Centers for Disease Control and Prevention

Center for Forecasting and Outbreak Analytics

Current Epidemic Growth Status (Based on R_t) for States and Territories

COVID-19

Influenza

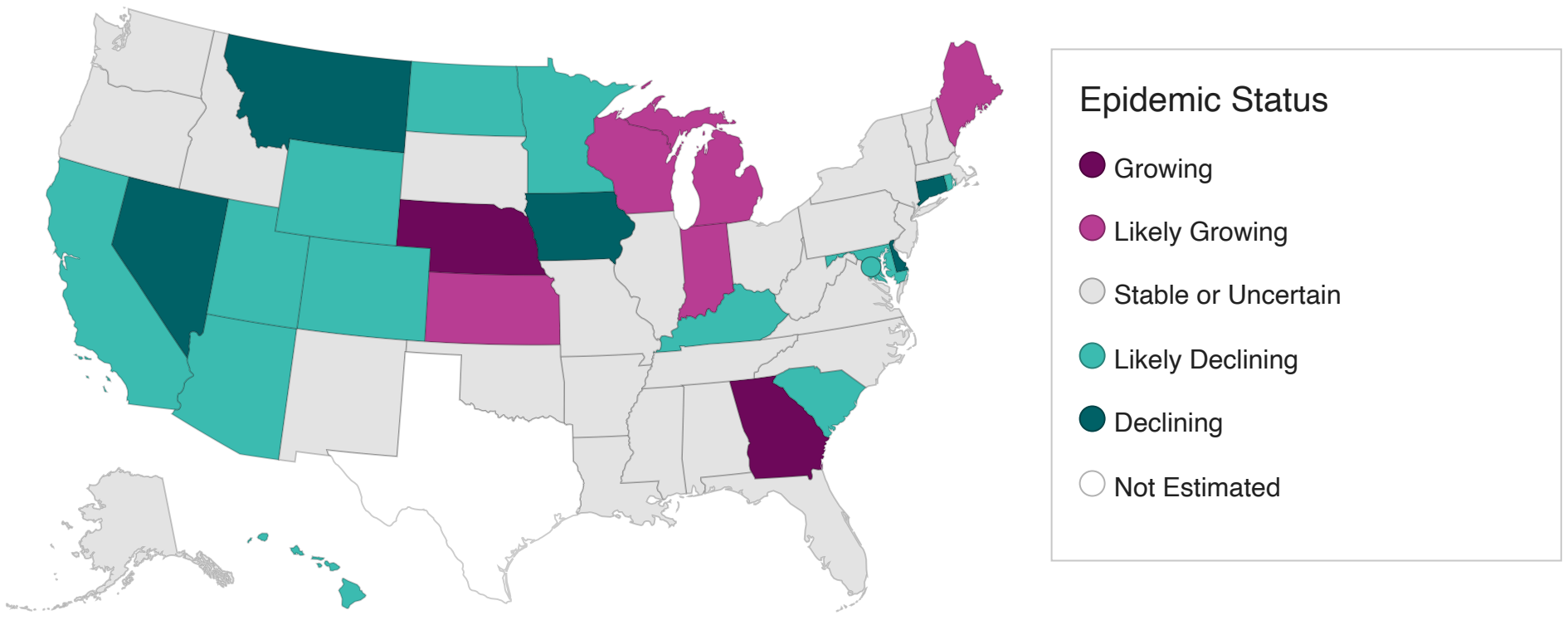
Methods

Glossary

COVID-19

As of February 03, 2024, we estimate that COVID-19 infections are growing or likely growing in 7 states and territories, declining or likely declining in 18 states and territories, and are stable or uncertain in 26 states and territories.

We estimate the time-varying reproductive number, R_t, a measure of transmission, based on data from incident COVID-19 hospitalizations. Epidemic status was determined by estimating the probability that R_t is greater than 1. While R_t tells us if the number of COVID-19 infections are likely growing or declining, it does not reflect the burden of COVID-19. View a summary of key data for COVID-19, influenza, and RSV.



Territories PR VI

Download Data (CSV)

Data Table −

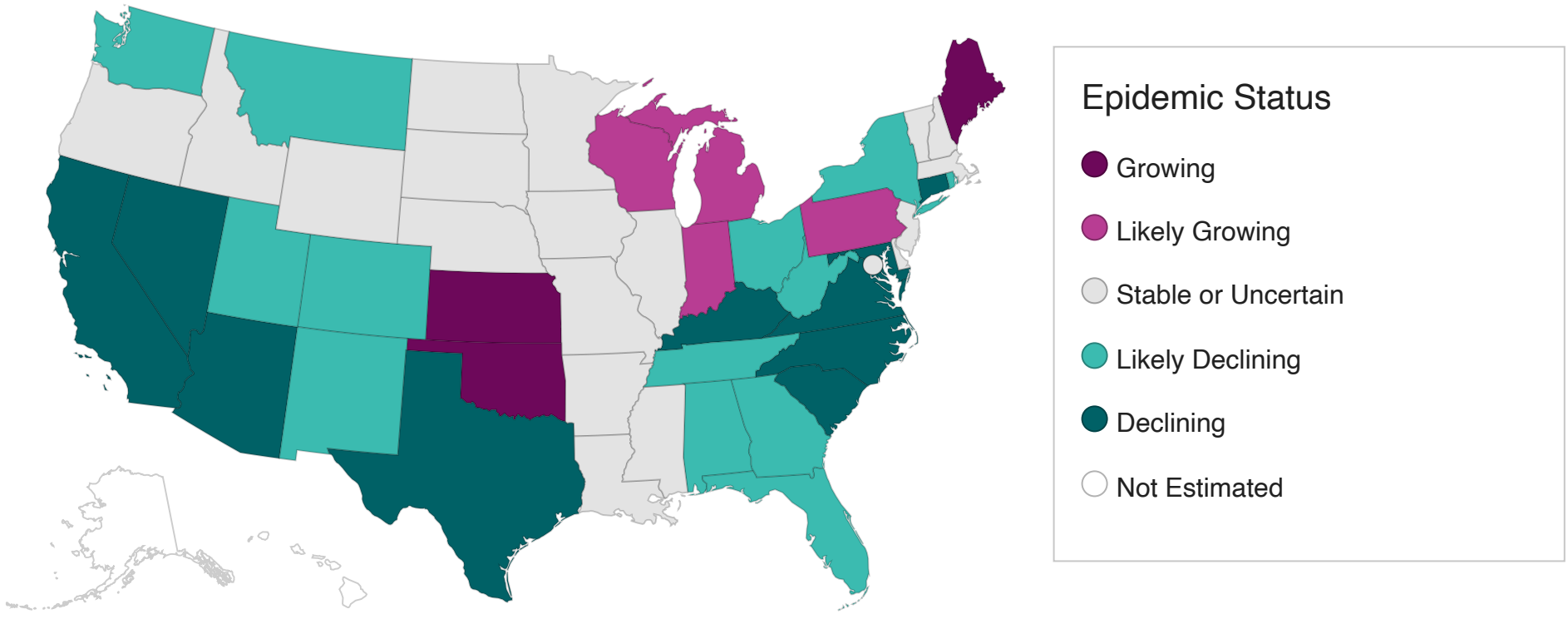
Location	Category	Probability Epidemic is Gr…	Date
Alabama	Stable or Uncertain	0.3275	2024-02-03
Alaska	Stable or Uncertain	0.744	2024-02-03
Arizona	Likely Declining	0.142	2024-02-03
Arkansas	Stable or Uncertain	0.4345	2024-02-03
California	Likely Declining	0.1075	2024-02-03
Colorado	Likely Declining	0.208	2024-02-03
Connecticut	Declining	0.1	2024-02-03
Delaware	Declining	0.097	2024-02-03
District Of Columbia	Likely Declining	0.1075	2024-02-03
Florida	Stable or Uncertain	0.455	2024-02-03
Georgia	Growing	0.952	2024-02-03
Hawaii	Likely Declining	0.2015	2024-02-03
Idaho	Stable or Uncertain	0.301	2024-02-03
Illinois	Stable or Uncertain	0.3025	2024-02-03
Indiana	Likely Growing	0.846	2024-02-03
Iowa	Declining	0.0605	2024-02-03
Kansas	Likely Growing	0.8295	2024-02-03
Kentucky	Likely Declining	0.1215	2024-02-03
Louisiana	Stable or Uncertain	0.3325	2024-02-03
Maine	Likely Growing	0.7745	2024-02-03
Maryland	Likely Declining	0.17	2024-02-03
Massachusetts	Stable or Uncertain	0.334	2024-02-03
Michigan	Likely Growing	0.765	2024-02-03
Minnesota	Likely Declining	0.186	2024-02-03
Mississippi	Stable or Uncertain	0.6645	2024-02-03
Missouri	Stable or Uncertain	0.445	2024-02-03
Montana	Declining	0.0915	2024-02-03
Nebraska	Growing	0.903	2024-02-03
Nevada	Declining	0.09	2024-02-03
New Hampshire	Stable or Uncertain	0.39	2024-02-03
New Jersey	Stable or Uncertain	0.4815	2024-02-03
New Mexico	Stable or Uncertain	0.6315	2024-02-03
New York	Stable or Uncertain	0.473	2024-02-03
North Carolina	Stable or Uncertain	0.7055	2024-02-03
North Dakota	Likely Declining	0.174	2024-02-03
Ohio	Stable or Uncertain	0.4805	2024-02-03
Oklahoma	Stable or Uncertain	0.7395	2024-02-03
Oregon	Stable or Uncertain	0.328	2024-02-03
Pennsylvania	Stable or Uncertain	0.3485	2024-02-03
Puerto Rico	Stable or Uncertain	0.323	2024-02-03
Rhode Island	Likely Declining	0.1035	2024-02-03
South Carolina	Likely Declining	0.2385	2024-02-03
South Dakota	Stable or Uncertain	0.603	2024-02-03
Tennessee	Stable or Uncertain	0.5555	2024-02-03

Texas	Not Estimated	NA	2024-02-03
U.S. Virgin Islands	Not Estimated	NA	2024-02-03
Utah	Likely Declining	0.174	2024-02-03
Vermont	Stable or Uncertain	0.3005	2024-02-03
Virginia	Stable or Uncertain	0.7085	2024-02-03
Washington	Stable or Uncertain	0.3095	2024-02-03
West Virginia	Stable or Uncertain	0.4015	2024-02-03
Wisconsin	Likely Growing	0.784	2024-02-03
Wyoming	Likely Declining	0.24	2024-02-03

Influenza

As of February 03, 2024, we estimate that influenza infections are growing or likely growing in 7 states and territories, declining or likely declining in 24 states and territories, and are stable or uncertain in 19 states and territories.

We estimate the time-varying reproductive number, R_t, a measure of transmission, based on data from incident influenza hospitalizations. Epidemic status was determined by estimating the probability that R_t is greater than 1. While R_t tells us if influenza infections are likely growing or declining, it does not reflect the burden of influenza. View a summary of key data for COVID-19, influenza, and RSV.



Territories PR VI

Download Data (CSV)

Data Table

Location	Category	Probability Epidemic is Gr…	Date
Alabama	Likely Declining	0.193	2024-02-03
Alaska	Not Estimated	NA	2024-02-03
Arizona	Declining	0.001	2024-02-03
Arkansas	Stable or Uncertain	0.3295	2024-02-03
California	Declining	0.055	2024-02-03

Colorado	Likely Declining	0.2275	2024-02-03
Connecticut	Declining	0.0885	2024-02-03
Delaware	Stable or Uncertain	0.3505	2024-02-03
District Of Columbia	Stable or Uncertain	0.4005	2024-02-03
Florida	Likely Declining	0.129	2024-02-03
Georgia	Likely Declining	0.1035	2024-02-03
Hawaii	Not Estimated	NA	2024-02-03
Idaho	Stable or Uncertain	0.4035	2024-02-03
Illinois	Stable or Uncertain	0.463	2024-02-03
Indiana	Likely Growing	0.846	2024-02-03
Iowa	Stable or Uncertain	0.68	2024-02-03
Kansas	Growing	0.964	2024-02-03
Kentucky	Declining	0.0935	2024-02-03
Louisiana	Stable or Uncertain	0.6385	2024-02-03
Maine	Growing	0.9445	2024-02-03
Maryland	Declining	0.049	2024-02-03
Massachusetts	Stable or Uncertain	0.687	2024-02-03
Michigan	Likely Growing	0.8475	2024-02-03
Minnesota	Stable or Uncertain	0.53	2024-02-03
Mississippi	Stable or Uncertain	0.4865	2024-02-03
Missouri	Stable or Uncertain	0.5925	2024-02-03
Montana	Likely Declining	0.173	2024-02-03
Nebraska	Stable or Uncertain	0.695	2024-02-03
Nevada	Declining	0.044	2024-02-03
New Hampshire	Stable or Uncertain	0.5405	2024-02-03
New Jersey	Stable or Uncertain	0.4685	2024-02-03
New Mexico	Likely Declining	0.103	2024-02-03
New York	Likely Declining	0.121	2024-02-03
North Carolina	Declining	0.078	2024-02-03
North Dakota	Stable or Uncertain	0.445	2024-02-03
Ohio	Likely Declining	0.1205	2024-02-03
Oklahoma	Growing	0.9915	2024-02-03
Oregon	Stable or Uncertain	0.5295	2024-02-03
Pennsylvania	Likely Growing	0.818	2024-02-03
Puerto Rico	Likely Declining	0.1095	2024-02-03
Rhode Island	Likely Declining	0.1905	2024-02-03
South Carolina	Declining	0.0705	2024-02-03
South Dakota	Stable or Uncertain	0.279	2024-02-03
Tennessee	Likely Declining	0.1745	2024-02-03
Texas	Declining	0.064	2024-02-03
U.S. Virgin Islands	Not Estimated	NA	2024-02-03
Utah	Likely Declining	0.233	2024-02-03
Vermont	Stable or Uncertain	0.305	2024-02-03
Virginia	Declining	0.082	2024-02-03
Washington	Likely Declining	0.1275	2024-02-03

West Virginia	Likely Declining	0.2285	2024-02-03
Wisconsin	Likely Growing	0.87	2024-02-03
Wyoming	Stable or Uncertain	0.533	2024-02-03

Interpreting R_t

- R_t is a data-driven measure of disease transmission. R_t is an estimate on date t of the average number of new infections caused by each infectious person. R_t accounts for current population susceptibility, public health interventions, and behavior.
- $R_t > 1$ indicates that infections are growing because, on average, each infected person is causing more than one new infection while $R_t < 1$ indicates that infections are declining.
- R_t can be a leading indicator of increases or decreases in cases, hospitalizations, or deaths, because transmission occurs before case confirmation, hospitalization, or death.
- The uncertainty range for each R_t estimate determines the probability that infections are growing. For example, if 75% of the uncertainty range falls above 1, then there is a 75% chance that the infections are growing in that location.
- When the data are sparse, the model used to generate R_t estimates will tend to generate estimates nearer to 1 with wide credible intervals, which reflects uncertainty in the true epidemic trend during these time periods.

- **What R_t can tell us:** R_t can tell us whether infections are growing, declining, or remaining stable, and is an additional tool to help public health practitioners prepare and respond.
- **What R_t cannot tell us:** R_t cannot tell us about the underlying *burden* of disease, just the trend of transmission. An $R_t < 1$ does not mean that transmission is low, just that infections are declining. It is useful to look at respiratory disease activity in conjunction with R_t.

Caveats and limitations

- R_t estimates are sensitive to assumptions about the generation interval distribution.
- R_t estimates may be over or underestimated if the proportion of infections that result in hospitalizations changes abruptly. These estimates can be impacted by shifts in clinical severity, increased or decreased use of clinical testing, or changes in reporting.
- While these estimates are based on a single data source (hospitalizations), studies have indicated that any resulting biases are likely minor and that this is a robust approach to estimate R_t.

Methods

R_t is defined as the average number of new infections caused by each infected person at a particular time, t. When $R_t > 1$, infections are growing, and when $R_t < 1$, infections are declining. The color categories in the maps above were determined by estimating a distribution of possible R_t values based on the observed hospitalization data and model assumptions (formally, a "credible interval"). We then calculate the proportion of that credible interval where the $R_t > 1$. Credible intervals are determined using the EpiNow2 package, which uses a Bayesian model to estimate R_t, while adjusting for delays and reporting effects.

- If >90% of the credible interval distribution of R_t >1, infections are growing
- If 76%-90% of the credible interval distribution of $R_t > 1$, infections are likely growing
- If 26%-75% of the credible interval distribution of $R_t > 1$, infections have an uncertain trend or are stable (in this case, the credible interval spans across 1, and contains a mix of values above and below 1.)
- If 10%-25% of the credible interval distribution of $R_t > 1$, infections are likely declining; this is equivalent to 75%-90% of the credible interval of $R_t \leq 1$
- If <10% of the credible interval distribution of $R_t > 1$, infections are declining; this is equivalent to >90% of the credible interval of $R_t \leq 1$

- R_t was not estimated for states and territories in the following cases: 1. fewer than 10 laboratory-confirmed COVID-19 or influenza hospital admissions were reported in each of the prior 2 weeks, 2. there were detected anomalies in reported values, and 3. the model did not pass checks for reliability.

R_t estimates are derived from daily counts of new COVID-19 or influenza hospitalizations. This blog post provides a more in-depth overview of the modeling approach used to estimate R_t, and the strategies CDC uses to validate the accuracy of estimates.

To estimate R_t, we fit Bayesian models to the data using the R packages EpiNow2, epinowcast, or using Stan models developed by the CDC Center for Forecasting and Outbreak Analytics. Following best practices, these models adjust for lags from infection to observation, incomplete observation of recent infection events, and day-of-week reporting effects, in addition to uncertainty from all these adjustments.

Glossary of Terms

- **Generation Interval:** the interval between the infection times of an infector-infectee pair; i.e. the difference in the time when an individual (Person j) is infected by an infector (Person i) and the time when this infector (Person i) was infected.
- **Leading Indicator:** a variable that provides an early indication of future trends in an outbreak, e.g., R_t, as this metric estimates the number of infections caused by one infected person in near real-time.
- **Lagging indicator:** a variable that provides a lagged indication of future trends in an outbreak, e.g., COVID-19 deaths, as this outcome happens after cases have occurred.

Last Reviewed: February 9, 2024