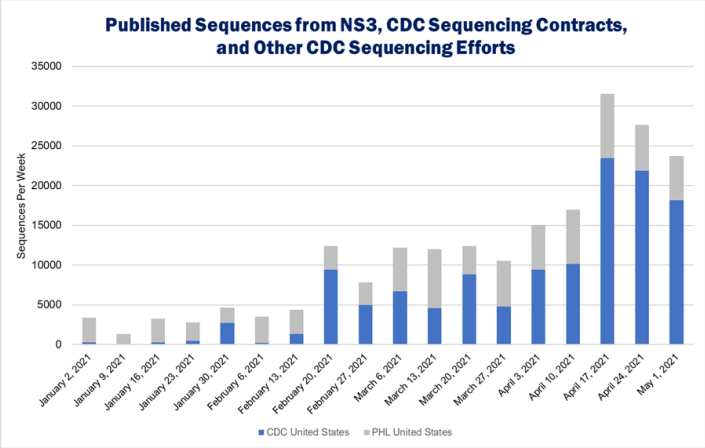
CDC Genomic Surveillance



CDC Sequencing Capacity Per Week	
NS3	750
Illumina/Helix	3,000
LabCorp	2,000
Quest	2,000
Aegis	2,000
Fulgent	5,000
Infinity	1,000-3,000
Broad	525-5,000
Total	**16,275-22,750**

CDC COVID Data Tracker – updated weekly

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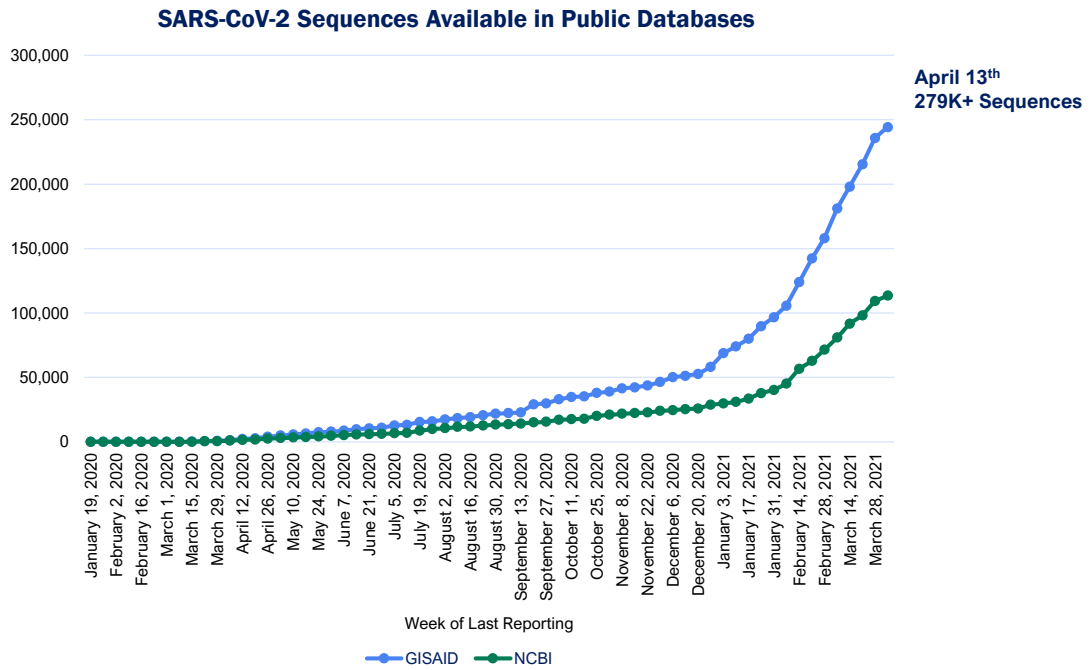

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Variant Classifications

- The SARS-CoV-2 Interagency Group (SIG) established variant classifications
  - Each variant class includes possible attributes of lower classes; variant status might escalate or deescalate based on scientific evidence
- **Variant of Interest**: contains specific genetic markers associated with changes to receptor binding, reduced neutralization by antibodies generated against previous infection or vaccination, reduced efficacy of treatments, potential diagnostic impact, or predicted increase in transmissibility or disease severity
- **Variant of Concern**: evidence of an increase in transmissibility, more severe disease (increased hospitalizations or deaths), significant reduction in neutralization by antibodies generated during previous infection or vaccination, reduced effectiveness of treatments or vaccines, or diagnostic detection failures
- **Variant of High Consequence**: clear evidence that prevention measures or medical countermeasures (MCMs) have significantly reduced effectiveness relative to previously circulating variants

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Variants of Interest

Pango lineage	Spike Protein Substitutions	Nextstrain	First Detected	Attributes
B.1.526	(L5F*), T95I, D253G, (S477N*), (E484K*), D614G, (A701V*)	20C/S:484K	United States (New York) November 2020	• Reduced susceptibility to the combination of bamlanivimab and etesevimab monoclonal antibody treatment; however, the clinical implications of this are not known. Alternative monoclonal antibody treatments are available. • Reduced neutralization by convalescent and post-vaccination sera
B.1.526.1	D80G, Δ144, F157S, L452R, D614G, (T791I*), (T859N*), D950H	20C	United States (New York) October 2020	• Potential reduction in neutralization by some EUA monoclonal antibody treatments • Potential reduction in neutralization by convalescent and post-vaccination sera
B.1.525	A67V, Δ69/70, Δ144, E484K, D614G, Q677H, F888L	20A/S:484K	United Kingdom/Nigeria December 2020	• Potential reduction in neutralization by some EUA monoclonal antibody treatments • Potential reduction in neutralization by convalescent and post-vaccination sera
P.2	E484K, (F565L*), D614G, V1176F	20J	Brazil April 2020	• Potential reduction in neutralization by some EUA monoclonal antibody treatments • Reduced neutralization by post-vaccination sera
B.1.617	L452R, E484Q, D614G	20A	India February 2021	• Potential reduction in neutralization by some EUA monoclonal antibody treatments • Slightly reduced neutralization by post-vaccination sera
B.1.617.1	(T95I), G142D, E154K, L452R, E484Q, D614G, P681R, Q1071H	20A/S:154K	India December 2020	• Potential reduction in neutralization by some EUA monoclonal antibody treatments • Potential reduction in neutralization by post-vaccination sera
B.1.617.2	T19R, (G142D), Δ156, Δ157, R158G, L452R, T478K, D614G, P681R, D950N	20A/S:478K	India December 2020	• Potential reduction in neutralization by some EUA monoclonal antibody treatments • Potential reduction in neutralization by post-vaccination sera
B.1.617.3	T19R, G142D, L452R, E484Q, D614G, P681R, D950N	20A	India October 2020	• Potential reduction in neutralization by some EUA monoclonal antibody treatments • Potential reduction in neutralization by post-vaccination sera

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Variants of Concern

SARS-CoV-2 Variants of Concern | CDC

Name (Pango lineage)	Spike Protein Substitutions	Name (Nextstrain)	First Detected	Known Attributes
B.1.1.7	Δ69/70, Δ144Y, (E484K*), (S494P*), N501Y, A570D, D614G, P681H, T716I, S982A, D1118H (K1191N*)	20I/501Y.V1	United Kingdom	• ~50% increased transmission • Likely increased severity based on hospitalizations and case fatality rates • Minimal impact on neutralization by EUA monoclonal antibody therapeutics • Minimal impact on neutralization by convalescent and post-vaccination sera
P.1	L18F, T20N, P26S, D138Y, R190S, K417T, E484K, N501Y, D614G, H655Y, T1027I	20J/501Y.V3	Japan/ Brazil	• Significant reduction in neutralization by certain EUA monoclonal antibody therapeutics • Reduced neutralization by convalescent and post-vaccination sera
B.1.351	D80A, D215G, Δ241/242/243, K417N, E484K, N501Y, D614G, A701V	20H/501.V2	South Africa	• ~50% increased transmission • Significant reduction in neutralization by certain EUA monoclonal antibody therapeutics • Moderate reduction on neutralization by convalescent and post-vaccination sera
B.1.427	L452R, D614G	20C/S:452R	US-California	• ~20% increased transmissibility • Significant reduction in neutralization by some, but not all, EUA therapeutics • Moderate reduction in neutralization using convalescent and post-vaccination sera
B.1.429	S13I, W152C, L452R, D614G	20C/S:452R	US-California	• ~20% increased transmissibility • Significant reduction in neutralization by some, but not all, EUA therapeutics • Moderate reduction in neutralization using convalescent and post-vaccination sera

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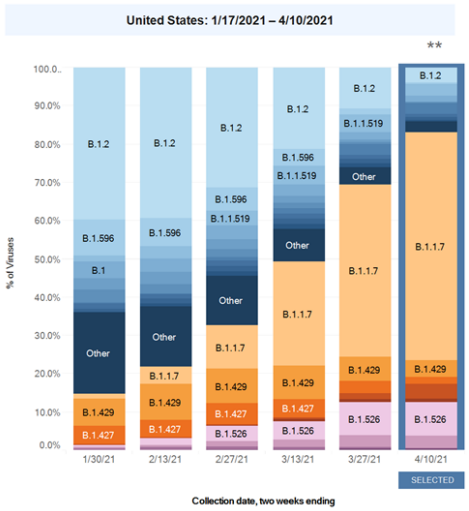
National Prevalence of SARS-CoV-2 Variants



United States: 3/28/2021 – 4/10/2021

USA

	Lineage	Type	%Total	95%CI
Most common lineages	B.1.1.7	VOC	59.6%	56.9-62.4%
	B.1.526	VOI	8.7%	6.9-11.0%
	B.1.429	VOC	4.4%	3.5-5.4%
	B.1.2		3.9%	3.4-4.5%
	P.1	VOC	3.7%	3.0-4.5%
	B.1.526.1	VOI	3.3%	2.7-3.9%
	B.1.1.519		2.9%	2.4-3.5%
	B.1.526.2		2.9%	2.3-3.5%
	B.1.427	VOC	1.7%	1.3-2.2%
	B.1		1.5%	1.3-1.9%
	B.1.351	VOC	1.0%	0.8-1.3%
	B.1.1		0.8%	0.5-1.1%
	B.1.575		0.7%	0.5-0.9%
	B.1.596		0.5%	0.4-0.6%
	R.1		0.5%	0.4-0.6%
	B.1.243		0.2%	0.2-0.4%
	B.1.234		0.2%	0.1-0.3%
Additional VOI/VOC li..	B.1.525	VOI	0.4%	0.3-0.6%
	P.2	VOI	0.1%	0.1-0.2%
Other*	Other		2.9%	2.5-3.3%

* Other represents >200 additional lineages, which are each circulating at <1% of viruses

** Most recent data are subject to change as samples from that period are still being processed

† Fewer than 10 observations of this variant during the selected time/location context

Prevalence of B.1.1.7 continues to increase and is estimated at 59.6%

The prevalence of B.1.427 and B.1.429 continue to decrease

Prevalence of B.1.526 remains steady around 8.7%

Prevalence of P.1 increased to 3.7% and B.1.351 increased to 1%

Variant Proportions in the U.S. | CDC

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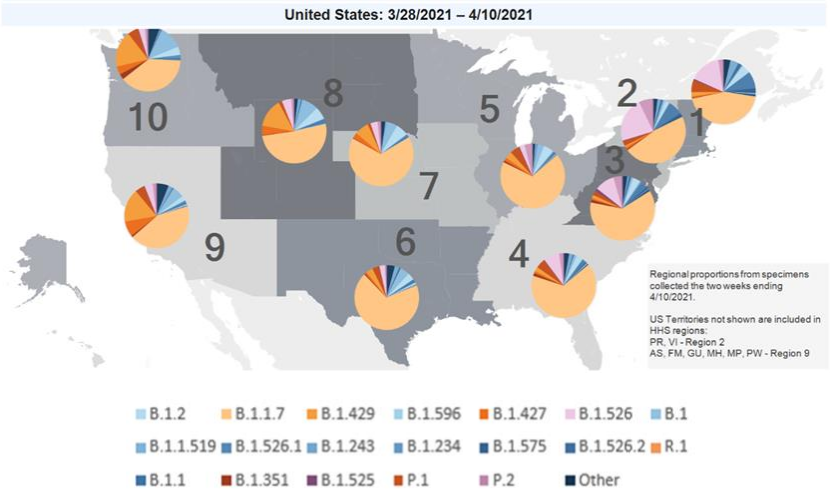
Regional Prevalence of SARS-CoV-2 Variants



Regional proportions of **B.1.1.7** are **greater than 60%** in **HHS Regions 3 through 8**

The combined proportions of **B.1.427 and B.1.419 decreased** in **HHS Regions 8 through 10** but remain greater than 15%.

In **HHS Regions 1 through 6, 9, and 10**, the proportion of **P.1** is **greater than 2%**.

The regional proportion of **B.1.351** is **greater than 1%** in **HHS Regions 3, 4, 9, and 10**.

HHS Region 2 continues to have the **highest proportion** of **B.1.526** at 22.6%

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