Pandemic Metrics

Media Briefing
September 28, 2020

Lilian Peake, MD, MPH
Virginia State Epidemiologist
Pandemic Metrics

www.vdh.virginia.gov/coronavirus/key-measures/pandemic-metrics/
Pandemic Metrics

- About the Data
- Daily Region Metrics
- Weekly Transmission Extent
- CDC School Metrics
What these dashboards do:

- In the VDH *Pandemic Metrics* dashboards:
  - The *Daily Region Metrics* dashboard shows where COVID-19 is spreading in Virginia and the changes over time.
  - The *Weekly Transmission Extent* dashboard helps inform state and local officials about the effects of COVID-19 on each region to help them decide whether to act on additional mitigation measures for individual communities.
- Please see below for Technical Notes and Talking Points
- VDH also created visualizations to display the *CDC School Metrics* to help communities and school divisions understand the risk of introduction and transmission of COVID-19 in schools.
  - VDH recommends that communities and school divisions use the *CDC Indicators for Dynamic School Decision-Making* framework together with VDH Guidance for Mitigation Measures in K-12 Settings when considering actions related to school decision making.

**Documentation**

- Methods
- Talking Points
- Guidance Documents
  - Guidance for Reinstating Community Mitigation Measures
  - Guidance for K-12 Schools
Pandemic Metrics

- About the Data
- Daily Region Metrics
- Weekly Transmission Extent
- CDC School Metrics
COVID-19 Pandemic Metrics

Select a region to view the burden, trend, and each individual metric for that region. Select a statistic to view either Burden or Trend in the graphs below.

**Select Region**

Central

**Select Date**

5/24/2020

**Select Statistic for Graph**

Burden

Eight Region Metrics

1. Daily Case Incidence Rate
2. Daily PCR Test Percent Positivity
3. Rate of Outbreaks
4. Percent of Cases That Are Health Care Workers
5. Rate of Visits to Emergency Departments for COVID-like Illness
6. Rate of Current Confirmed COVID ICU Hospitalizations
7. Percent of Hospital Beds Currently Occupied
8. Number of Hospitals Reporting Having Trouble Acquiring Personal Protective Equipment in the Last 7 Days
Describe Burden and Trend for Each Metric

<table>
<thead>
<tr>
<th>Burden</th>
<th>Trend</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Most recent rate (updated daily)</td>
<td>Describe whether the trend is increasing, decreasing or fluctuating</td>
</tr>
<tr>
<td>2. Graph of the 7-day moving average</td>
<td></td>
</tr>
</tbody>
</table>

- **Measure of disease and its impact on the region**
  - Describes amount or quantity
  - Use rates to standardize comparison of regions with populations of varying size in Virginia
  - Use moving average (MA) to smooth out the variability in daily reporting and to remove weekday effects

- **Measure of how each metric has changed over time**
  - Evaluate change over a 14-day period for all metrics except cases in healthcare care workers (use 7-day period)
  - Do not calculate for hospitals acquiring PPE because unique count for each day
Thresholds

• Thresholds are set for each metric
  • Three levels (2 thresholds) are set for daily case incidence, outbreaks, and COVID-like illness visits to emergency departments
  • Two levels (1 threshold) are set for daily PCR test percent positivity, cases that are healthcare workers, confirmed COVID ICU hospitalizations, hospital beds currently occupied, and hospitals experiencing difficulty acquiring PPE

• Used national standards and/or precedents where available
  • For example:
    • Daily case incidence thresholds adopted from early CDC technical guidance provided to states for internal use
    • PCR percent positivity aligned with Governor’s goal for PCR percent positivity in Virginia’s Key Measures

• Used subject matter expertise where there was no precedent
  • For example, the Virginia Hospital & Healthcare Association provided guidance on thresholds for hospital-related metrics
1. Most recent rate (updated daily)
2. Graph of the 7-day moving average for each metric

**BURDEN**
- What is the daily case incidence rate per 100,000?
  - Moderate Threshold = 5.0
  - High Threshold = 10.0

**TREND**
- Cases have been decreasing for **12 days**. This does not exceed the threshold of 14 days, so cases are considered to be fluctuating.

**POSITIVITY**
- What is the daily PCR percent positivity?
  - High Threshold = 10%

**TREND**
- Percent positivity has been decreasing for **17 days**. This exceeds the threshold of 14 days, so percent positivity is considered to be decreasing.

**OUTBREAKS**
- What is the rate of outbreaks per 100,000?
  - Moderate Threshold = 0.04
  - High Threshold = 0.06

**TREND**
- Outbreaks have been decreasing for **20 days**. This exceeds the threshold of 14 days, so outbreaks are considered to be decreasing.

**Summary**
- Date: 9/24/2020
- Cases: 225
- Cumulative Cases to Date: 25,311
- 7-day Moving Average: 161.3
- 7-day Rolling Sum: 1,129
- Rate per 100,000: 11.1
- Spline: 158.6
- Slope of Curve: -2.8
- Days increasing/decreasing: -11
What percent of cases are among healthcare workers?
High Threshold = 5%

3.4%

What is the visit rate per 100,000?
Moderate Threshold = 4.0
High Threshold = 6.0

8.6

What is the rate of current confirmed COVID ICU hospitalizations per 100,000?
High Threshold = 3.5

2.9

The percent of cases among HCWs has been decreasing for 17 days. This exceeds the threshold of 7 days, so the percent of cases among HCWs is considered to be decreasing.

ED visits for CLI have been decreasing for 17 days. This exceeds the threshold of 14 days, so the number of ED visits for CLI is considered to be decreasing.

ICU hospitalizations have been decreasing for 20 days. This exceeds the threshold of 14 days, so the number of ICU hospitalizations is considered to be decreasing.
The percent of occupied beds has been increasing for 9 days. This does not exceed the threshold of 14 days, so the percent of occupied beds is considered to be fluctuating.

Not Applicable
Pandemic Metrics
Calculate Composite Scores for Burden and Trend Each Week to Determine Extent of Transmission in Each Region

<table>
<thead>
<tr>
<th>Region</th>
<th>Burden</th>
<th>Trend</th>
<th>Transmission Extent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central</td>
<td>High Burden</td>
<td>●</td>
<td>At Substantial Community Transmission</td>
</tr>
<tr>
<td>Eastern</td>
<td>Moderate Burden</td>
<td>●</td>
<td>At Moderate Community Transmission</td>
</tr>
<tr>
<td>Far Southwest</td>
<td>Moderate Burden</td>
<td>●</td>
<td>At Moderate Community Transmission</td>
</tr>
<tr>
<td>Near Southwest</td>
<td>Moderate Burden</td>
<td>●</td>
<td>At Moderate Community Transmission</td>
</tr>
<tr>
<td>Northern</td>
<td>Low Burden</td>
<td>●</td>
<td>At Low Community Transmission</td>
</tr>
<tr>
<td>Northwest</td>
<td>Moderate Burden</td>
<td>●</td>
<td>At Moderate Community Transmission</td>
</tr>
</tbody>
</table>

Five Levels:
1. At Substantial Community Transmission
2. Approaching Substantial Community Transmission
3. At Moderate Community Transmission
4. Approaching Moderate Community Transmission
5. At Low Community Transmission
Transmission Extent by Week, Central Region
At Substantial Community Transmission
As of the week ending on 9/19/2020, the current status of COVID-19 in Central is **high burden, fluctuating**.

The current pandemic status is presented as a transmission extent, which is comprised of a burden score and a trend score. The burden and trend scores are both calculated each Monday as the average of composite burden and trend scores from the previous week.

For more detailed data on the composite scores, please see the dashboard available here: [https://www.vdh.virginia.gov/coronavirus/key-measures/pandemic-metrics/composite-scores/](https://www.vdh.virginia.gov/coronavirus/key-measures/pandemic-metrics/composite-scores/)
# INDIVIDUAL METRICS

Individual metrics represent trusted data sources. VDH uses an established method to determine the current burden and trend for each metric. These data are then compared to thresholds to calculate an indicator value of 0, 1, or 2.

The color of the circles below indicates the indicator value for the burden or trend of that individual metric.

## Individual Metric Values, Weights, and Scores, 9/25/2020

<table>
<thead>
<tr>
<th>Individual Metric</th>
<th>Burden Indicator</th>
<th>Burden Weight</th>
<th>Burden Score</th>
<th>Trend Indicator</th>
<th>Trend Weight</th>
<th>Trend Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cases</td>
<td>2</td>
<td>6</td>
<td>12</td>
<td>1</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Percent Positivity</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Outbreaks</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>HC Workers</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>ED Visits</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>ICU Hospitalizations</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Hospital Beds</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>PPE</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td><strong>Composite Scores</strong></td>
<td><strong>15</strong></td>
<td><strong>NA</strong></td>
<td><strong>15</strong></td>
<td><strong>NA</strong></td>
<td><strong>7</strong></td>
<td></td>
</tr>
</tbody>
</table>
Pandemic Metrics

About the Data
Daily Region Metrics
Weekly Transmission Extent
CDC School Metrics
CDC Indicators for Dynamic School Decision-Making

The data used in the dashboard below are the same data used in the other dashboards that make up the *Pandemic Metrics*, but use slightly different timeframes and thresholds for evaluation.
Key Differences Between the VDH Pandemic Metrics Dashboard and CDC School Metrics

• VDH created the VDH Pandemic Metrics Dashboard in June 2020.

• Local health districts began using the dashboard in July and sharing data with localities and schools in August.

• On September 15, CDC published the School Indicators for Dynamic Decision Making, which includes thresholds for each category and indicator.
Key Differences Between the VDH Pandemic Metrics Dashboard and CDC School Metrics

• The VDH Pandemic Metrics Dashboard shows a daily case incidence rate and a daily PCR percent positivity.

• For case incidence, three levels are set with two thresholds: <5 cases per day per 100,000 population, 5 to <10, and ≥10.

• For PCR percent positivity, two levels are set with one threshold of ≥10%.
Key Differences Between the VDH Pandemic Metrics Dashboard and CDC School Metrics

• The CDC framework utilizes a 14-day cumulative case incidence rate and a 14-day cumulative percent positivity, not daily rates.

• Five levels are set for 14-day cumulative case incidence: <5 cases within the last 14 days per 100,000 population, 5 to <20, 20 to <50, 50 to <200, and >200.

• Five levels are set for 14-day cumulative PCR percent positivity: <3%, 3% to <5%, 5% to <8%, 8% to <10%, and >10%.
VDH is evaluating the differences between the thresholds and the timeframes used in the VDH Pandemic Metrics Dashboard and the CDC School Metrics Dashboard until October 14, 2020 and will determine whether it is beneficial to make the VDH Pandemic Metrics Dashboard thresholds consistent with the CDC School Metrics Dashboard case incidence thresholds.
Select a **locality** to filter the **Core Indicators** and the **Secondary Indicators**.

Select a **date** to filter the **Core Indicators**, the **Secondary Indicators**, and the **Map of School Indicators** visualizations below.

**Select Locality**
Accomack

**Select Date**
9/24/2020

---

**CDC K-12 SCHOOL METRICS**

The Centers for Disease Control and Prevention (CDC) have published a set of **Indicators for Dynamic School Decision-Making**. These indicators and thresholds can help communities better understand the risk of introduction and transmission of COVID-19 in schools. Local decision makers can consider these indicators to help guide decisions related to school programming. The first two "core" indicators of disease transmission are intended to be combined with the third core indicator - a school’s self-assessed measure of their ability to implement five key mitigation strategies (masks, social distancing, hand hygiene/respiratory etiquette, cleaning/disinfection, and contact tracing in collaboration with local health departments).

In order to make this CDC framework useful for school districts, VDH has compiled and provided these indicators below.

For more information on the CDC framework and to view the thresholds for each indicator, please visit [https://www.cdc.gov/coronavirus/2019-ncov/community/schools-childcare/indicators.html#interpretation](https://www.cdc.gov/coronavirus/2019-ncov/community/schools-childcare/indicators.html#interpretation).
Core Indicators, Accomack, 9/25/2020

Total number of new cases per 100,000 persons within the last 14 days*

43.19

Percentage of RT-PCR tests that are positive during the last 14 days**

2.5%

Ability of the school to implement five key mitigation strategies

VDH does not have these data. CDC recommends self-assessment measuring a school’s ability to implement consistent and correct use of masks, social distancing, hand hygiene and respiratory etiquette, cleaning and disinfection, and contact tracing in collaboration with the local health department.
Officials can use these secondary indicators to support the decision-making process in local communities. These secondary indicators should not be used as the main criteria for determining the risk of disease transmission in schools. They should be used to support decision-making derived from the core indicators.

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent change in new cases per 100,000 population during the last seven days†</td>
<td>28.6%</td>
</tr>
<tr>
<td>Percentage of hospital inpatient beds in the region that are occupied‡</td>
<td>68.6%</td>
</tr>
<tr>
<td>Percentage of hospital inpatient beds in the region that are occupied by patients with COVID-19‡</td>
<td>3.9%</td>
</tr>
</tbody>
</table>
Select Indicator

<table>
<thead>
<tr>
<th>Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>14-day Case Incidence</td>
</tr>
<tr>
<td>14-day Percent Positivity</td>
</tr>
<tr>
<td>Percent Change in 7-day Case Incidence</td>
</tr>
<tr>
<td>Percent of Inpatient Hospital Beds Occupied</td>
</tr>
<tr>
<td>Percent of Inpatient Hospital Beds Occupied by COVID Patients</td>
</tr>
</tbody>
</table>

Map of School Indicators, 9/25/2020

Select an **Indicator** to filter the Map of School Indicators.

**Select Indicator**

- 14-day Case Incidence
Definitions of CDC School Indicators

* Total number of new cases per 100,000 persons within the last 14 days is calculated by adding the number of new cases reported in the locality (city or county) in the last 14 days, dividing by the population of that locality, and multiplying by 100,000. This indicator differs from the daily case incidence rate per 100,000 use in the Daily Region Metrics and Daily Locality Metrics dashboards because it captures the case incidence for 14 days rather than just one day.

** Percentage of RT-PCR tests in the locality that are positive during the last 14 days is calculated by dividing the number of positive tests over the last 14 days by the total number of tests conducted over the last 14 days and multiplying by 100. Testing data are provided at the locality level with the exception of Covington, Emporia, Lexington, and Manassas Park. Based on how laboratory results are reported, data from these small jurisdictions are not trustworthy on their own. The surrounding counties of Alleghany, Greensville, Rockbridge, and Prince William are displayed instead.

† Percent change in new cases per 100,000 population during the last seven days compared with the previous seven days is calculated by adding the number of new cases reported in the locality in the last seven days, subtracting the total number of new cases in the previous seven days, dividing the difference by the total number of new cases in the previous seven days, and multiplying by 100. In communities with low case incidence, this measure can fluctuate wildly. For example, if there are 5 cases reported in a county during one week, and six reported the next, then the percent change will be 20%. In these situations, the thresholds that CDC established may be less useful.