

New York “Micro-Cluster” Strategy

October 21, 2020

Executive Summary

Since the onset of the COVID crisis, New York State has relied on data and metrics, science, and public health expertise to make all decisions regarding economic closings and openings, and other measures warranted to protect the public from COVID.

With a low baseline rate of COVID in the general population, New York has the opportunity to identify and limit spread from COVID “micro-clusters,” defined as outbreaks of new cases within a limited and definable geographic area. With the fall and winter approaching, New York is implementing a new strategy of aggressively responding to micro-clusters in order to limit COVID spread in a defined geographic area and by doing so prevent broader viral transmission that would result in widespread economic shutdowns.

New York’s “Micro-Cluster” strategy contains five key processes:

1. **Monitor Data:** Using the dozens of daily data inputs, including from tests, hospital admissions, transmission rate data, to closely monitor COVID impact, trends, and detect spread levels across New York State
2. **Identify Area of Concern & Create Specific Geographic Focus Area:** Using data monitoring to identify areas such as ZIPs, townships, census tracts, etc. that are experiencing a concerning increase in COVID spread, and then using epidemiological data to form a defined and specific geographic area that transcends traditional boundaries such as ZIPs, town lines, county borders, to create a specific zone for particular focus on reducing viral transmission
3. **Implement Cluster Zone Focus Area to Control the Virus:** Once geographic area has been formed, including buffer areas where necessary, implement appropriate restrictions relative to viral transmission, including pausing of non-essential economic activities, transition to remote education, limiting mass gatherings and attendance at houses of worship. In addition, increase community testing access and improve compliance enforcement mechanisms.
4. **Review Data:** Closely monitor data within focus area to track whether restrictions are reducing viral spread, and monitor data in neighboring buffer zones to ensure COVID is not spreading beyond cluster zone focus area.
5. **Adjust Restrictions:** Once data demonstrates COVID spread has decreased to a manageable level, ease restrictions, or if spread continues, tighten as needed

New York Micro-Cluster Approach

In May 2020, New York State introduced a metrics-based system to decide when a region should begin reopening and then when to advance to next phase of economic activity. When New York's reopening began on May 15, 2020, the state required each of the ten regions to meet specific benchmarks including demonstrated hospital capacity, declining daily deaths, testing capacity, and contact tracing abilities. Then, between each Phase of the reopening, a team of global public health experts reviewed fourteen days worth of data – testing positivity rates, new tests per capita, new daily hospital admissions, rate of transmission estimates – to assess whether viral transmission was low enough to support moving to a new phase of increased economic activity.

New York's micro-cluster strategy approach will similarly be based on science and metrics, but is different in several ways from the state's original reopening strategy:

- **First, cluster identification is more targeted:** Instead of analyzing data by region, county, or even just ZIP, the micro-cluster strategy will use granular data to pinpoint the epicenters of viral outbreaks in neighborhoods and smaller areas.
- **Second, containment efforts are more calibrated and focused:** Instead of across the-board shutdowns of schools, non-essential businesses, and social gatherings, containment efforts (and subsequent reopening efforts) will be calibrated and focused, including to actions that may be shown by contact tracing data as driving viral spread, or in situations where community spread is present, limiting activities and entities most likely to contribute to further spread.

1. Data Monitored as Part of NY's Micro-Cluster Approach

The metrics to identify a small geographic area where COVID spread has reached levels requiring additional state action cannot be based on a single data point, and will, similar to those used during New York's phased economic reopening, will be a combination of a numerical data figures and epidemiological judgment informed by four key factors: testing, hospitalizations, additional data driven factors informed by geography and population density, and epidemiology of the outbreak. These are outlined below:

Testing

- **Positivity Rate:** The rate of tests coming back positive, reflected in the daily positivity rate, is a useful measure to gauge if enough tests are being performed to identify infected individuals and contain the disease. It also sheds light on how COVID-19 is spreading in a given geographic region. However, positivity rates must be understood in context, and do not necessarily allow one geographic area to be compared to another geographic area based solely on this metric. For example, the positivity rates can change drastically in areas where targeted testing is occurring, resulting in one population being continually or repeatedly (i.e. pooled testing on college campuses). High positivity rates, when balanced for population and new cases per capita, can also demonstrate low testing volumes rather and be indicative of COVID spread. New York State currently tests approximately 0.6% of the population daily.
- **Positive cases per capita:** The number of positive cases proportionate to the population of a geographic areas is a helpful metric to balance the varying sizes of counties, ZIP codes, census tracts, and other areas being tracked for testing results. However, as testing capacity continues to

increase, it is expected that more positive cases will be found on a per capita basis – even as positivity rates may decrease – and therefore it is important that this metric is understood in context with total tests being performed. In addition, targeted testing in congregate facilities – particularly those with outbreak situations in rural communities – can lead to temporarily large spikes in positive cases per capita that may not be indicative of broad COVID spread within the wider community.

Hospitalizations

While most increases in COVID hospitalizations occur following upticks in new positive cases / positivity, hospitalization data can help reveal areas where there may be outbreak situations that COVID testing data did not fully reveal severity thereof. New York State tracks hospital admissions primarily two ways:

- Daily Admissions (Demographic Survey): New York State tracks and reports the number of new daily admissions of people who enter the hospital and are COVID positive. The state tracks the residency of the patient to understand what neighborhoods or areas are contributing to new COVID hospital admissions. Daily hospital admissions data is a helpful metric but is also a lagging indicator of COVID spread that may only show increase weeks after an outbreak situation.
- Total Admissions: New York State tracks and reports daily the total number of COVID positive individuals in the state's hospital system, and which county and region these individuals are in the hospital. This metric is helpful to understanding a community's hospital capacity.

Geographic Considerations

- New York is a diverse state consisting of densely populated urban areas, moderately populated suburban counties, small to mid-size cities and townships, and sparsely populated rural areas. Every metric and data point must take into close consideration not only the size – including population and population density – of the geographic area, but also how the area's location may influence the risk of future viral spread.

Other Epidemiological Factors

- *Age & other demographic information of individuals testing positive*: NYS DOH and LHDs closely track the age and other demographic information of individuals who test positive and conduct analyses over time to identify trends and better understand test results. If a recent increase in COVID cases can be explained in large part by a larger than normal number of test results from a certain age bracket or demographic group, this factor may warrant an epidemiological judgment that an outbreak may be driven by a certain age group or demographic population that requires a specialized approach.
- *Contact Tracing*: NYS DOH and LHDs conduct contract tracing to determine origin of new cases. If a series of new cases can be traced back to a singular event, gathering, workplace, or other unique cluster scenario, this factor may warrant an epidemiological judgment that actions should be taken specific to these situations rather than a geographic area at large.

- *Congregate Facility:* An outbreak at a congregate facility, such as a nursing home, college dormitory, or corrections facility, can sometimes explain an uptick in cases and hospitalizations in a defined geographic area. This factor may warrant an epidemiological judgment that caveats the increase in cases and hospital admissions for this geographic area.

2. Identify Area of Concern & Define Calibrated Geographic Boundaries of Micro-Clusters Zones

Daily data monitoring enables the State to identify areas that are experiencing a concerning increase in COVID spread. Based on the above listed factors and consideration of epidemiological factors, ZIP codes and other geopolitical or other common geographic subdivisions such as county, census tracts, or contiguous neighborhoods will be identified where clusters may be occurring. Geocoded case location data will be used to examine the location of cases within the flagged zip code and within surrounding zip codes/geographic areas to determine concentration of cases.

The defined area may be designated as requiring to be placed into a focus zone: a Red Zone (with accompanying Orange and/or Yellow buffer zones) or an Orange Zone (with potential for accompanying yellow buffer zone) or solely a Yellow zone. In densely populated urban areas, two buffer zones – an Orange Buffer Zone and a Yellow Buffer Zone may be required.

- **Red Zone — Micro-Cluster:** A “Red Zone” focus area is put in place to contain spread from a specific, defined geographic area.
- **Orange Zone — Warning/Buffer:** An Orange Zone area either is put in place primarily in densely populated urban areas as a tight buffer zone around a Red Zone micro-cluster (“Orange Buffer Zone”) area OR is implemented independently as a focus area based on the below metrics (“Orange Warning Zone”). The purpose of an Orange Buffer Zone is to 1) restrict activity to prevent further spread from Red Zone area; 2) provide a defined geographic area where metrics can be monitored daily to ensure COVID is not spreading beyond the Red Zone.
- **Yellow Zone — Precautionary/Buffer:** A “Yellow Zone” area either is put in place as a broader buffer area to ensure COVID outbreak is not spreading into the broader community (“Yellow Buffer Zone”) OR is implemented independently based on the below metrics (“Yellow Precautionary Zone”). The purpose of a Yellow Buffer Zone is to 1) restrict some activity to help prevent further spread from Red and/or Orange Warning Zone area; 2) provide a larger defined geographic area where metrics can be monitored daily to ensure COVID is not spreading beyond the Red Zone or Orange Warning Zone.

NYS DOH in coordination with local health authorities will use case incidence and mapping data to refine boundaries that balance epidemiological priorities with geographic realities (e.g. location of non-residential areas such as parks, housing and road locations so as not to create unnatural bisections of dwellings). Case incidence and mapping data will also be used to refine and establish boundaries for the Orange and/or Yellow “buffer zones” around the designated cluster zone to ensure spread from the high priority zone does not broaden into the wider community.

Micro-Clusters – Metrics to Enter Red “Micro-Cluster” Zone, Orange Warning Zone, Yellow Precautionary Zone

Geographic Area	TARGET METRIC FOR ENTERING YELLOW PRECAUTIONARY ZONE	TARGET METRIC FOR ENTERING ORANGE WARNING ZONE	TARGET METRIC FOR ENTERING RED ZONE	ADDITIONAL FACTORS FOR ENTERING THESE ZONES
Tier 1 Geographic area (ZIP, census tract, etc.) is located within a county of 900,000 or more people or located within city of 90,000 or more people. Included in Tier 1: New York City boroughs; Nassau, Suffolk, Westchester, Erie counties; cities of Buffalo, Rochester, Syracuse, Albany, Yonkers	Geographic area has 7-day rolling average positivity above 2.5% for 10 days <u>AND</u> Geographic area has 10 or more new daily cases per 100,000 residents on 7-day average	Geographic area has 7-day rolling average positivity above 3% for 10 days <u>AND</u> Geographic area has 10 or more new daily cases per 100,000 residents on 7-day average	Geographic area has 7-day rolling average positivity above 4% for 10 days <u>AND</u> Geographic area has 10 or more new daily cases per 100,000 residents on 7-day average	<u>AND</u> Geographic areas has minimum of 5 new cases per day on 7-day average for geographic areas (i.e. ZIP code) with 10,000 or more residents, minimum of 3 new cases on 7-day average per day for areas with less than 10,000 residents <u>AND</u>
Tier 2 Geographic area (ZIP, census tract, etc.) is located within a county of 150,000 or more people (and jurisdiction is not included in Tier 1). Counties included in Tier 2 include: Monroe; Onondaga; Orange; Rockland; Albany; Dutchess; Saratoga; Oneida; Niagara;	Geographic area has 7-day rolling average positivity above 3% for 10 days <u>AND</u> Geographic area has 12 or more new daily cases per 100,000 residents on 7-day average	Geographic area has 7-day rolling average positivity above 4% for 10 days <u>AND</u> Geographic area has 12 or more new daily cases per 100,000 residents on 7-day average	Geographic area has 7-day rolling average positivity above 5% for 10 days <u>AND</u> Geographic area has 12 or more new daily cases per 100,000 residents on 7-day average	The increase in positive cases or positivity reflect community spread and cannot be mostly explained by a cluster in a single institution (e.g. nursing home, factory, college, etc.) or household transmission <u>AND</u>

Broome; Ulster; Rensselaer; and Schenectady counties				The State Department of Health (DOH), in consultation with the local department of health, finds that based on the above listed metrics, and other epidemiological factors, such as an upward trend in total and daily hospital admissions from residents of this geographic area, that a zone designation is appropriate.
Tier 3 Geographic area (ZIP, census tract, etc.) is located within a county of 50,000 or more people. Counties in Tier 3 include: Chautauqua; Oswego; Jefferson; Ontario; St. Lawrence; Tompkins; Putnam; Steuben; Wayne; Chemung; Clinton; Cayuga; Cattaraugus; Sullivan; Madison; Warren; Livingston; Herkimer; Washington; Otsego; Columbia; Genesee; Fulton; Franklin counties	Geographic area has 7-day rolling average positivity above 3.5% for 10 days <u>AND</u> Geographic area has 15 or more new daily cases per 100,000 residents on 7-day average	Geographic area has 7-day rolling average positivity above 4.5% for 10 days <u>AND</u> Geographic area has 15 or more new daily cases per 100,000 residents on 7-day average	Geographic area has 7-day rolling average positivity above 5.5% for 10 days <u>AND</u> Geographic area has 15 or more new daily cases per 100,000 residents on 7-day average	
Tier 4 Geographic area (ZIP, census tract, etc.) is located within a county of less than 50,000 people Counties in in Tier 4 include: Montgomery; Tioga; Cortland; Chenango; Greene; Allegany;	Geographic area has 7-day rolling average positivity above 4% for 10 days <u>AND</u> Geographic area has 15 or more new daily cases per 100,000 residents on 7-day average	Geographic area has 7-day rolling average positivity above 5% for 10 days <u>AND</u> Geographic area has 15 or more new daily cases per 100,000 residents on 7-day average	Geographic area has 7-day rolling average positivity above 6% for 10 days <u>AND</u> Geographic area has 15 or more new daily cases per 100,000 residents on 7-day average	

Delaware; Orleans; Wyoming; Essex; Seneca; Schoharie; Lewis; Yates; Schuyler; Hamilton counties				
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Note: These metrics are designed based on current state and nationwide positivity and case prevalence data as of October 2020. They are subject to change based on viral prevalence and spread statewide and nationwide.

3. Implement Cluster Zone Focus Area:

Once the geographic focus area has been formed, including buffer areas where necessary, the state will implement appropriate restrictions - listed below relative to limit spread of the virus. In addition, all zone areas will be subject to:

- Increased community testing efforts
- Increased enforcement and compliance efforts
- Outreach from state officials to support local containment and educational efforts
- Increased contact tracing support
- Increased public education outreach where necessary

Type of Activity	RED	ORANGE (BUFFER & WARNING)	YELLOW (BUFFER & PRECAUTIONARY)
Worship	25% capacity 10 people maximum	33% capacity 25 people maximum	50% capacity
Mass Gathering	Prohibited	10 people maximum, indoor and outdoor	25 people maximum, indoors and outdoors
Businesses	Only essential businesses open	Closing high-risk non-essential business (gyms, personal care, etc.)	Open
Dining	Takeout/delivery only	Outdoor dining only, 4 person maximum per table	Indoor and outdoor dining, 4 person maximum per table
Schools	CLOSED Remote-only		Open Mandatory 20% weekly testing of students and teachers/staff for in-person settings.

4. Metrics to Reopen

After 14 days from being placed in a focus zone, the State DOH, in coordination with the local health department, and in consultation with global health experts, will determine whether data sufficiently demonstrate that the focus area (Red “Micro-Cluster” Zone, Orange Warning Zone, Yellow Precautionary Zone) has successfully reduced viral spread to a level able to be contained given testing, contact tracing and other health system metrics. Based on the below metrics and expert advisement, the State DOH will decide whether the Focus Zone will be extended, modified (redrawn geographic boundaries based on case prevalence and positivity data), or ended.

NOTE: Orange and Yellow Zones that are put in place solely as “buffer zones” to monitor case spread beyond a designated focus zone will be evaluated based on positivity data, cases per capita, and daily hospital admissions over the entire 14 day period to ensure there are no signs of broader spread from the focus area that prompted the zone creation. If after 14 days there has been no notable increase in positivity, new cases, or new hospital admissions from the buffer zone, the zone will - based on other epidemiological factors – become eligible to qualify for a new zone designation, or ending a zone designation, if appropriate.

Geographic Area	TARGET METRIC FOR ANY ZONE TO LEAVE ANY ZONE AREA	TARGET METRIC TO LEAVE ORANGE WARNING ZONE	TARGET METRIC TO LEAVE RED “MICRO-CLUSTER” ZONE	ADDITIONAL FACTORS FOR ALL ZONE DESIGNATION DECISIONS
Tier 1 Geographic area (ZIP, census tract, etc.) is located within a county of 900,000 or more people or located within city of 90,000 or more people. Included in Tier 1: New York City boroughs; Nassau, Suffolk, Westchester, Erie counties; cities of Buffalo, Rochester, Syracuse, Albany, Yonkers	Geographic area demonstrates decline in positivity (daily 7-day rolling average) over 10-day period AND has positivity below 1.5% (7-day rolling average) for at least 3 consecutive days at end of 10-day period.	Geographic area demonstrates decline in positivity (daily 7-day rolling average) over 10-day period AND has positivity below 2% (7-day rolling average) for at least 3 consecutive days at end of 10-day period.	Geographic area demonstrates decline in positivity (daily 7-day rolling average) over 10-day period AND has positivity below 3% (7-day rolling average) for at least 3 consecutive days at end of 10-day period.	<u>OR</u> The State Department of Health (DOH), in consultation with the local department of health, may find that based on the above listed metrics, epidemiological considerations and/or other relevant factors, or other circumstances that a new zone designation is appropriate, or further data is required before a new zone designation can occur. Additional considerations include: Trends in the daily hospital admissions from the geographic area
Tiers 2, 3, 4 Geographic Areas (Monroe; Onondaga; Orange; Rockland; Albany; Dutchess; Saratoga; Oneida; Niagara; Broome; Ulster; Rensselaer; Schenectady; Chautauqua;	Geographic area demonstrates decline in positivity (daily 7-day rolling average) over 10-day period AND has positivity below	Geographic area demonstrates decline in positivity (daily 7-day rolling average) over 10-day period AND has positivity below	Geographic area demonstrates decline in positivity (daily 7-day rolling average) over 10-day period AND has positivity below	

Oswego; Jefferson; Ontario; St. Lawrence; Tompkins; Putnam; Steuben; Wayne; Chemung; Clinton; Cayuga; Cattaraugus; Sullivan; Madison; Warren; Livingston; Herkimer; Washington; Otsego; Columbia; Genesee; Fulton; Franklin; Montgomery; Tioga; Cortland; Chenango; Greene; Allegany; Delaware; Orleans; Wyoming; Essex; Seneca; Schoharie; Lewis; Yates; Schuyler; Hamilton counties)	2% (7-day rolling average) for at least 3 consecutive days at end of 10-day period.	3% (7-day rolling average) for at least 3 consecutive days at end of 10-day period.	4% (7-day rolling average) for at least 3 consecutive days at end of 10-day period.	• A finding that new cases are tied to a specific congregate facility, or defined cluster • Increased compliance and enforcement actions taken by local government • Community cooperation to reduce viral spread
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Note: These metrics are designed based on current state and nationwide positivity and case prevalence data as of October 2020. They are subject to change based on viral prevalence and spread statewide and nationwide.