VDH COVID-19 *Pandemic Metrics Dashboard*

Talking Points - Last Updated 11/19/20

Purpose and Interpretation

The *Pandemic Metrics Dashboard* describes the current burden and trend of COVID-19 at the region level in Virginia.

- Depicting both burden and trend provides a more comprehensive picture.
- It complements the *Virginia's Key COVID-19 Measures*.

Eight indicators are represented: new cases, PCR test percent positivity, outbreaks, percent of cases among healthcare workers, COVID-like illness (CLI) emergency department (ED) visits, current intensive care unit (ICU) hospitalizations, percent of hospital beds occupied, and hospitals reporting personal protective equipment (PPE) shortage.

It includes an algorithm that distills a lot of complex data into more interpretable and actionable information.

- The algorithm calculates a composite score for burden and for trend.
- Seven of the eight indicators are used in the algorithm to determine the composite scores.
    - The percent of cases among healthcare workers is currently not included because it may be significantly under-reported.
- Because COVID-19 has a relatively long incubation period and laboratory turn-around times may be long, the calculated burden has an associated lag time.
    - Cases by report date likely represent onset dates two weeks prior and exposure a week before that.
    - Lab report date likely references onset dates one week prior.

The trend is not intended to be a true forecast, hindcast, or nowcast but can guide decision-making on what steps to take to reduce transmission of the virus.

- For example, a region currently experiencing moderate burden with an increasing trend may soon see high burden and should make community-level decisions accordingly.

These data should be interpreted in combination with qualitative data and other information from local, regional, and state public health authorities.

- District health directors and epidemiologists can provide more context about what is occurring in their districts.
- Public health authorities should be included in the review of the *Pandemic Metrics Dashboard* and associated decision-making.

Methods

1. The methodology is adapted from the CDC's *State Indicator Reports*.
2. For each metric (e.g., number of reported cases), the current burden (e.g., incidence per 100,000 population) and the recent trend (e.g., number of cases is increasing or decreasing) are calculated. These statistics are then compared to thresholds set by VDH, using public health standards.
3. To calculate the composite scores for burden and trend, each metric is multiplied by an assigned weight based on how much trust VDH has in the data source, how relevant it is to overall COVID-19 activity, and how important it is to healthcare system preparedness. The weighted metrics are added together to create a composite score.
4. The average of the daily composite scores for the previous week (Sunday-Saturday) represents the overall burden and trend. These values are compared to thresholds to assign one of four possible levels for burden and one of three for trend.
    - One of the levels of burden is called "Minimal" and indicates that there is little to no COVID-19 circulating. If the burden is Minimal, a trend statistic is not calculated.
5. The ten possible combinations of overall trend and overall burden are used to assign a regional activity level.
6. There are four levels of activity: minimal, low, moderate and substantial.
    - There are two in-between categories: approaching moderate and approaching substantial.
7. Tables are included as an appendix to this document.

How to Use the Dashboard

There are four tabs: About the Data, Weekly Activity Level, Daily Region Metrics, and Daily Locality Metrics.

<u>On the *Activity Level* dashboard, there are four elements to consider</u>:

The map at the top of the page is color-coded with the overall burden and has icons for the overall trend.

- These data are presented by week.
- The most recent week is the default view, but you can select a different week by using the dropdown at the top of the page.

Below the map is a table with the overall burden and overall trend by region with the addition of the overall activity level.

- These data are adjusted with the same dropdown at the top of the page.

Below the table there is a time series graph of the activity level by week since VDH began collecting COVID-related data in late January.

- These data are available for each region. Select a region to view in the dropdown immediately above this graph.

A brief description of the methods is available at the bottom of this tab. For more details on the methodology, see the *Pandemic Metrics Technical Notes*.

<u>On the *Composite Scores* dashboard, there are four elements to consider:</u>

The current pandemic status for the most recent week is available in writing at the top of the page.

- All of the contents on this page are provided by region and week, chosen in the dropdowns at the top of the page.
- If you selected a region or week in the dropdowns on another tab, then that selection will be carried throughout.

The overall burden gauge and overall trend text provide the numerical value of these metrics and how they compare to the established thresholds.

- These numerical values are the average of the composite scores from the previous week.

Below the gauge is a trend series graph of the composite score by day.

- The previous Sunday-Saturday week is highlighted.

At the bottom of this page is a table of indicators and weights for each individual metric.

- The sum of the weighted indicators is the composite score for that day.
- These data are presented by day.
- The most recent day is the default view, but you can select a different day by using the dropdown immediately above this table.

<u>On the *Region Metrics* dashboard, there is one element that contains eight individual metrics:</u>

The individual metrics and data are available by region and for the state of Virginia as a whole.

- The data presented are driven by the dropdowns at the top.
- The 'Region' menu on the left will affect all fields within the dashboard.
- The 'Date' menu in the center will affect the burden circle on the left and the trend icon on the right below.
- The 'Statistic' menu on the right will affect the graphs in the center each metric. Options include the burden (the 7-day moving average), trend (the number of days in consecutive increase or decrease), raw data, spline, and slope.
- The raw data, spline, and slope are provided to increase transparency in how the burden and trend are calculated.
- Each data source is treated as a row with the name to the left.
- For each of the indicators, there is a data question to help explain what VDH is measuring.

- From left to right, the circle is the burden. It displays the most recent 7-day moving average and is provided as a rate per 100,000, a percentage, or a count.
- The graph in the middle presents the data as a time series. When either burden or trend is selected in the dropdown, the dotted lines and shading correspond to the thresholds established for each data source.
- The symbol on the right is the trend. Text is added to explain the trend, including the consecutive number of days' increase or decrease in that metric.

<u>On the *Locality Metrics* dashboard, there is two elements to consider:</u>

The individual metrics are presented in a map at the top of the page.

- The data presented are driven by the dropdowns at the top.
- The 'Metric' menu on the left will affect which individual metric is presented in the map. Case incidence is the default metric.
- The 'Date' menu on the right will affect the date the map represents. This menu will also affect the Burden and Trend visualizations below the map.

Below the map, the individual metrics are presented with Burden, Time Series, and Trend visualizations.

- Only the subset of individual metrics available at the locality level are included.
- The data are driven by the dropdowns above these visualizations and at the top of the page.
- The 'Locality' menu on the left will affect which county or independent city is presented.
- The 'Statistic' menu on the right will affect the graphs in the center each metric. Options include the burden (the 7-day moving average), trend (the number of days in consecutive increase or decrease), raw data, spline, and slope.
- The raw data, spline, and slope are provided to increase transparency in how the burden and trend are calculated.
- Each data source is treated as a row with the name to the left.
- For each of the indicators, there is a data question to help explain what VDH is measuring.
- From left to right, the circle is the burden. It displays the most recent 7-day moving average and is provided as a rate per 100,000, a percentage, or a count.
- The graph in the middle presents the data as a time series. When either burden or trend is selected in the dropdown, the dotted lines and shading correspond to the thresholds established for each data source.
- The symbol on the right is the trend. Text is added to explain the trend, including the consecutive number of days' increase or decrease in that metric.

Appendix: Methodological Tables

Table 1. Metrics Identified, Thresholds, Weight, and Geography

Metric Description	Trend Threshold	Burden Threshold	Weight	Geographic Granularity
Number of new cases by report date	14 consecutive days increase or decrease	0.36, 1.43, 3.57, and 14.3 cases per 100,000 residents (7-day MA)	6	State, Region, Locality
Test percent positivity by lab report date, PCR only	14 consecutive days increase or decrease	3, 5, 8, and 10% + (7-day MA)	1	State, Region, Locality
Rate of new confirmed outbreak(s) reported	14 consecutive days increase or decrease	0.04 and 0.06 outbreaks per 100,000 residents (7-day MA)	1	State, Region, Locality
Percent of new cases reported in healthcare workers	7 consecutive days increase or decrease	5.0% of cases among HCW (7-day MA)	0	State, Region, Locality
COVID-like illness (CLI) emergency department visits	14 consecutive days increase or decrease	4.0 and 6.0 CLI visits per 100,000 population (7-day MA)	1	State, Region
Number of current COVID-19 ICU hospitalizations	14 consecutive days increase or decrease	3.5 COVD-19 ICU hospitalizations per 100,000 (7-day MA)	1	State, Region
Percent of hospital beds occupied	14 consecutive days increase or decrease	90% hospital beds occupied	1	State, Region
Number of hospitals reporting difficulty acquiring PPE in next 72 hours	N/A	1 or more hospitals reporting difficulty per region within 7-day period	1	State, Region

Table 2. Individual Metric Indicator Values

Trend Criteria	Burden Criteria	Indicator Value
Threshold met in decreasing direction	No thresholds met	0
	Lowest burden threshold met*	0.5
Neither threshold met	Moderate burden threshold met*	1
	High burden threshold met*	1.5
Threshold met in increasing direction	Highest burden threshold met	2

*Some metrics have five burden levels, some three, and some two.

Table 3. Overall Burden Composite Scores

Average Composite Score	Overall Trend
0	Minimal Burden
0 - <8	Low Burden
≥8 - <16	Moderate Burden
≥16 - 24	High Burden

Table 4. Overall Trend Composite Scores

Average Composite Score	Overall Trend
0 - <7	Decreasing
≥7 - <15	Fluctuating
≥15 - 22	Increasing