

# ROADMAP *to* REOPENING SCHOOLS

August 12, 2020



## Roadmap to Reopening Schools

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In-person instruction is vital for the educational development and social wellbeing of children and young adults. Many working families depend on education for social support such as food, childcare, social activities, and other types of assistance. But in-person school settings heavily rely on interpersonal contacts that increase the risk for COVID-19 transmission. Also, schools are more than students. Educators, administrators, school nurses, and other adults share the educational environment with students. Reopening schools too early or without appropriate measures poses a risk to community health. The risk is particularly grave for areas that have widespread or uncontrolled community transmission.



In the absence of a widely available and distributed treatment or vaccine, the community must bring the virus under control before in-person activities can safely resume. Returning to in-person instruction must be phased, careful, make use of containment tools to reduce likelihood of outbreaks, and incorporate lessons learned.

School officials have asked Harris County for more information to better help guide their decision making on school reopening plans. This document provides a roadmap to put Harris County schools on track for a realistic, responsible, safe, and sustainable reopening during the COVID-19 pandemic. For school leaders, it includes specific metrics for success and recommended actions to be taken once those milestones are achieved. These metrics and recommendations are based on research from local, state, national and international models, and discussions with local and public health leaders at all levels of government both locally and nationally.

This document outlines Harris County and the Harris County Public Health Department's ("HCPH") professional assistance to local school districts based on the latest science and best practices. Under current state law, a school district may reopen at its discretion and is not required to have the Public Health Department's review or approval. However, school districts are strongly recommended to follow these guidelines for the safety of their students and employees.



## Harris County School Reopening Roadmap

### The roadmap consists of two parts:

#### **Part 1: Harris County COVID-19 Threat Level System**

Without a vaccine or treatment available, non-pharmaceutical interventions (NPIs) such as closing of venues, staying home, minimizing contact with others, social distancing, and wearing of face coverings are critical to preventing spread. However, these NPIs do cause disruption to normal society. In order to manage risks of relaxing these interventions, a coordinated effort across local government, public health experts and business and community leaders is paramount. Phased-in approaches to the reopening of schools should be approached responsibly and driven by available data and the professional judgement of public health and health experts alike.

We are committed to safely moving forward together, but that commitment must coexist with awareness that reopening too quickly poses health risks and educational setbacks.

On June 11, 2020, Harris County unveiled its COVID-19 Threat Level System. The system comprises key metrics that the County uses to monitor the spread of COVID-19, the ability to contain further spread, and the ability to treat those who have severe health outcomes as a result of COVID-19.

The threat levels are defined by five sets of indicators: case trends, percentage of COVID-positive hospital population (ICU and general beds considered individually), hospitalization trends (ICU and general beds considered individually), COVID-19 test positivity rate, and the availability of countermeasures. **These metrics will be maintained consistently on [readyharris.org](https://www.readyharris.org).**

If any one of these indicators is not at a satisfactory level, our ability to manage the virus's impact on our community is diminished. For example, if disease transmission indicators are at lower levels but our COVID-19 hospital population is high, we must continue to maintain preventative measures to ensure that reopening schools does not overwhelm the healthcare system. If our COVID-19 hospital population is low, but new positive cases of COVID-19 are increasing, we must continue preventative measures to control the spread. While there are other factors, inputs, and measures that are being monitored by Harris County on an ongoing basis, use of the following



indicators provides key measures for an overall assessment of the community’s threat from COVID-19. To move down the ladder of the threat level system, all the thresholds for the indicators must be met sustainably.

While some districts may be in areas of the county that have fewer cases or lower positivity rates or may have some school campuses in a neighboring county, the indicators are reflective of the virus’s impact on our collective Harris County community. All of our communities are served by our hospital system and case investigation/contact tracing teams. Hotspots anywhere in Harris County impact our ability to manage the virus’s impact everywhere. Unlike a state with physically distanced cities, we in Harris County live in a profoundly interconnected and physically proximate community, and while our student populations may be limited to certain areas of the county, schoolteachers, staff and parents live and travel throughout our community.

The recommendations for schools offered in Part 2 are based on the Harris County Threat Level at a given time. [Harris County COVID-19 Threat Level System\\*](#)

| Indicator   | Red- Level 1: Severe Uncontrolled Community Transmission*** | Orange-Level 2: Significant Uncontrolled Community Transmission***           | Yellow-Level 3: Moderate, Controlled Transmission***                         | Green-Level 4: Minimal, Controlled Transmission                              |
|---|---|--|--|--|
| New COVID-19 Cases Per Day in Harris County (including Houston)- 14 Day Average | >400  | 201-400 cases  | 101-200 cases  | <100   |
| % Positivity Rate of COVID-19 Tests(14 day average)                             | >5%   | <=5%   | <=5%   | <=5%   |
| % COVID-19 of ICU Beds in Use   | >15%  | 10-15%   | 5-9%   | <5%  |
| % COVID-19 of General Beds in Use(Individually)                                 | >15%  | 10-15%   | 5-9%   | <5%  |
| Trend in ICU population, general bed population, and cases(Individually)        |   | 14-day statistically significant flat or decreasing trend after level change | 14-day statistically significant flat or decreasing trend after level change | 14-day statistically significant flat or decreasing trend after level change |
| Widely Available COVID-19 Medical Countermeasures                               | No/Partial  | No/Partial   | No/Partial   | Yes  |

\*\*\* 14-day trends are reset after any change in threat level.

----Local public health and healthcare experts will use the latest information on local disease activity based on these specific indicators to advise county officials on the risk level that applies.----



## Part 2: Harris County Public Health Review and Approval of Plans

At the highest threat level – **Level 1: Red: Stay Home – Harris County urges no gatherings to take place. Therefore, schools should be open for virtual instruction only.**

Phasing in of in-person instruction and activities should depend on the Harris County Threat Level Indicators, and the ability to enact a safe reopening plan that is approved by Harris County Public Health, as outlined below.

### **Review by Harris County Public Health**

It is HCPH's and Harris County's formal position that schools should not be open for any in-person instruction or activities at COVID-19 Level Red.

As school districts make plans for how to reopen during the Orange, Yellow, or Green threat levels, Harris County Public Health (HCPH) will be available to review their plans for preventing and containing the spread of COVID-19. Harris County Public Health will work with schools and the appropriate Local Health Department in reviewing plans where there is overlapping jurisdiction. HCPH will prioritize the review of plans to districts where it has sole jurisdiction.

### **Approval by Harris County Public Health**

School district plans submitted for review will receive Harris County Public Health's approval once HCPH has worked with the school district to include all the below criteria and operationalize the guidance in practice.

An approval of a plan by Harris County Public Health will reflect that districts have appropriate procedures in place, particularly those in the key areas of physical distancing, cohorting, and screening, for a safe school reopening that (1) effectively and sharply minimizes the risk of spread and (2) maximizes the opportunity for only certain cohorts, as opposed to the entire school, to stop in-person instruction in the event of a case.

The guidance below provides a sampling of what types of steps are necessary in order for school districts to reopen their schools safely. It should be noted that any guidance will not guarantee that outbreaks will not occur, but they are designed with the mindset to minimize the chances of such outbreaks occurring. Harris County Public Health will approve plans for any school district within Harris County once HCPH has worked with the school district to operationalize the below broad guidance in practice.



## Applying COVID-19 Threat Levels to School Reopening

**Red:** All schools should be closed to in-person instruction and activities.

**Orange:** School districts following a plan approved by Harris County Public Health may consider in-person instruction and activities for certain priority populations while not exceeding 25% capacity or 500 students, whichever is lower, in buildings or rooms, so long as schools can maintain cohorting practices.

**Yellow:** School districts following a plan approved by Harris County Public Health may consider in-person instruction and activities while not exceeding 50% capacity or 1,000 students, whichever is lower, in buildings or rooms, so long as schools can maintain cohorting practices.

**Green:** School districts following a plan approved by Harris County Public Health may resume in-person instruction at their usual capacity.

|                       | Red- Level 1: Severe Uncontrolled Community Transmission   | Orange-Level 2: Significant Uncontrolled Community Transmission   | Yellow-Level 3: Moderate, Controlled Transmission  | Green-Level 4: Minimal, Controlled Transmission   |
|-----------------------|--|---|--|---|
| Threat Level Actions* | <p><i>School Districts should not resume in-person instruction and should utilize virtual means of instruction</i></p> | <p><i>School districts following a plan approved by Harris County Public Health may consider in-person instruction and activities for certain priority populations while not exceeding 25% capacity in buildings or rooms or 500 students, whichever is lower, so long as schools can maintain cohorting practices.</i></p> | <p><i>School districts following a plan approved by Harris County Public Health may consider in-person instruction and activities while not exceeding 50% capacity in buildings or rooms or 1,000 students, whichever is lower, so long as schools can maintain cohorting practices.</i></p> | <p><i>School districts following a plan approved by Harris County Public Health may resume in-person instruction at their usual capacity.</i></p> |

\*These actions only apply to school districts following a plan approved by Harris County Public Health based on criteria and guidelines outlined below.



## Priority Populations

Superintendents should use their discretion and expertise in education to determine which populations of students should receive in-person instruction beginning at threat level Orange. Superintendents are encouraged to select from the following populations whose needs are less likely to be met by virtual instruction:

**1. Students with disabilities** (i.e., special education students who receive academic instruction accessing prerequisite skills or modified TEKS) whose needs pose additional challenges to learning in a virtual environment but who are otherwise not medically fragile.

**2. Students with significant academic gaps**, including:

- Students in special education or who receive §504 services who demonstrate significant mental health issues (as recommended by special education staff, counselor, campus administrator)
- Students who have not demonstrated grade level mastery of reading or mathematics courses
- Students receiving direct dyslexia intervention
- Students at-risk of not graduating/dropping out

**3. Students experiencing homelessness** (i.e., any student who meets criteria of homelessness under the McKinney-Vento Act)

**4. Students in protective day service who are not otherwise medically at risk** (i.e., any student currently served through the Department of Family and Protective Services)

**5. Students who are identified as economically disadvantaged or do not have access to reliable internet**

- Harris County, in partnership with the City of Houston and the State of Texas, is working to provide hotspots and computers to all students in need. However, even taking these efforts into account, some students may still have barriers in accessing the internet and thus may not be able to receive consistent, quality virtual instruction.



6. **English learners** (i.e., any student currently identified as Limited English Proficient, coded as a 1 in the Public Education Information Management System)

7. **Students whose parents are essential personnel with priority to those employed by a school district.**

8. **Students who are taking Career and Technology Courses that require use of specific labs and equipment to satisfy course and certification requirements.**

9. **Younger elementary aged children**

- [CDC](#) has indicated younger children may play a decreased role in transmission of COVID-19. The risk of transmission between young children and from young children to adults is lower than transmission to adults between or from older children.

**[Criteria and Submission Process for School Districts Seeking Review and/or Approval by Harris County Public Health](#)**

School districts wishing to submit a plan for review and/or approval should contact Harris County Public Health to go over initial questions or for additional clarity. To submit a plan for review by Harris County Public Health, school districts should send plans to [schoolreopeningtaskforce@phs.hctx.net](mailto:schoolreopeningtaskforce@phs.hctx.net).

Upon submission of the plan through the online form or through email, Harris County Public Health will communicate recommended changes, if any. Throughout the process, HCPH will be available to provide technical assistance and guidance and to issue approval of a plan, if applicable.

Please note: This document may be updated as new information, emerging research, and additional resources become available.

When submitting a plan, include differences, **where applicable, for each threat level, Orange through Green.**

Submissions should cover five key areas that school districts should address as part of their reopening protocol during the COVID-19 pandemic, and the specifics detailed below:

- (1) Coordination with Harris County Public Health



- (2) Containment Practices
- (3) Mitigation Practices
- (4) Communication with Employees, Students, and Families
- (5) Other Considerations (optional)

## Coordination with Harris County Public Health

- Identify a specific representative or team responsible for establishing and enforcing all COVID-19 health and safety protocols.
- Identify a representative who will serve as the liaison with Harris County Public Health.
  - The liaison with Harris County Public Health should meet with and receive training on containment and contact tracing from HCPH's School Investigation Team (SIT).
- When a school district's plans to make temporary or permanent facility changes that require approval, the Reopening Plan should be reviewed and accepted by the relevant Fire Marshal with jurisdictional authority.
- Develop a plan for all staff training on COVID-19 safety protocols before resuming in-person education.

## Containment Practices



Contact tracing is a process used in public health to help stop the spread of infectious diseases by identifying, testing, and isolating those who are sick. During the COVID-19 pandemic, this involves interviewing those who are suspected or confirmed to have COVID-19, determining those people who have been in close contact with the positive individual during the timeframe when they may have been infectious (e.g., 14 days), and connecting with contacts to provide guidance.

Harris County Public Health's School Investigation Team (SIT) will provide school districts with direct support for responding to suspected or confirmed cases.

- Develop contact tracing protocols in coordination with HCPH. Protocols should include:
  - Notification of health officials and close contacts
    - In accordance with state and local laws and regulations, school administrators should notify local health officials, staff, and families immediately of any case of COVID-19 while maintaining confidentiality. If a



school district has campuses in more than one county/city, they should notify the local health official for that particular campus.

- Inform those who have had close contact with a person diagnosed with COVID-19 to stay home and self-monitor for symptoms, and follow [CDC guidance](#) if symptoms develop.
  - When notification of a confirmed exposure occurs, school districts, in coordination with HCPH, should begin contact tracing and complete a thorough risk assessment. Based on this assessment, a determination as to whether an entire classroom or multiple classrooms are required to quarantine will be made.
  - Staff and families of sick students should be advised on [home isolation criteria](#).
  - Sick staff members or students should not return until they have met CDC's criteria to discontinue home isolation.
  - Immediate steps upon discovery of symptoms or a case:
    - Isolate and transport those who are sick
    - Immediately separate staff and children with COVID-19 symptoms at school
    - Establish procedures for safely transporting anyone who is sick to their home or to a healthcare facility
    - Clean and disinfect all areas occupied by infected individuals (classroom, schools bus, bathrooms, etc.)
  - HCPH strongly recommends that school districts conduct contact tracing at the school level. HCPH is available to support these efforts and encourages districts to utilize the many training opportunities available.
- Students should be grouped by cohort with reduced numbers of students in the classrooms. (Harris County Public Health is available to help with cohorting plans.)
- Students should be cohorted consistently in the same group of students in order to limit the extent of interactions. Any changes or deviations should be tracked by the schools. Cohorts should be maintained in all situations, including recess, lunch, dismissal, etc. When possible, teacher and staff interactions should be with a limited number of student cohorts. **This may mean that certain students will only be on campus on alternating dates, split mornings and afternoons, limited in-person instruction to core classes of English, math, science, etc., or other hybrid options determined by the schools.**
  - To the greatest extent possible, teachers should not work across cohorts and plans should minimize the number of cohorts a teacher interacts with.



- Alternative spaces should be used to reduce students within classrooms.
- Ideally, cohorts should stay together all day. Where that is not possible, enact alternatives such as:
  - Minimizing traffic through hallways (keeping cohorts in the same classroom all day and having teachers move, applying tape to the ground, staggered bells, etc.)
  - Minimizing traffic through stairways (up and down stairways, staggering breaks)
- Younger children may play a decreased role in transmission of COVID-19. The risk of transmission between young children and from young children to adults is lower than transmission to adults between or from older children.
  - Cohorting should be maintained in elementary grade levels, but because of the lower risk of transmission there is not a limit on size of cohorts from the public health perspective
  - Because transmission between older children can mirror that of young adults it is recommended that cohorts be limited in size to 10 students

Develop protocols and policies that allow absences from both staff and students in case of illness

## **Mitigation Practices**

Require screenings before employees, students or visitors may enter the school. Screenings should follow Texas Education Agency (TEA) guidelines.



Require face coverings for all staff, students, and visitors.

Strongly recommend making surgical grade masks and face shields (in addition to masks) available for any employee and student who wants one. Face shields should not be used as a replacement for masks.

Establish disinfection plans that provide for cleaning for each of the following areas daily and after use (See Cleaning Guidance):

- Break Rooms
- Classrooms



- Restrooms
  - Laboratories
  - Nurse's Office
  - Counseling areas
  - Front Office
  - Other Office
  - Buses
  - Elevators
  - Gymnasium (if in use)
  - Auditorium (if in use)
  - Playground (if in use)
- Make disinfectants and antibacterial gel available in every classroom, and handwashing stations available throughout the schools.
- Eliminate the use of shared objects wherever possible (water fountains shut down, high touch playground equipment shut down, etc.).
- Establish plans to address visitor access to school.
- Establish drop-off and pick-up protocols that prevent congregating and ensure families remain 6 feet apart by placing markers on the ground and limiting the number of parents entering the school during these times.
- Staggered arrival times and multiple arrival locations to limit student interactions to those from the same cohort
  - Plan to ensure 6-foot distancing for employees at individual employee workstations or areas, requiring employees to still wear face coverings even if they're 6 feet apart, unless in separate offices
- Classroom furniture at least 6 feet away from teacher



- Six feet of distance and the wearing of face coverings maintained in break rooms with alternate/staggered schedules in place if necessary
- Maintain distancing in the classroom and shared spaces:
  - Desks should face the same direction and be placed at least 6 feet apart; do not place any desks facing one another
  - Chairs should be placed at least 6 feet apart
- Six feet of social distancing is encouraged for elementary aged children, but in conjunction with the realities of the school environment and with the understanding that they present a lower risk of transmission, could be less strictly enforced.
- Physical distancing of students should be maintained on school buses.
  - District Plans should include the following criteria:
    - If transport vehicles (e.g., buses) are used by the school, training should be in place for ensuring that drivers practice all safety actions and protocols as indicated for other staff (e.g., hand hygiene, cloth face coverings)
    - Encourage alternative modes of transportation for students who have other options
    - Assigned seating with seats assigned by cohort, with marks showing students where to sit
    - School buses should be cleaned between routes and disinfected daily, with more attention given to frequently touched areas
    - All buses should be equipped with sanitation and cleaning supplies
    - Face coverings should be worn at all times while in transport vehicles
    - Open windows if weather allows
    - Hand sanitizer dispensers should be installed on every bus
- Food preparation and service operations maintain physical distancing between employees. Plan for handling of food services and cafeterias or dining hall that includes protocols for:
  - Silverware, serving plan of food, and food sharing practices that limit sharing of utensils and minimize re-use or repeated contact
  - Food safety for prepackaged meals, hot meals served by cafeteria staff and/or food brought by students from home



- Physical distance is maintained during meals. Food safety protocols may include:
  - To the extent possible, meals are eaten in classrooms or outdoors, without any mingling of elementary school students from different cohorts
  - If students line up to pick up food, tape or other markings are used to ensure a 6-foot distance between any two students
  - Staff are deployed during meals to maintain physical distancing and keep elementary school students from different classrooms from mingling
  - If meals take place in a cafeteria:
    - Meal times are staggered to the extent feasible to reduce the number of students in the cafeteria at one time
    - Staff are on hand to ensure that elementary school students from different classrooms are not mingling
  - If meals take place in a cafeteria, space between tables/chairs has been increased to support 6 feet of physical distancing
  - Barriers between tables and/or chairs may be used as an alternative when 6 feet of distancing is not possible
  - No parents or visitors allowed during lunch
- We strongly recommend measures to ensure physical distancing and safe infection control practices in extracurricular activities like the following.
  - Spectator events are not permitted
  - Extracurricular team sports that do not allow physical distancing, such as contact sports and ball based sports, are not allowed
  - Extracurricular activities should be planned for virtual meetings
  - Extracurricular activities should only be conducted within instructional cohorts



- Measures to maximize spaces with heavy outdoor airflow where possible, conducting classes outside where possible.
- Measures to ensure frequent hand washing by staff, students, and visitors, including plans to wash or sanitize hands upon entering the building and when entering and leaving classrooms, providing for additional handwashing breaks throughout the day.
- Protocols for vulnerable employees. School districts are encouraged to allow vulnerable employees to work from home or request other accommodations to ensure their safety.
- Additional innovative measures to increase social distancing by maximizing use of square footage to be taken into consideration.

### **Communication with Employees, Students, and Families**

- Communication plan to make sure that staff and families know that they should not come to school, and that they should notify school officials if they become sick with COVID-19 symptoms, test positive for COVID-19, or have been exposed to someone with COVID-19 symptoms or a confirmed or suspected case.
- Communication plan about the current threat level and plan for alerting parents, teachers and staff to potential outbreaks in the district.
  - Plan should include posting on social media and district website weekly:
    - Cumulative numbers of COVID-19 positive staff;
    - Cumulative numbers of COVID-19 positive students;
    - Percentage of staff absent within the last 14 days due to COVID-like illness; and
    - Percentage of students absent within the last 14 days due to COVID-like illness or symptoms.
- Signage plan in place to display on proper handwashing and hygiene practices, physical distancing, etc.
- Online and social media channels of the district provide clear and up-to-date information about these programs and requirements.



## Other Considerations (optional)

Harris County Public Health also encourages school districts to adopt measures to ensure equitable access to critical services, including:

- Plan for how students participating in free-and-reduced meal programs will receive food in the event of school closure or if unable to attend school because of illness.
- Mental health plan and resources available for staff and students.
- Plan to address the needs of students with Individualized Education Plans (IEPs) and 504 Plans.
- Remote learning resources for children who require it.
- Community resources list or guidance available for students and staff.



## METRICS

For schools and businesses to safely reopen, a coordinated effort across local government, public health experts, and business and community leaders will be paramount. A commitment to making decisions based on a common set of measurements will reduce the likelihood of see-sawing between opening and closing, which harms our economy and exhausts our community.



We are committed to safely moving forward together, but that commitment must coexist with awareness that reopening too quickly may pose health risks and economic setbacks.

The Centers for Disease Control and Prevention (CDC) recommends that reopening be dependent on a downward trajectory of hospitalizations and infections over a 14-day period. Additionally, we are tracking our ability to treat the sickest patients and our ability to test, track, and contain spread in the community. The County will use key health indicators in four categories to assess the threat level of COVID-19 and our ability to respond to it:

- Hospital System
- Cases
- Testing
- Contact Tracing

If any one of these indicators are not at a satisfactory level, it is a sign that our ability to manage the virus's impact on our community is diminished. If cases and contact tracing indicators are at manageable levels, but our hospital population is high, we must continue to maintain preventative measures to ensure that we have the ability to treat the sickest patients. If our hospital population is low, but cases are increasing, we must continue preventative measures to control the spread.



To move down the ladder of the threat level system, all of the thresholds for the below indicators must be met:

| Hospital System   | Cases   | Testing  | Contact Tracing Capacity  |
|---|---|--|---|
| <p>14-day flat or decreasing trend in daily COVID-19 hospital population in Harris County.</p> <p>14-day flat or decreasing trend in daily COVID-19 ICU population in Harris County.</p> <p>14-day average of the general population and ICU beds in use by COVID-19 patients in Harris County:</p> <ul style="list-style-type: none"> <li>● Greater than 15%= red</li> <li>● Greater than 10%=orange</li> <li>● Greater than 5%= yellow</li> </ul> | <p>14-day flat or decreasing trend in new COVID-19 cases in Harris County</p> | <p>14-day average Positivity Rate less than 5%</p> | <p>14-day average of new cases reported in Harris County:</p> <ul style="list-style-type: none"> <li>● Greater than 400 =Red</li> <li>● Greater than 200 =Orange</li> <li>● Greater than 100 =Yellow</li> </ul> |



## Changing Threat Levels

The indicators used are not on/off switches for threat levels, but will be used by the County in conjunction with health experts to make decisions about policy changes at each level. To move down the ladder of the threat level system, all of the thresholds for these key health indicators must be met. When assessing the virus's threat to our community and hospital system, the County and public health experts will also consider:

- Deaths
- Transmission rates
- Medical supply inventory considerations established by the [Benchmarks for a Healthy Community](#) for reducing and increasing threat levels
- As more information and data becomes available, Harris County, working with public health experts, will evaluate metrics and calculations based on current best practices.

The following is additional information about the indicators that will be considered when decreasing the level of threat (Red>Orange>Yellow). Moving the threat level from yellow to green will require widespread deployment of medical countermeasures (vaccine and/or treatment). Additional indicators and timelines are used for increasing the threat level and can be found in the [Harris County Benchmarks for a Healthy Community](#).

## Hospital System

- 14-day flat or decreasing trend in daily COVID-19 hospital population in Harris County.

We must ensure our healthcare system has adequate capacity to treat all cases of COVID-19, including the most severe cases.

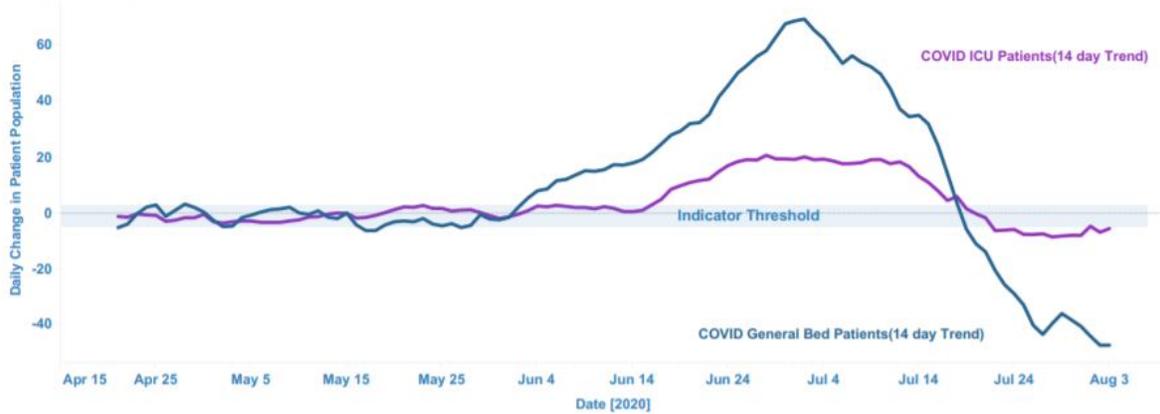
We will continue to monitor the daily total of hospital patients in Harris County using data from [SETRAC](#), a regional dashboard, and analyze daily changes in the COVID patient population to see what direction we are heading. As Harris County monitors day-over-day trends, a 14-day flat or decreasing trend in the daily change in COVID patients will indicate we are moving in the right direction. (If a threat level is moved, this measure will be restarted at zero days.)



- 14-day flat or decreasing trend in daily COVID-19 ICU population in Harris County.

Hospital ICUs must have the capacity to treat the sickest patients. We will continue to monitor the daily total of COVID-positive and suspected COVID patients in our ICUs and will analyze trends to see what direction we are heading. A 14-day flat or decreasing trend will indicate improvement. (If a threat level is moved, this measure will be restarted at zero days.)

### Hospital Population Trend



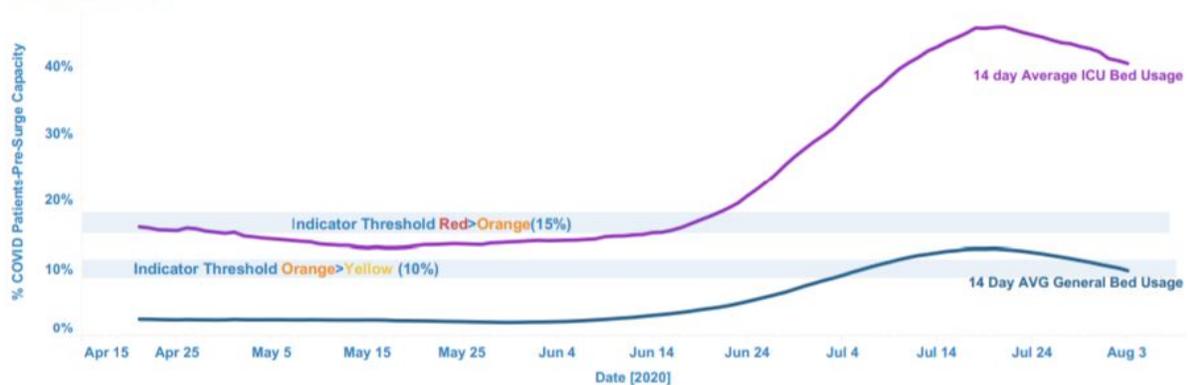
Indicators- 14-day flat or decreasing trend in daily COVID-19 hospital population in Harris County. Same Threshold Red>Orange>Yellow (Data from SETRAC)



- 14-day average of the general population and ICU beds in use by COVID-19 patients in Harris County.
  - Greater than 15%= red
  - Greater than 10%=orange
  - Greater than 5%= yellow

At the height of the COVID-19 pandemic in Harris County, nearly 50 percent of ICU beds were used by COVID patients. In order to ensure that hospital ICUs have adequate capacity to treat the most critically ill COVID patients while caring for patients experiencing a life-threatening crisis or needing critical surgery, the percentage of ICU beds being used for COVID patients must decrease and remain at a manageable level.

### Hospital Usage



Indicators- 14-day average of the general population and ICU beds in use by COVID-19 patients in Harris County.(Data from SETRAC)  
Greater than 15%= red  
Greater than 10%=orange  
Greater than 5%= yellow



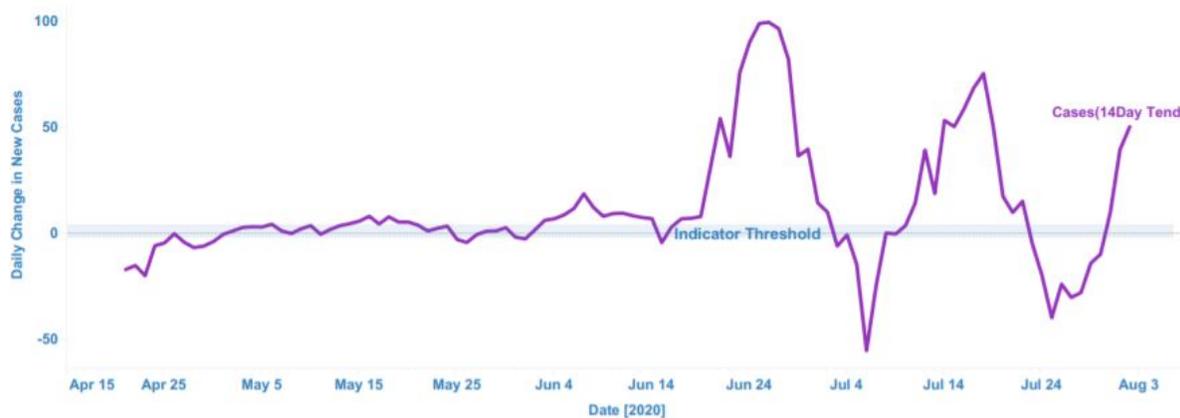
## Cases

- 14-day flat or decreasing trend in new COVID-19 cases in Harris County

Controlling the rate of COVID-19 transmission will be key to reopening. The number of daily new cases is often the first indicator of the success of stay-at-home measures, social distancing, the avoidance of gatherings, and an adherence to wearing face coverings.

Testing availability can affect the reliability of new case information, but it is still considered an early indicator of the degree of disease transmission. A decreasing trend will indicate the spread of the disease has slowed. (As with other measures, a change in the threat level will trigger a reset of this measure.) Moving between levels should cause a reset in the taking of this measure (meaning that we are looking to see a 14-day flat or decreasing trend after moving from red to orange or orange to yellow).

### Cases 14-Day Trend



Indicator- 14-day flat or decreasing trend in new COVID-19 cases in Harris County (Data from Texas DSHS) Same Threshold Red>Orange>Yellow



## Testing

- 14-day average positivity rate of less than 5%

On May 12, 2020, the World Health Organization (WHO) advised governments that before reopening, rates of positivity in testing should remain at 5 percent or lower for at least 14 days.

Positivity rate is a reliable measure for whether or not our testing capacity is sufficient enough to detect a significant number of new cases. If positivity is high, it can indicate uncontrolled community spread, that we are only testing the sick, or a combination of both.

### Testing Positivity Rate



Indicator- 14 day average of Positivity Rate  
\*Based on data made available to HCPH

Note: Data for the previous 7 days not released due to lab turnaround time and the ability to report accurate data.



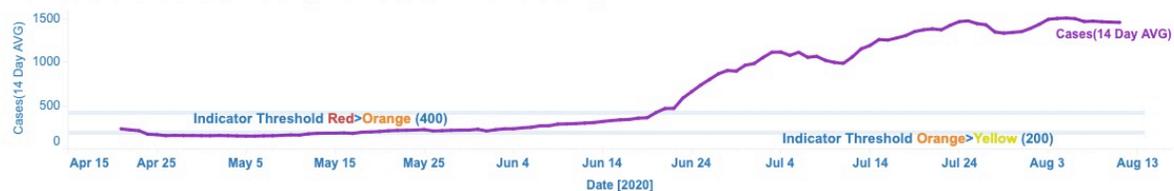
## Contact Tracing Capacity

- 14-day average of new cases reported in Harris County
  - Greater than 400 = Red
  - Greater than 200 = Orange
  - Greater than 100 = Yellow

The CDC and WHO recommend that contact tracing programs be in place before local governments consider easing restrictions. Contact tracing can help to prevent the spread of COVID-19 by interviewing positive patients; identifying their close contacts; interviewing and alerting those contacts to the risk of infection; and instructing those contacts to quarantine or isolate to prevent them from spreading COVID-19 to others.

In order to use contact tracing as a tool to control the spread of the virus, a total number of daily new cases must be at a level that allows contact tracers to quickly trace all cases and contacts.

New Cases for Contact Tracing- New Cases in Harris County



Indicator-14 day average of new cases reported in Harris County(Data from Texas DSHS)  
Greater than 400 =Red  
Greater than 200 =Orange  
Greater than 100 =Yellow



## ***Additional Metrics***

In addition to the aforementioned indicators, Harris County looks at a number of measures when considering policies and decisions about the delivery of public health services. These additional measures give a deeper picture of how the virus is affecting all communities and the effectiveness of case investigation and contact-tracing programs.

Epidemiological models such as  $R_0$ , which estimates the number of people potentially infected by infectious persons, are not foolproof. Reproduction numbers are used to measure the potential spread of a virus. The R number can be useful for predicting growth, but due to inputs that are based on estimates by public health professionals such as the length of time an individual is infectious, there is little consistency between R numbers that are calculated by different entities. Therefore, metrics like  $R_0$  are taken collectively with the understanding that while they may validate certain trends, they should not be used as a substitute for actual, on-the-ground numbers. Reproduction numbers can be found here:

<https://policylab.chop.edu/covid-lab-mapping-covid-19-your-community>

<https://ictr.github.io/covid-19-county-R0/>

<https://sph.uth.edu/dept/bads/covid19-dashboard>

<http://metrics.covid19-analysis.org/>