate VoC transmission to be between 20-50% more transmissible³ Early evidence suggests COVID-19's transmission is highly variable, with most infections resulting in no subsequent infections and a few resulting in many, which should color response⁴ 	 Frequency of transmission by asymptomatic individuals and kids
Current human immunity	 No herd immunity exists yet as the virus is novel in humans There is emerging evidence that some individuals have cross-reactive antibodies from exposure to other coronaviruses. It remains to be seen if these are protective¹⁷ 	 Whether protective immunity is conferred and how long it lasts
Infectious cycle	 COVID-19 can be spread asymptomatically⁵ The incubation period is a median of 5.5 days (up to 14 days)^{6, 7} (vs 3-day period for common flu⁶ Several epidemiological studies estimate that the infectious period begins 2-3 days prior to onset of symptoms, peaks 0.7 days before symptom onset and then declines within 7 days⁸ While viral genetic material can linger in the body for 2-4 weeks, live virus cannot be cultured after day 11 of illness⁸ 	 Exact timing of when an individual is no longer contagious
Fatality	 Case fatality rates (CFR) are trending at 2.0% globally⁹ (vs. 0.1% for flu)⁶ Infected fatality rate (IFR) is estimated at 0.68% (0.53-0.82%) though the data shows a significant degree of heterogeneity¹⁰ 	True fatality rate
Portion of cases asymptomatic but contagious	 In retrospective studies of those people tested and confirmed positive for COVID-19, experts estimate 18–30% are asymptomatic, with another 10–20% with mild enough symptoms to not suspect COVID-19¹¹ Early indicators from point in time comprehensive testing of small populations (e.g. Vo, Italy; Iceland) suggest as many as 50% of cases could be asymptomatic¹² In cohorts of younger individuals (e.g., pregnant woman, sailors on USS Theodore) the proportion of asymptomatics exceeded 60%^{13, 14} 	 Why some people are asymptomatic or have mild illness while others show severe symptoms
Portion of cases reaching "critical"/ "severe" infection	 Data from the US CDC suggested that approximately 14% of confirmed US cases required hospitalization; 1/6th of those needed ICU beds^{6, 16} Among states that report hospitalizations, recent data suggests ~9-10% of cases now require hospitalization 	

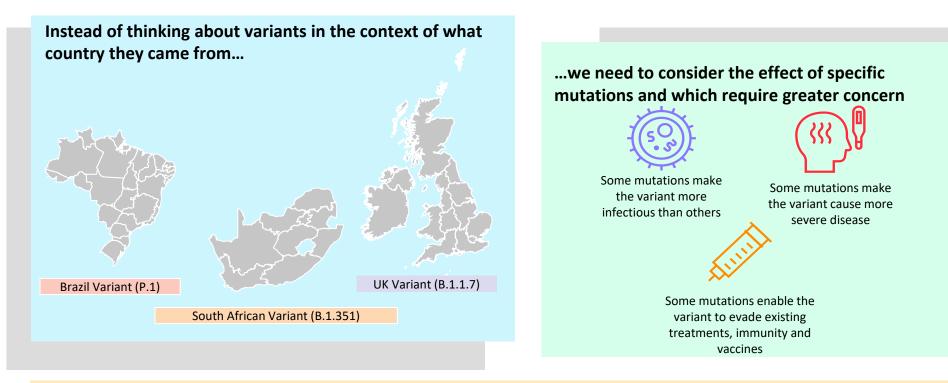
1. The R0 for the coronavirus was estimated by the WHO to be between 1.4–2.5 (end of January estimate) (link), other organizations have estimated an R0 ranging between 2–3 or higher (link); 2. CDC Paper (link); 3. CDC 4. Science (link) 5. JAMA. "Presumed Asymptomatic Carrier Transmission of COVID-19" 6. CDC 7. Annals of Internal Medicine (link) 8. Academy of Medicine Singapore (link) 9. JHU. 10. medRxiv (link) 11. Nature (link), Eurosurveillance Paper (link) 12. ZMEScience report (link) 13. Business Insider (link) 14. NEJM (link) 15. 7. China CDC, JAMA (link) 16. Note: However, hospitalization status was only known for ~50% of all cases in CDC study 17. Science Immunology (link)

RETURN TO NORMALCY: WE WILL BEGIN TO RECOVER WHEN OUR CUMULATIVE IMMUNITY REACHES THE POSSIBLE HERD IMMUNITY THRESHOLD

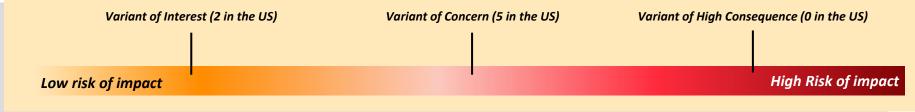


TURNING OUR FOCUS TO MUTATIONS

As more variants are being discovered, our focus should turn to the mutations they have, not their geographic origin



In the US, the CDC classifies variants based on the nature of their mutations and the severity of the impact they might have on existing ideas of transmission, severity and immunity



Source: CDC © Oliver Wyman

MUTATION PREVALENCE ACROSS VARIANTS

Of variants currently discovered, many share mutations with others, leading them to behave in similar ways

		Variants of (Concern				Variants of In	terest
Key Mutatio	Description of Mutation	B.1.1.7 (UK, Dec '20)	B.1.351 (SA, Dec '20)	P.1 (BR, Jan '21)	B.1.427 (CA, Jan '21)	B.1.429 (CA, Jan '21)	B.1.526 (NY, Oct '20)	B.1.525 (UK, Dec '20)
E484K	Common mutation that has been shown to evade existing immunity and treatments							
N501Y	Mutation that helps the virus more effectively bind to human cells, increasing transmission							
K417N	Another common mutation that helps the virus bind to cells							
L452R	Preliminary studies suggest increased infectivity and replication							
		- Has mut	ation	Doesn't have mu	tation			

Since many mutations are common across variants, our **response should be tailored to mutations and their impact**, rather than specific variants and where they come from

1. These are the key mutations primarily found in variants in the US – there are many multiples more that have been discovered and researched globally © Oliver Wyman

OW'S GLOBAL MONITORING CAPABILITIES PROVIDE DEEP AND ACTIONABLE INSIGHT TO GOVERNMENTS, EXECUTIVES AND PUBLIC HEALTH AUTHORITIES

Daily updated database covering 50+ metrics and 200+ countries; access to relevant COVID information in one convenient location

DANDENIC NAVICATOR

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- Complete history of pandemic by region (cases, deaths, infection rates, testing)
- Daily updated case projections for select countries of interest
- Mobility indices and leading indicators
- Population risk factors, include health risks, urban desnity, age and demographics
- Flexible chart builder and data export tool; explore metrics from any region over any period of time
 © Oliver Wyman

Risk tracker and dashboard identifying likely hotspots and areas of resurgence with key global archetypes

₿HUE	Oliver Wyman		C	OVIE	D Risk R	epor	ting	- U	S St	ta
Date of Last Refre	sh: July 20, 2020	State (So By Risk)	rted New Cases (7MA, AB)	New Cases (7MA, 1M)	New Case Growth (14 Days, %C)	Active Cases (AB)	Active Cases (1M)	Deaths (#, AB)	Deaths (#, 1M)	7- Tes
Select Geographic I	Level	÷			(Tes
Global	State	Louisian		438	54.2%	27,721	5,963	3,572	768	
		Florida	11,608	540	35.2%	157,171	7,318	5,183	241	
MSA	County	Arizona	3,293	452	-14.3%	45,391	6,236	2,784	382	
Select View:		Idaho	597	334	81.7%	7,524	4,210	119	67	
All Metrics	Key Metrics	South G		387	18.7%	25,705	4,993	1,164	226	
		Alabama		397	76.8%	24,277	4,951	1,291	263	
elect State:		Tenness		321	57.5%	28,572	4,184	847	124	
Alabama	Montana	Mississip		335	49.0%	12,396	4,165	1,358	456	
Alaska	Nebraska	Texas	11,121	384	59.1%	141,927	4,895	4,020	139	
Arizona	Nevada	Nevada	1,219	396	70.1%	14,133	4,588	648	210	
Arkansas	New Hampshire	Georgia	3,840	362	52.3%	50,351	4,742	3,176	299	
		Utah	689	215	26.8%	9,380	2,926	247	77	
California	New Jersey	North G	arolina 2,043	195	29.5%	27,192	2,593	1,642	157	
Colorado	New Mexico	Californi	a 9,075	230	34.1%	125,797	3,184	7,694	195	
Connecticut	New York	Kansas	408	140	17.6%	5,863	2,012	307	105	
Delaware	North Carolina	Arkansa	719	238	26.0%	9,720	3,221	357	118	
District of Colum	North Dakota	Oklahon	na 763	193	67.6%	9,724	2,457	452	114	
Florida	Ohio	lowa	539	171	29.5%	7,643	2,422	797	253	
Georgia	Oklaboma	New Jer		23	-37.8%	3,364	379	15,715	1,769	
Havai	Oregon	Kentuck	/ 598	134	131.9%	6,673	1,494	671	150	
		Nohrask		102	38.0%	2 738	1.415	301	156	
Idaho	Pennsylvania	LEGEND: Risk Level	FOOT		level is determined by the reviations: 7MA = 7 day m					
Ilinois	Rhode Island	Low	Medium		to the limitation of data a					
testions.	Comp Constant	Hot	Very High		te of last refresh as indicat					

- Convenient dashboard highlighting key risk factors and current pandemic status by day
- Deep dive worksheets exploring mobility, case, and infection rate growth over variable periods of time
- Analysis of mobility correlations with Oliver Wyman derived infection rates
- Flexible segmentation and archetyping tool, with editable risk thresholds

In-depth profiles highlighting global themes and detailed developments from any given country

SINGAPORE SAW EARLY SUCCESS DRIVEN BY INDIVIDUAL TRACING AND QUARANTINE, But failed to account for non-permanent residents

Time	eline of Date	key actions Active Cases	Notes	Observations & Lessons Learned Detremely strict testing, tracing, and guarantine protocols may effective		
①	Jan 23	1	First confirmed case, tourist from Wuhan	manage outbreaks		
0	Mar 16	135	Case growth accelerates due to repatriation of residents 70% of new cases are imported	 Post-SARS, Singapore expanded isolation capacity and testing infrastr future pandemics, enabling them to quickly scale up a COVID respons 		
3	Mar 23	359	Borders closed to tourists and short term visitors	 Singapore had extremely strong quarantine measures: isolation of infected/suspected individuals and close contacts was strictly enforced 		
(4)	Apr 5	854	By early April, most new cases are temporary migrant workers; Govt. quarantines 20,000	 These measures allowed the public at large to enjoy relatively few restrictio on daily life 		
-			workers in response	as long as the testing and quarantine is truly comprehensive		
6	Apr 7	923	Government announces "circuit breaker" measures, including closures of schools and most non-essential businesses	 Cases spread undetected at cramped migrant worker dormitories; Migrant workers are a "cognitive blind spot" for the Singaporean government, as pre pandemic policy segregated workers to the outskirts of society 		
-			Circuit breaker extended through June, additional	 Initially, stringent quarantining approach was not applied within this group 		
6	Apr 21	7,644	businesses subject to closure	Digital contact tracing alone is not enough to adequately identify		
-	Jun 2	TBA	Phased reopening to begin	outbreaks Despite international praise for Singapore's voluntary TraceTogether app, or 		
-	14000		1200	 Despite international praise for singapore's voluntary irace/ogether app, or "20% of the public has downloaded it 		
	12000 ①		2 3 43 1	 Government officials warn against an overreliance on digital tools, maintain that manual tracing and outreach should be the cornerstone of policy 		
÷.	8000			Governments should be prepared to adapt to changing information and circumstances		
and i	0000		600 ¥	 Singapore's "rational and incremental" approach to suppression allowed the 		
8	4000		- 000 E	country to respond to changing circumstances (e.g., closing borders as imported cases rose), but delays may have caused increased transmission (e		
			200	initial hesitancy to impose lockdowni		
	2000			 Singapore is addressing migrant worker cases with parallel but differentiate measures, including widespread quarantine and free, accessible healthcare 		
	1/22	2/5 2/19 3	4 3/18 4/1 4/15 4/29 5/13 (by overapt)	Of on-going interest: Singapore's CFR is 0.07%; as the bulk of active cases resolve it will be critical to track the evolving CFR and understand the drivers underplaning it		

- Timeline of key developments and government responses over the lifetime of COVID in a given country
- Key lessons learned from each region

 detailed notes on what caused a
 countries response to be successful
 (or not)
- Themes that governed a country's COVID response policy and philosophy
- Other cultural or endogenous factors that directly affected the impact of the disease

THERE ARE A WIDE RANGE OF METRICS THAT CAN HELP INFORM THE "HEALTH RISK" OF A PARTICULAR GEOGRAPHY

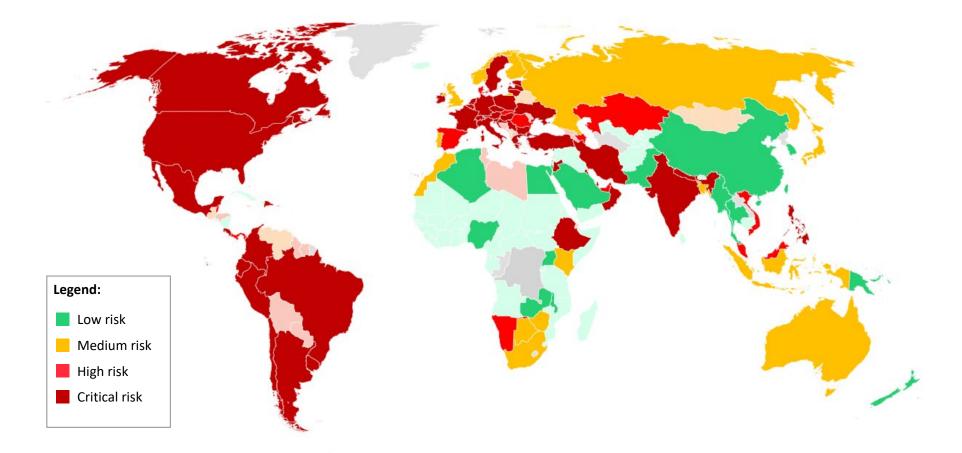
1	2	3	4
How severe are outbreaks today?	What is the near-term outlook?	How widespread is testing and contact tracing?	How is human behavior changing?
Active casesReproduction rateDeaths	 Active case forecasts Projected reproduction rate Projected deaths 	 % positive tests # of people tested Level of contact tracing 	 Impact of mobility on transmission Changes in government stringency

These factors combined into a "health risk score", alongside judgement on the ground, can help quickly assess the potential health risk posed by geography in a structured way

WHAT DOES GLOBAL RISK LOOK LIKE AROUND THE GLOBE?

High rates of active cases in both the Americas and Western EU cause scores to climb back up to critical for many countries in each region; rising cases in India have led its score to jump up from medium to critical

Oliver Wyman Health Risk Assessment^{1,2,3,4,5}



© Oliver Wyman

1. Highlighted countries indicate risk monitoring coverage 2. Due to the heterogenous nature of outbreaks in large countries, certain countries dealing with substantial outbreaks in certain localities (India, Australia) may appear to be low risk at an aggregate level 3. Countries with fewer than 7 data sources and no OSI index or no active case information are "pastel" colored to indicate the incomplete nature of the available data; 4. Israel and UAE have a critical designation due to high baseline active cases, but new cases are rapidly dropping as a by-product of an effective vaccination campaign and we expect this score to shift lower in the future, 2. The accuracy of these risk scores relies on the accuracy and validity of publicly available data

GLOBAL PATH TO HERD IMMUNITY

Israel continues to stand out with its rapid vaccination roll-out, with a few other countries like the US, UK, and UAE also performing strongly

80% The herd immunity threshold, given other COVID variants, is likely between 67%-75% of a country's population 70% Israel has likely reached Herd Immunity Additional Immunity from Undetected Cases 60% Additional Immunity from Detected Cases 50% Immunity from Vaccination 40% 30% 20% 10% 0% Chile Bahrain Hungary Serbia Belgium Canada U.A.E Malta United States Singapore Netherlands Spain France Italy Portugal Finland Ireland Greece Czech Republic Turkey Kuwait Argentina China Russia India United Kingdom Lithuania Luxembourg Denmark Mexico Brazil Israe Austria Germany Sweden Switzerland Poland Saudi Arabia Norway

% with immunity by natural infection or effective vaccination by country^{1,2}

Data as of May 2nd, 2021

We estimate a **handful of countries** (US, UK, Mexico, Brazil) **to reach herd immunity in the next few months**, but countries relying on natural infection must be wary of variants with high reinfection rates

1. As we learn more about the risk of reinfection, we may see some countries relying on high levels of natural infection lose significant progress towards herd immunity. 2. Effective vaccination counts use a weighted average of efficacy rates for first and second injections across manufacturers. We also assume individuals who were naturally infected and received a vaccine dose will be counted towards immunity from vaccination and not natural infection (assumes those with previous natural infection are just as likely as the noninfected population to receive a vaccination). Undetected cases vary by region and are estimated based on IFR data and deaths. Vaccination data from <u>OWID</u>; JHU

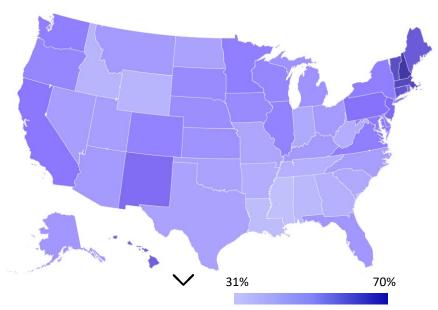
US OUTLOOK: CASES AROUND THE COUNTRY ARE TRENDING LOWER, CONTINUING THEIR DECLINE OR BEGINNING TO LEVEL OFF

Data as of May 4th, 2021 Start of forecast 20,000 United States 18,000 -Arizona California 16,000 -Florida Massachusetts 14,000 -New York 12,000 Oregon Texas 10,000 -Washington 8,000 6,000 4,000 2,000 0 11/1/20 12/1/20 1/1/21 2/1/21 3/1/21 4/1/21 5/1/21 6/1/21

Active cases per Million for select states

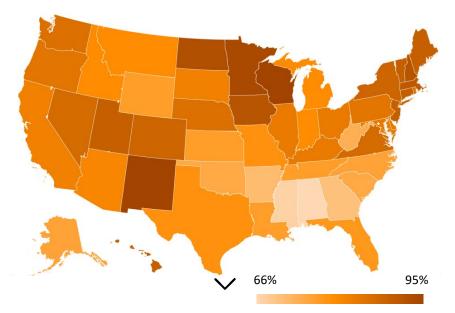
THE US VACCINATION CAMPAIGN HAS ACCELERATED RAPIDLY AND IS AIMING TO REACH 70% OF AMERICANS WITH AT LEAST ONE SHOT BY THE 4^{TH} of July

Share of population receiving at least one dose 1 As of May $4^{\text{th}},\,2021$



- 144.2 million (~44% of U.S. population) people have received their first dose as of May 4th
- More than 104 million (~32% of U.S. population) people have been fully vaccinated as of May 4th
- Biden reached announced goals of vaccinating 200M people within his first 100 days in office, and expects to celebrating July 4th as normal
- The U.S. is currently administering 2.29M shots per day

% of vaccine supply used¹ As of May 4th, 2021



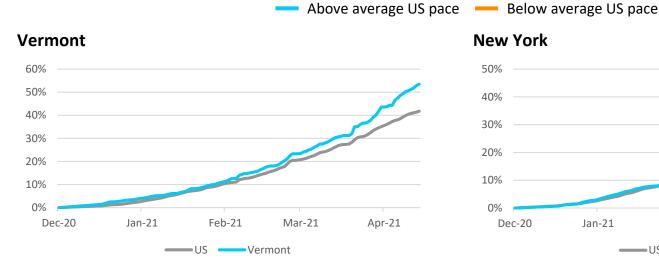
- Vaccine utilization has remained steady for the past month, averaging 79%, compared to last month's 81%
- Many states are seeing evidence of waning demand:
 - Appointments that were previously hard-to-get are now going unfilled
 - States like Mississippi are asking the government to stop shipping the vaccine as they can't find people to take the shot

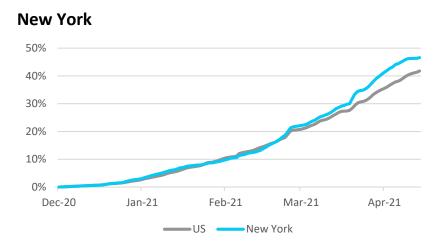
^{1. &}lt;u>NYT</u>; *Data may be lagged as states report vaccination totals at different rates 2. <u>Washington Post</u> © Oliver Wyman

THE PACE OF VACCINATION LOOKS DRAMATICALLY DIFFERENT ACROSS THE U.S.

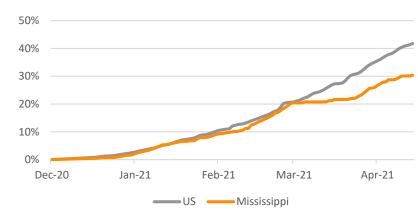
Some states have seen their vaccination pace flatten off while others continue a rapid rollout

% of population with at least one dose for select states

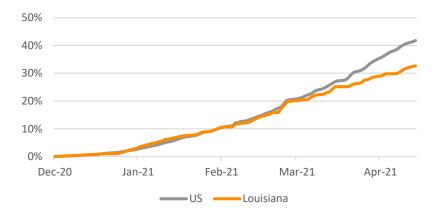




Mississippi







Sources: OWID; JHU; NYT

US: REVISED ASSUMPTIONS IMPROVE AVERAGE PHIT TIMING FOR THE US

Driven primarily by an earlier than expected approval of an adolescent vaccine, optimistic potential herd immunity threshold (pHIT) timing in the US has moved up from mid to late summer to early-summer

% with immunity by effective vaccination or natural immunity^{1,2}

Data as of May 2nd, 2021 Projected band of cumulative population immunity narrows post pHIT due to an anticipated faster natural infection rate in the conservative scenario and a slower one in the optimistic scenario 80% Optimistic 70% Conservative **Herd Immunity Threshold Range Key Assumptions** 60% Administration rate: **Optimistic:** 3.0M³ Conservative: 1.8M Adolescent vaccine approval: **Optimistic:** May 15th 50% Conservative: June 1st Cases: Both scenarios assume an average of 65K cases a day until pHIT⁴ 40% 6/3 5/3 7/3 8/3 9/3 10/3 11/3 Range of Outcomes Herd Immunity Threshold pHIT Upper Bound Optimistic Conservative

1. Immune individuals (either from natural infection, or vaccination) are assumed not to transmit the virus. Given that most vaccine trials assessed efficacy against symptomatic illness, this assumption may prove to be overly optimistic, i.e. efficacy with respect to asymptomatic but contagious illness may be lower than is assumed here. In addition, vaccine efficacy for J&J clinical trial (66%) was assessed with respect to moderate to severe disease so this efficacy may be overstated when applied to case transmission. 2. In our optimistic scenario, it is assumed that a vaccine approved for 12-15 year olds will become available in July 2021 or earlier, while a pediatric vaccine for ages 11 and under does not become available until 2022. 3. Administration rate is the average number of doses administered until all willing individuals are vaccinated. 4. 71% is used for pHIT, SIR logic applied after threshold to project case growth. Sources: OWID; JHU

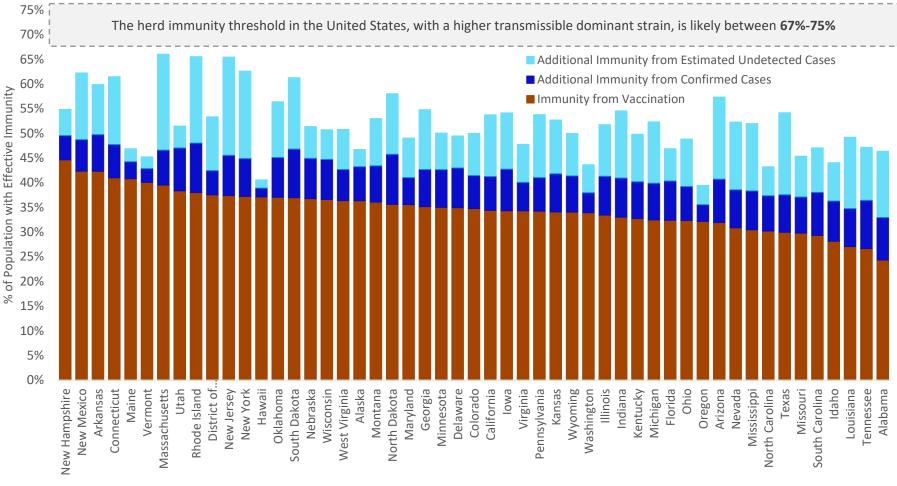
© Oliver Wyman

US: PATH TO HERD IMMUNITY THRESHOLD

A handful of states are approaching the herd immunity threshold, largely owing to a rapid vaccination campaign

% with immunity by effective vaccination or natural infection by state^{1,2}

Data as of May 2nd, 2021



1. As we learn more about the risk of reinfection, we may see some states relying on high levels of natural infection lose progress towards herd immunity threshold. 2. Effective vaccination counts use a weighted average of efficacy rates for first and second injections across manufacturers. We also assume individuals who were naturally infected and received a vaccine dose will be counted towards immunity from vaccination and not natural infection (assumes those with previous natural infection are just as likely as the noninfected population to receive a vaccination). Undetected cases vary by region and are estimated

© Oliver Wyman based on IFR data and deaths. Vaccination data from 1. NYT

OLIVER WYMAN'S PANDEMIC NAVIGATOR IS A SUITE OF MODELS THAT HAS BEEN HELPING BUSINESS & POLICY LEADERS MAKE DECISIONS DURING THE CRISIS

Elements of the Pandemic Navigator toolkit

		 Updated daily for 3,000+ U.S. counties and 90+ countries
	Near-term risk	 Measures detected and undetected cases (i.e., asymptomatic, untested cases)
	monitoring	 Featured by the <u>CDC</u> and consistently recognized as top-performing in <u>independent</u> <u>studies</u>
	Long-term risk	 Epidemiology scenarios to test impacts of policy measures, behaviors, vaccinations, and latest medical developments
	modeling	 Measures timing and threshold to achieve herd immunity
_		 Available for all 50 U.S. states and 90+ countries
	Event-specific risk	 Calculates the probability of someone attending a gathering in a specified location (county-level in the U.S.) on a specific date with an active COVID-19 infection
	analysis	 Calculates the probability of contracting COVID-19, based on conditions at the gathering and attendee profile
	Risk scores by	 16-dimensional score that combines current and future cases, public health infrastructure, mobility patterns, and government policy measures in risk score
	geography	 Available for 3,000+ U.S. counties and 90+ countries

Visit our <u>website</u> to see a selection of our analytics.

PANDEMIC NAVIGATOR PERFORMANCE

Over the past six months, our model is emerging as one of the top COVID-19 models according to multiple independent model comparisons

TOP-PERFORMING AMONG MODELS LISTED BY THE CDC

PART OF REICH LAB ENSEMBLE, COMPILATION OF THE BEST MODELS

GRANULAR, COMPARTMENTAL DESIGN FIT FOR DECISION-ORIENTED ANALYTICS

What others are saying about the Pandemic Navigator:

"A" rating according to <u>National Forecasting Evaluation</u> <u>Report</u> comparing CDC-listed models for deaths forecasts

Only leading model to <u>beat baseline forecasts 100% of</u> weeks, compared to other CDC listed deaths forecasts

Consistently top-performing according to Steve McConnell's <u>weekly evaluations of forecast errors</u>

Regularly recognized as leading model in independent modeler's COVID-19 <u>"Power Rankings"</u>

Oliver Wyman "instantly became **one of the topperforming models since its release**...one of the few other models to have estimates of **true infections**"

-COVID-19 projections creator

ADVANCES IN TESTING TECHNOLOGY HAVE GIVEN RISE TO AT-HOME ALTERNATIVES TO IN-PERSON TESTING

Currently available for purchase	Administration	Time to results	Cost	Accuracy	Availability
-¦ellume™	Completely at-home rapid antigen test using a nasal swab	About 15-20 minutes	\$30	95% sensitivity97% specificity	Purchase at drugstores or online with a prescription
Abbott	At-home rapid antigen test under the guidance of a telehealth professional using a nasal swab	About 20 minutes on a portal with scannable test results	\$25	 64.2% sensitivity for symptomatic cases³ 35% of sensitivity for asymptomatic cases³ 	Order online after meeting eligibility criteria
	Completely at-home rapid LAMP test using a nasal swab	Less than 30 minutes	\$50	• Unavailable	Currently released to healthcare providers in bulk
Cue	Completely at-home rapid test using a nasal swab	Around 20 minutes	Unavailable	99% sensitivity98% specificity	Scaling up to a production capacity of 100K+ tests per day

Ellume; AARP; Abbot; 3. Fierce; Lucira; Insider; Pixel; Cue

VACCINATION POLICY VARIES ACROSS INDUSTRY AND CLASSIFICATION OF EMPLOYEES

Employers larg	ely will avoid mandating vaccines apart from a select few	Mardate pat califate croutage ob
Employer	Approach	? ? ? ?
UNITED 颞	 Plans to make the vaccine mandatory, while accommodating for federally mandated religious beliefs and medical conditions 	
DOLLAR GENERAL	Equivalent of 4-hours pay to employees who get vaccinated	
	Equivalent of 2-hours pay to employees who get vaccinated	
TRADER JOE'S®	 Commitment to adjust schedules so employees have time to get vaccinated 	
* instant	 \$25 stipend to employees who get vaccinated 	
卢 instacart	Lobbied state and local authorities for delivery workers to be prioritized in vaccine roll-out	
7	No plans to incentivize workers for becoming vaccinated	
DOORDASH	Lobbied state and local authorities to prioritize delivery workers in vaccine roll-out	
O TADOET	Vaccine will be free to employees under employer's health insurance	
	Planning for vaccine to be readily accessible in 1,700 stores with in-store CVS pharmacies	
	Urging employees to get vaccinated and highlighting benefits of doing so	
Marriott	Discussions underway to bring in vaccine providers into larger hotels to administer shots	
fucebook	 No plans to require employees to get vaccinated 	
facebook	 Allowing staff to work remotely at least until the summer 2021 	
	Encouraging, but not requiring employees to get vaccinated	
DISCOVER	 Allowing staff to work remotely at least until the summer 2021 	
vorizon	Vaccine will be free to employees under employer's health insurance	
verizon	 No comments on whether workers will be required to get vaccinated 	

• No mandate for employees to become vaccinated

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READ OUR LATEST INSIGHTS ABOUT COVID-19 AND ITS GLOBAL IMPACT ONLINE

Oliver Wyman and our parent company Marsh and McLennan (MMC) have been monitoring the latest events and are putting forth our perspectives to support our clients and the industries they serve around the world. Our dedicated COVID-19 digital destination will be updated daily as the situation evolves.



Visit our dedicated COVID-19 website



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