Summary of Alert Indicators

	INDICATOR	WHAT IT TELLS US
1	**New Cases Per Capita**	Flagged if greater than 50 cases per 100,000 residents over the last two weeks. Allows for counties with different population sizes to be appropriately compared.
2	**Sustained Increase in New Cases**	Flagged if increasing trend of at least 5 days in overall cases by onset date. Reflects disease spread in the population.
3	**Proportion of Cases Not Congregate Cases**	Flagged if proportion of cases that are not in a congregate setting goes over 50% in at least one of the last 3 weeks. Used as indicator of greater risk of community spread.
4	**Sustained Increase in Emergency Room Visits**	Flagged if increasing trend of at least 5 days in the number of visits to the emergency department with COVID-like illness or a diagnosis. Provides information on the health care seeking behavior of the population and a sense of how concerned residents are about their current health status and the virus.
5	**Sustained Increase in Outpatient Visits**	Flagged if increasing trend of at least 5 days in the number of people going to a health care provider with COVID symptoms who then receive a COVID confirmed or suspected diagnosis. Provides information on the health care seeking behavior of the population and a sense of how concerned residents are about their current health status and the virus.
6	**Sustained Increase in New COVID-19 Hospital Admissions**	Flagged if increasing trend of at least 5 days in the number of new hospitalizations due to COVID. Important indicator of hospital burden and disease severity.
7	**Intensive Care Unit (ICU) Bed Occupancy**	Flagged if percentage of the occupied ICU beds in each region goes above 80% for at least three days in the last week. Provides an indication of the capacity availble to manage a possible surge of severely ill patients.

ADDITIONAL MEASUREMENTS

Contact Tracing (still under development)*	*Portion of cases that can be linked to known transmission chains. Indicates the extent of community transmission and containment.*
Tests Per Capita (still under development)*	*The number of COVID-19 tests performed per 100,000 people per day. Provides an indication as to whether there is enough testing to detect most of cases in the population.*
Percent Positivity (still under development)*	*The percentage of COVID-19 tests performed for residents of a county that are positive. Important indicator for determining whether the trajectory is cases is related to changes in testing patterns.*

***Data not yet available**

INDICATES A COUNTY ALERT LEVEL

LEVEL 1 0–1 Indicators Triggered	LEVEL 2 2–3 Indicators Triggered	LEVEL 3 4–5 Indicators Triggered	LEVEL 4 6–7 Indicators Triggered
Public Emergency Active exposure and spread. Follow all current health orders.	**Public Emergency** Increased exposure and spread. Exercise high degree of caution. Follow all current health orders.	**Public Emergency** Very high exposure and spread. Limit activities as much as possible. Follow all current health orders.	**Public Emergency** Severe exposure and spread. Only leave home for supplies and services. Follow all current health orders.

As of 6/30/2020

General note about lookback period for data: most data points are looking at the last 21 days. We know that this virus has an incubation period of up to 14 days, which means that it may take 2 weeks for individuals to start showing symptoms after they are infected. It may take them more time to go to the hospital or doctor's office to get tested. A three-week lookback period means we have at least one week of reasonably complete data, and two more weeks of more recent data to see if there are any indicators of increasing counts.

FOR INDICATORS 1-3: CASE DATA

New case information is the foundation of any infectious disease response. Every new case is someone who could be spreading this disease to other people. However, not every new case is should be looked at the same—we need context.

1. **New Cases Per Capita:** this measure considers how many new cases have occurred in the last 14 days relative to the population of a county. More cases mean a greater potential for spread among individuals living in that county, and contributes to a county's overall risk level. The threshold for concern is set at 50 cases per 100,000 residents over the last two weeks, which follows CDC guidance for categorizing incidence.

2. **Sustained Increase in New Cases:** if the number of daily new cases continually increases day over day, then that means the virus is spreading more in a county. However, we don't want to flag a county that may have experienced just a one-day increase. Therefore, for this measure we look at the increase using smoothed analysis (or 7-day moving average) of new cases and see if there is at least a 5-day period of sustained growth. The CDC and Resolve to Save Lives both use 5 days as the minimum for determining a trajectory.

3. **Proportion of Cases Not Congregate Cases:** congregate settings for this indicator are defined as long-term care facilities (including nursing homes) and prisons. Individuals who reside in congregate settings or are incarcerated are generally not viewed as a transmission risk to the broader community. As such, people with COVID-19 not residing in a congregate setting should carry greater weight in a county's risk analysis since they are more likely to interact with others in the broader community. A county is flagged on this measure if at least one week, of the last three weeks, sees more than 50% of new cases in non-congregate settings.

FOR INDICATORS 4-5: SYMPTOMS DATA

Syndromic surveillance" is a common public health tool for early detection and characterization of disease trends by looking at early warning indicators before confirmed diagnoses (cases) or more serious disease outcomes (hospitalizations or deaths) can be detected. For COVID, we are looking at syndromic (or symptom) surveillance data from emergency departments and outpatient settings (includes telehealth).

4. **Sustained Increase in Emergency Room Visits:** we look at those going to emergency departments for COVID-19 symptoms as an early warning sign of COVID activity that may impact hospitals down the road. This measures the trend in the number of people with symptoms consistent with COVID-19 that visit the emergency department (e.g., fever, cough, shortness of breath, difficulty breathing) and not diagnosed with another respiratory illness. In addition, patients with a COVID-19 diagnosis code are included in this metric. A county is flagged when there is an increase over a 5-day period using a smoothed analysis (7-day moving average), which follows CDC criteria for assessing increases or rebounds of COVID-like illness.

5. **Sustained Increase in Outpatient Visits:** the number of people visiting outpatient settings with suspected and confirmed COVID-19 diagnosis codes is important to understand how many people are sick enough to go to the doctor's office. Like with emergency visits, this can be an early warning indicator. A county is flagged when the there is an increase over a 5-day period using a smoothed analysis (7-day moving average), per CDC criteria for assessing increases or rebounds.

FOR INDICATORS 6-7: HOSPITALIZATION DATA

Hospital activity gives an indication of the number of Ohioans who are getting seriously sick with COVID. Overall Intensive Care Unit (ICU) occupancy shows how much ICU space is available for new COVID patients as well as others who may need care (car accidents, medical emergencies, etc.).

6. **Sustained Increase in New COVID-19 Hospital Admissions:** the number of county residents who are admitted to hospitals with COVID is an indicator of the burden of illness in the community. This measure looks at the county of residence (rather than the county of hospitalization) since residents of rural counties may seek care at hospitals in neighboring counties. In addition, CDC recommends looking at hospital admissions in addition to COVID-like illness for a more complete picture of disease activity in an area. A county is flagged when there is at least a 5-day period of sustained growth with a 7-day moving average (or smoothed analysis) of new hospital admissions.

7. **Intensive Care Unit (ICU) Bed Occupancy:** one of the challenges of treating COVID patients is the long period of hospital or ICU care required per patient. While new hospital admissions tell us the new burden of illness on individuals in a county, it does not tell us the resource burden on the hospitals in the broader region. This measure considers both COVID and non-COVID use of intensive care unit beds, as COVID cases are just one portion of what hospitals must handle in their communities. A county is flagged on this measure when the regional ICU occupancy goes above 80% for at least three of the last seven days. The CDC has set ICU occupancy at 80% as an indicator of hospital capacity to treat all patients without resorting to crisis standards of care.

Additional Measurements Under Development: Data Not Yet Available for the Following Indicators

CONTACT TRACING DATA

Contact tracing is a vital tool for controlling the spread of the outbreak. Contact tracing data shows if health departments have a good grasp of new disease transmission in the state.

Contact Tracing: *this measure helps us understand what portion of cases are coming from transmission chains that we are already aware of, versus how many cases are coming from community spread that we are just learning about. Counties will be flagged if the proportion is low. The measure details and data source for this is still being finalized.*

Tests Per Capita: *this measure gives an indication of how much testing is going on, and is it enough given the number of people who live in the county. If a county has less than 150 tests per 100,000 people per day, there may not be enough testing to reliably detect cases. Counties will be flagged if the rate of testing is low. The measure details and data source for this metric is still being finalized.*

TESTING DATA

Without testing, we would not be able to detect confirmed COVID cases in the population. It is important to consider testing in the context of the population, and the positivity rates.

Percent Positivity: *in addition to the sheer number of tests done, it's also important to consider how many tests are positive. Counties that have a higher percent positivity rate may have more undetected cases. For instance, if there's only enough testing to target high-risk settings—the high positivity rate would indicate a need for more testing resources. This measure can also be used to determine whether additional testing is impacting the trajectory of new cases or whether an increase in cases is indicating broader spread of the disease in the population. Counties will be flagged if the positivity rate is high. The measure details and data source for this metric is still being finalized.*