

COVID-19 Alert-Level System Indicators, Triggers and Thresholds*

Alert levels should be tailored to local context and agreed upon by a multi-stakeholder group. Before deciding on the thresholds for levels, you should ensure you are able to capture data regularly and be able to analyze and share it consistently.

Below is an example of an alert-level system with indicators and thresholds for USA States

Category	Key question	Indicator	Triggers to raise to a higher level (e.g., 2->3)	Triggers to lower level (e.g., 4->3)	Indicator threshold for each level			
					Level 1 New normal	Level 2 Low Alert	Level 3 Moderate Alert	Level 4 High Alert
Disease situation	What is the level of disease burden and how is it changing?	Daily case incidence** (new cases per 1M people per day)***	Increasing to meet new threshold over a 7-day period	Decreasing to meet new threshold over a 14-day period	<10/1M/day	10-19/1M/day	20-39/1M/day	40/1M/day or higher
	Are there early signs of a resurgence in cases?	Syndromic data (Influenza-like illness or COVID-19-like illness)	Increasing over a 5-day period	N/A	Near seasonal average	Near seasonal average	Near seasonal average or above seasonal average and declining	Above seasonal average or rising
Health care system	Do we have capacity to treat severe cases?	ICU availability of surge beds above current capacity	Meet threshold over a 3-day period	Meet threshold over 3-day period	40% or more	30-39%	20-29%	Less than 20%
	Are we protecting health care workers?	Number of health care worker infections	Increasing over a 7-day period	Decreasing over a 7-day period	No HCW infections	Decreasing	Decreasing	Increasing or unknown
Disease control	Are we testing enough to detect cases?	Percentage of tests that are positive	Increasing over a 7-day period	Decreasing over a 7-day period	< 5%	5-9%	10-14%	15% or higher
		Total testing per 1,000 people per day	Meet threshold over a 7-day period	Meet threshold over a 7-day period	>10	5-10	1.5-5	<1.5 per 1000 average per day
	Do we have robust contact tracing?	Percentage of new cases from quarantined contacts	Meet threshold over a 7-day period	Meet threshold over a 7-day period	50% or more	30-49%	10-29%	<10%

* Jurisdictions may decrease the overall level by one increment, and one increment only, if there is an openly made societal decision that the economic and/or social harms from the restrictions outweigh the benefits on control of Covid-19. In this case, it is especially important to ensure widespread adherence to physical distancing and safety practices. Before increasing a level, the potential impact on economic and social harms should also be considered.

** In the absence of reliable data on new cases, daily trends in new hospitalizations and/or deaths should be monitored.

*** Consider the heterogeneity and population density of the setting when determining risk level. If an isolated confined outbreak or rural area (e.g. population <50 per square mile), this generally has lower transmission risk than a distributed pattern throughout community or a dense area.

COVID-19 Alert-Level System Indicators and Measures

Once categories and thresholds have been determined by the multi-stakeholder group, simplify the matrix to share with the public and non-technical specialists. Having a simplified, but comprehensive, version of the thresholds will ensure accountability and understanding of the levels and the science and evidence behind decisions. Including the key criteria per level as well as clear actions for individuals and communities is important to support community engagement and action. Inform the community on who will decide when the levels will change and how often they will be reviewed. This will build trust in the system and improve understanding and adherence.

Alert level	COVID-19 Risk Indicators			Community Measures*
	Disease situation	Health care system	Disease control	
Level 4 High Risk	<ul style="list-style-type: none"> High burden Increasing spread Many outbreaks 	<ul style="list-style-type: none"> Limited capacity to safely care for cases Many health care worker infections 	Limited or no ability to isolate cases and quarantine contacts	<ul style="list-style-type: none"> Stay at home Schools closed (e-learning) No mass gatherings Essential services only Modified health care services (e.g. telemedicine) No non-essential visits to congregate facilities (e.g. nursing homes) Recreation locally with safety measures** (e.g. walking)
Level 3 Moderate Risk	<ul style="list-style-type: none"> Moderate burden Decreasing spread Few outbreaks 	<ul style="list-style-type: none"> Some capacity to safely care for cases Some health care worker infections 	Some ability to isolate cases and quarantine contacts	<ul style="list-style-type: none"> Limit non-essential travel outside home Schools closed (e-learning) Limited small mass gatherings (e.g. weddings, funerals) with safety precautions Businesses open with safety measures (e.g. pick-up only)** Modified health care services (e.g. telemedicine, essential care, chronic care) No non-essential visits to congregate facilities (e.g. nursing homes) Recreation expanded with safety measures (e.g. low risk)**
Level 2 Low Risk	<ul style="list-style-type: none"> Low burden Decreasing spread Outbreaks rare 	<ul style="list-style-type: none"> Full capacity to safely care for cases Rare health care worker infections 	More ability to isolate cases and quarantine contacts	<ul style="list-style-type: none"> Can travel outside home with safety measures Schools open with safety measures, no vulnerable staff or students** Some mid-size mass gatherings, with safety measures** Businesses open with safety measures (e.g. hand sanitizer, distancing)** Health care services with safety measures (e.g. elective procedures)** No non-essential visits to congregate facilities (e.g. nursing homes) Recreation with safety measures**
Level 1 New normal	<ul style="list-style-type: none"> Cases and outbreaks rare 	<ul style="list-style-type: none"> No health care worker infections 	Ability to fully isolate cases and quarantine contacts	<ul style="list-style-type: none"> Can travel outside home with safety measures** Schools open with safety measures** Mass gatherings with safety measures** Businesses open with safety measures (e.g. distancing, disinfection)** Health care services with safety measures** Minimal safe visits to congregate facilities (e.g. nursing homes) Recreation with safety measures**

* At all levels, individuals should wash hands, cover coughs, wear a mask in public as indicated, stay home if sick, maintain physical distancing, keep surfaces clean. Vulnerable people 60 and older or those with underlying conditions or immunocompromised should minimize travel outside the home

** Safety measures include appropriate measures to reduce transmission such as: Reducing occupancy, staggering shifts, working remotely, physical distancing, separating customers from employees, reducing public transportation use, screening employees, working in lower transmission geographic areas, reducing risk to vulnerable groups, keeping places clean with routine cleaning and disinfection, providing necessary supplies and equipment (e.g. sanitizer).

COVID-19 Alert-Level System Summary Communication Tool

To support clear and consistent communication, simplify the levels and key actions further. This simplified version should be shared widely including on posters, pamphlets and on social media. It should be explained by trusted health authorities on mass media to explain the levels and what they mean for communities.

LOGO

ORGANIZATION LOGO

COVID-19 risk alert levels

Alert Level 4 Very High Risk	Widespread outbreak that is growing with many undetected cases. Take strong measures to limit all contact.
Alert Level 3 High Risk	Many cases including community spread, with undetected cases likely. Limit everyday activities to increase safety.
Alert Level 2 Moderate Risk	Moderate number of cases with most cases from a known source. Increase efforts to limit personal exposure.
Alert Level 1 New normal	Cases are rare and contact tracing can be used to control the virus. Take everyday precautions.

EMERGENCY SUPPORT TEXT OR CALL
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STAKEHOLDER LOGOS

LOGO

ORGANIZATION LOGO

COVID-19
risk alert levels

	COVID-19 Situation and Action	Key Guidance
Alert Level 4 Very High Risk	Widespread outbreak that is growing with many undetected cases. Take strong measures to limit all contact.	<ul style="list-style-type: none"> All individuals should stay at home when possible Only essential services should be open Travel should be severely limited
Alert Level 3 High Risk	Many cases including community spread, with undetected cases likely. Limit everyday activities to increase safety.	<ul style="list-style-type: none"> General public should reduce non-essential travel and attend only small gatherings Businesses and schools can safely open with precautions High-risk individuals should stay at home or shelter whenever possible
Alert Level 2 Moderate Risk	Moderate number of cases with most cases from a known source. Increase efforts to limit personal exposure.	<ul style="list-style-type: none"> General public can travel outside home and recreate safely, should wear a mask in public Large public gatherings should have enhanced safety features High-risk individuals should limit public travel and take precautions
Alert Level 1 New normal	Cases are rare and contact tracing can be used to control the virus. Take everyday precautions.	<ul style="list-style-type: none"> All individuals should practice personal infection control: Wash hands, cover coughs, keep surfaces clean Wear mask if ill and stay home if sick

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STAKEHOLDER LOGOS

Suggested guidance for wearing face masks/coverings

If well and	Physical distancing possible	COVID-19 Alert Level			
		Level 1	Level 2	Level 3	Level 4
Outdoors	Yes	No	No	No	Yes
Outdoors	No	No	Yes*	Yes	Yes
Indoors	Yes	No	No	Yes	Yes
Indoors	No	No	Yes	Yes	Yes
Home (if everyone is well)	-	No	No	No	No
If sick	-	Yes	Yes	Yes	Yes

Determining and changing COVID-19 alert levels

General principles

- Changes to alert level and implementation of measures should be advised by a multisectoral advisory group.
- Allow at least two weeks after reducing the alert level before further reducing it to allow for a proper communications and engagement strategy to be developed, and note that it may take 3-12 weeks or more for the epidemiologic impact of reduced physical distancing to become apparent in new COVID-19 illness.
- Prepare in advance for appropriate response measures so they can be implemented rapidly.

How to determine the current overall alert level

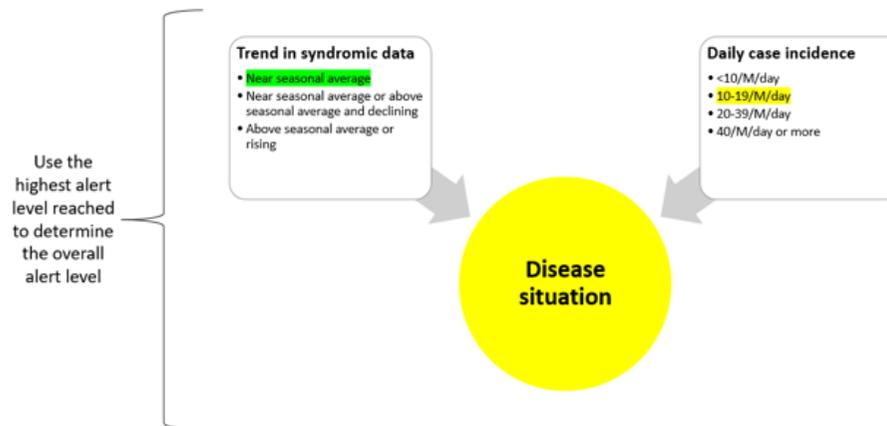
- First, determine the alert level for each category:**
 - If any indicator is red, then the category indicator is red.
 - If none are red, then use the highest alert level to determine the overall level.
 - For example, for disease situation category:
 - Level of disease burden is 14/M/day (yellow)
 - ILI data is near seasonal average (green)
 - Then the category color is yellow since the highest value reached in any one indicator is yellow (see Figure).
 - All indicators in a category must be green for the category level to be green.
- Your results should be alert levels for each category, for example:**

Disease situation

Health care system capacity

Disease control

Determinants of the category alert level



3. Next, determine the overall system alert level:

- a. If any category is red, then the category indicator is red.
- b. If none are red, then use the highest alert level to determine the overall level.
 - i. For example, if the disease situation is red, then the overall alert level is red
 - ii. If there are a mix of non-red category levels, then the highest level reached should determine the overall level
- c. All category levels must be green for the overall system alert level to be green.

How to determine when to change alert levels

1. After determining the current alert level, you need to monitor data to identify whether you have met any of the triggers for raising or lowering the level

- o This means you must have a dashboard or some other way to monitor data on a daily basis.
- o One example of the type of data you should monitor is here: <https://www.covidexitstrategy.org/>
- o Once a trigger is met and information verified, then level for the indicator should be changed.



- For example, for the ICU availability with surge indicator
 - o If the ICUs in your jurisdiction have had 32% availability (including surge capacity) over the past 3 days, then the current level is yellow (level 2)
 - o If the ICU availability drops to 24% over a 3-day period, then your ICU capacity indicator is now orange (level 3)

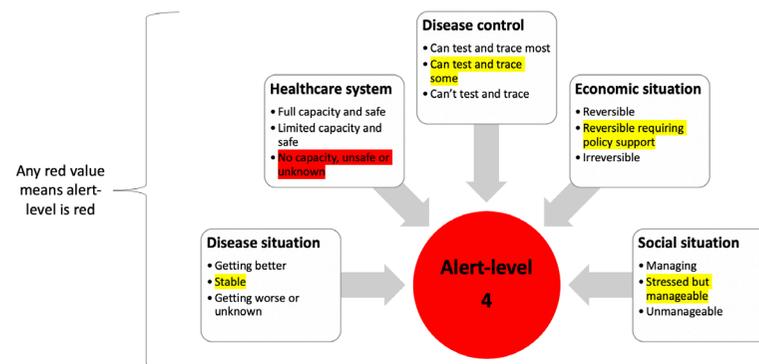
- o You should update the indicator level, category indicator level and overall alert system level based on this change.

2. Adjusting the level for the economic and social context

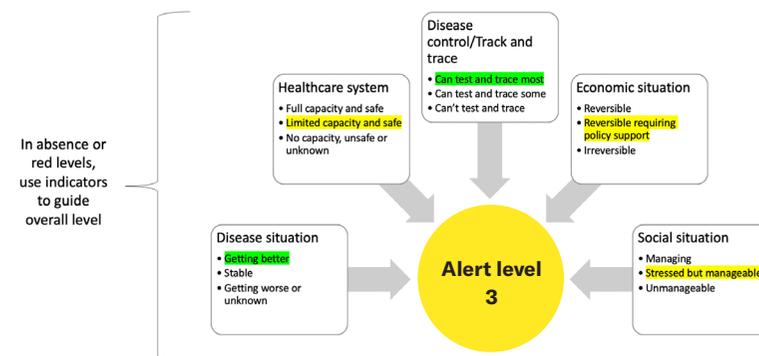
- o Jurisdictions may decrease the level by one increment, and one increment only, if there is an openly made societal decision that the economic and/or social harms from the restrictions outweigh the benefits on control of COVID-19. In this case, it is especially important to ensure widespread adherence to physical distancing and safety practices.
- o Before increasing a level and implementing measures, the potential impact on economic and social harms should also be considered.

EXAMPLES:

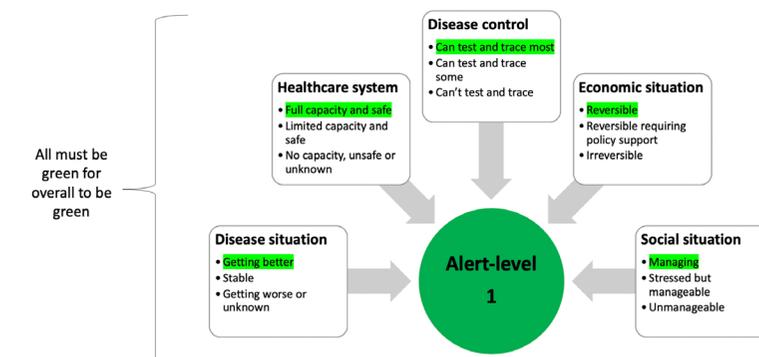
Determinants of the alert-level: Red (Level 4)



Determinants of the alert-level: Orange (Level 3) and Yellow (Level 2)



Determinants of the alert-level: Green (Level 1)



Sample alert level – Orange Level 3

The following is an example of how to progress from state data to community recommendations.

State Data

Disease situation

- 136 new cases per day on average in a state with 4 million people
 - 34 new cases per day per million over the past seven days
- Influenza like illness and critical limb ischemia syndromic data are at seasonal average

Health care system

- ICU beds 67% full including surge capacity in the denominator
 - Capacity is 33%
- Twelve reported health care worker infections over past 7 days which is less than 22 in the prior 7-day period

Disease control

- Percent positivity among those tested rate was 9% over the past 7 days
- Average total tests per day in the past 7 days was 6,400. The population is 4 million in the state
 - Total testing per 1,000 people per day was 1.6
- 12% percent of new cases in past 7 days have come from known contacts

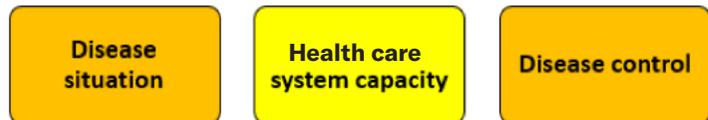
Category	Key question	Indicator	Triggers to raise to a higher level (e.g., 2->3)	Triggers to lower level (e.g., 4->3)	Indicator threshold for each level			
					Level 1 New normal	Level 2 Moderate	Level 3 Moderate Alert	Level 4 High Alert
Disease situation	What is the level of disease burden and how is it changing?	Daily case incidence** (new cases per 1 million people per day)***	Increasing to meet new threshold over a 7-day period	Decreasing to meet new threshold over a 14-day period	<10/1M/day	10-19/1M/day	20-39/1M/day	40/1M/day or higher
	Are there early signs of a resurgence in cases?	Syndromic data (Influenza-like illness or COVID-19-like illness)	Increasing over a 5-day period	N/A	Near seasonal average	Near seasonal average	Near seasonal average or above seasonal average and declining	Above seasonal average or rising
Health care system	Do we have capacity to treat severe cases?	ICU availability with surge beds above current capacity	Meet threshold over a 3-day period	Meet threshold over a 3-day period	40% or more	30-39%	20-29%	Less than 20%
	Are we protecting health care workers?	Number of health care worker infections	Increasing over a 7-day period	Decreasing over a 7-day period	No health care worker infections	Decreasing	Decreasing	Increasing or unknown
Disease control	Are we testing enough to detect cases?	Percentage of tests that are positive	Increasing over a 7-day period	Decreasing over a 7-day period	< 5%	5-9%	10-14%	15% or higher
		Total testing per 1,000 people per day	Meet threshold over a 7-day period	Meet threshold over a 7-day period	>10	5-10	1.5-5	<1.5 per 1000 average per day
	Do we have robust contact tracing?	Percent of new cases from quarantined contacts	Meet threshold over a 7-day period	Meet threshold over a 7-day period	50% or more	30-49%	10-29%	<10%

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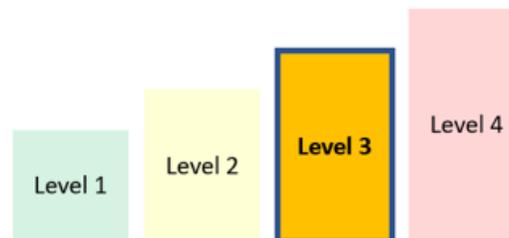
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*** Consider the heterogeneity and population density of the setting when determining risk level. If an isolated confined outbreak or rural area (e.g. population<50 per square mile), this generally has lower transmission risk than if a distributed pattern throughout community or a dense area.

Category scores



Overall alert level = Orange



Suggested guidance for wearing face masks/coverings

If well and	Physical distancing possible	COVID-19 Alert Level			
		Level 1	Level 2	Level 3	Level 4
Outdoors	Yes	No	No	No	Yes
Outdoors	No	No	Yes*	Yes	Yes
Indoors	Yes	No	No	Yes	Yes
Indoors	No	No	Yes	Yes	Yes
Home (if everyone is well)	-	No	No	No	No
If sick	-	Yes	Yes	Yes	Yes

* if at a gathering of people with potentially close contact (<6 feet)

Recommended measures

Alert level	COVID-19 Risk Indicators			Community Measures*
	Disease situation	Health care system	Disease control	
Level 4 High Risk	<ul style="list-style-type: none"> • High burden • Increasing spread • Many outbreaks 	<ul style="list-style-type: none"> • Limited capacity to safely care for cases • Many health care worker infections 	<p>Limited or no ability to isolate cases and quarantine contacts</p>	<ul style="list-style-type: none"> • Stay at home • Schools closed (e-learning) • No mass gatherings • Essential services only • Modified health care services (e.g. telemedicine) • No non-essential visits to congregate facilities (e.g. nursing homes) • Recreation locally with safety measures** (e.g. walking)
Level 3 Moderate Risk	<ul style="list-style-type: none"> • Moderate burden • Decreasing spread • Few outbreaks 	<ul style="list-style-type: none"> • Some capacity to safely care for cases • Some health care worker infections 	<p>Some ability to isolate cases and quarantine contacts</p>	<ul style="list-style-type: none"> • Limit non-essential travel outside home • Schools closed (e-learning) • Limited small mass gatherings (e.g. weddings, funerals) with safety precautions • Businesses open with safety measures (e.g. pick-up only)** • Modified health care services (e.g. telemedicine, essential care, chronic care) • No non-essential visits to congregate facilities (e.g. nursing homes) • Recreation expanded with safety measures (e.g. low risk)**
Level 2 Low Risk	<ul style="list-style-type: none"> • Low burden • Decreasing spread • Outbreaks rare 	<ul style="list-style-type: none"> • Full capacity to safely care for cases • Rare health care worker infections 	<p>More ability to isolate cases and quarantine contacts</p>	<ul style="list-style-type: none"> • Can travel outside home with safety measures • Schools open with safety measures, no vulnerable staff or students** • Some mid-size mass gatherings, with safety measures** • Businesses open with safety measures (e.g. hand sanitizer, distancing)** • Health care services with safety measures (e.g. elective procedures)** • No non-essential visits to congregate facilities (e.g. nursing homes) • Recreation with safety measures**
Level 1 New normal	<ul style="list-style-type: none"> • Cases and outbreaks rare 	<ul style="list-style-type: none"> • No health care worker infections 	<p>Ability to fully isolate cases and quarantine contacts</p>	<ul style="list-style-type: none"> • Can travel outside home with safety measures** • Schools open with safety measures** • Mass gatherings with safety measures** • Businesses open with safety measures (e.g. distancing, disinfection)** • Health care services with safety measures** • Minimal safe visits to congregate facilities (e.g. nursing homes) • Recreation with safety measures**

* At all levels, individuals should wash hands, cover coughs, wear a mask in public as indicated, stay home if sick, maintain physical distancing, keep surfaces clean. Vulnerable people 60 and older or those with underlying conditions or immunocompromised should minimize travel outside the home.

** Safety measures include appropriate measures to reduce transmission such as: Reducing occupancy, staggering shifts, working remotely, physical distancing, separating customers from employees, reducing public transportation use, screening employees, working in lower transmission geographic areas, reducing risk to vulnerable groups, keeping places clean with routine cleaning and disinfection, providing necessary supplies and equipment (e.g. sanitizer).