

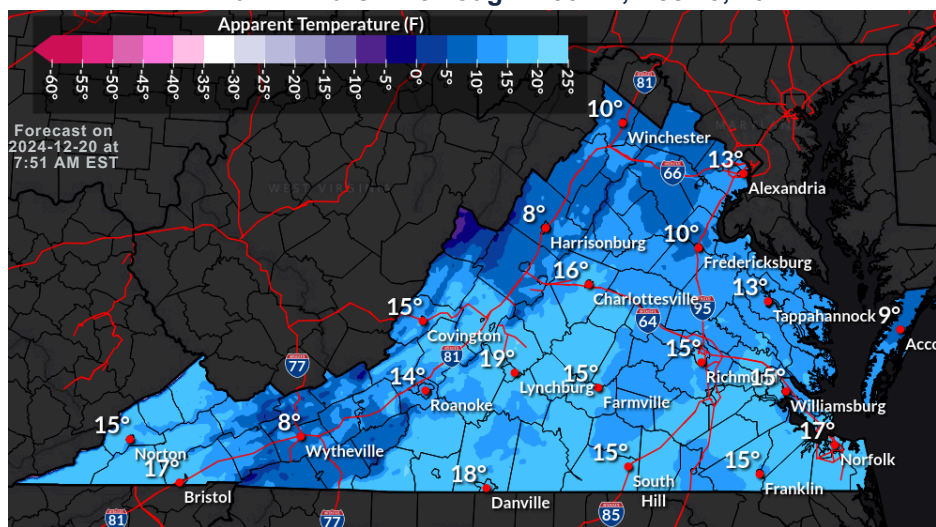
December 20, 2024

Key Takeaways

- Louisiana reports the nation’s first severe HPAI A(H5N1) case.
- California declared a State of Emergency related to HPAI A(H5N1). The state also issued another recall of raw milk products.
- RSV activity is elevated but stable. Children aged 0-4 continue to be disproportionately affected.
- COVID-19 and flu activity is growing in the region, while norovirus remains elevated.
- Tornado activity has increased 12% in the eastern U.S. since 1951, with cold season tornados accounting for all of the increase.

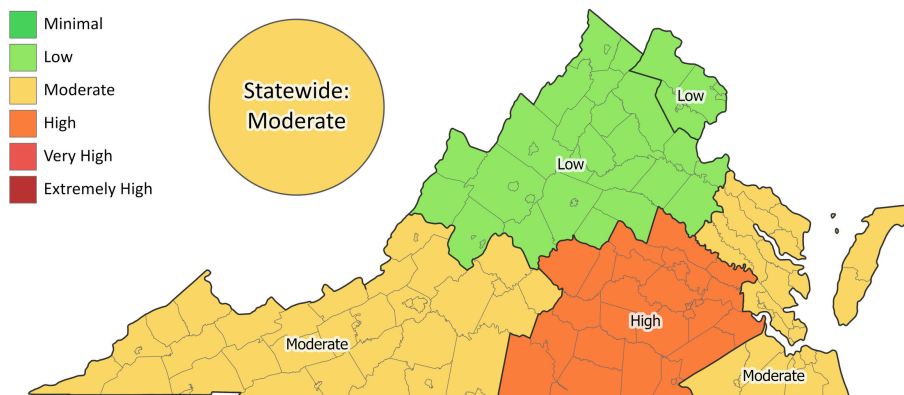
Key Figures

Minimum Wind Chill through 7:00AM, Dec 23, 2024



Forecasts call for subfreezing wind chill temperatures across much of Virginia, with some areas reaching single digits. Image source: [NWS](#).

Respiratory Illness Activity Levels – Week ending Dec 14, 2024



Statewide illness activity levels are ‘moderate’ in the Commonwealth, with the Central region reporting a ‘High’ activity level. The Northern and Northwest regions continue to report ‘low’ activity. Source: [VDH](#).

Mpox

15

The number of clade I mpox cases reported outside of Africa as of Dec 19, 2024.

Seasonal Illness

1

Number of Virginia’s five regions at ‘High’ or higher respiratory illness activity levels for the week ending Dec 14.

73% / >99%

The likelihood that COVID-19 / flu activity is growing in Virginia, according to CDC models as of Dec 17, 2024.

HPAI A(H5N1)

61

Human HPAI A(H5N1) cases in the United States as of Dec 19.

873

HPAI A(H5N1) detections in dairy cattle herds in the United States as of Dec 19.

Spotlight:
Biosecurity Risks

Ongoing Monitored Situations

Avian Influenza A(H5N1)

- **CDC notes first severe H5N1 case in U.S.** The patient, a resident of Southwest Louisiana, was hospitalized after exposure to sick and dead birds. The CDC confirmed viral samples match the D1.1 genotype of H5N1 and are similar to the virus that hospitalized a teenager in Canada last month. The virus is not of the same genotype as the B3.13 genotype virus currently circulating in dairy cattle.
- **Wisconsin reports presumptive H5N1 case.** The patient was exposed to infected poultry at a commercial turkey farm in western Wisconsin. Officials are monitoring farm workers in the area.
- **California declares State of Emergency.** The state has detected H5N1 in 261 dairy herds in the last 30 days, including several herds in Southern California which had previously been free from the virus. California also leads the nation in human cases (34) and wastewater detections.
- **California recalls more raw milk products.** The products are subject to a statewide recall following detection of H5N1 viral contamination. This is the second raw milk producer affected by a recall.
- **House cats sickened after consuming raw milk.** Two cats fell ill after consuming recalled milk. Officials are investigating raw meat as a source for infections in three other cats. Research suggests domestic cat infection may create opportunities for genetic reassortment.
- **Research suggests H5N1 may infect horses.** The study found evidence of H5N1 antibodies in Mongolian horses. As horses are routinely infected with H3N8 and H7N7, there is some concern that coinfections may lead to genetic reassortment.
- **H5N1 kills zoo animals in Phoenix.** The zoo reported positive H5N1 tests for a cheetah, cougar, swamphen, Canada goose, kookaburra, and white tiger. All but the tiger died. Last week the state also reported human cases among poultry workers in a county adjacent to the zoo.

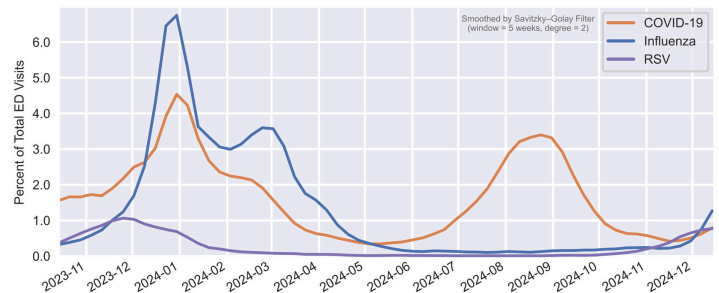
Marburg Virus Disease

- **Outbreak declared over in Rwanda.** Reporting no new cases in the last 42 days, the Rwandan government declared an end to the outbreak. The total case count stands at 66, with 15 deaths.

Seasonal Illness

- **RSV activity is elevated but stable.** RSV diagnoses in the emergency department (ED) plateaued at roughly 0.8%. RSV test positivity in HHS Region 3 and wastewater concentrations in the American South have also stabilized. Both the CDC and WastewaterSCAN consider wastewater RSV activity in Virginia to be 'High'.
- **COVID-19 and flu activity is moderate and growing.** ED diagnoses of flu are now at the highest level seen since March, and diagnoses are increasing across all age groups. Wastewater data show COVID-19 activity as 'high' with an 'upward' trajectory. CDC models estimates that the effective reproductive numbers (R_t) of COVID-19 and flu in Virginia are 1.04 and 1.30 respectively, suggesting the stabilization of COVID-19 activity in the near future, but continued growth of flu activity.

Virginia Emergency Department Visits by Viral Illness



While RSV activity appears stable, COVID-19 and flu diagnoses continue to grow. Data source: CDC.

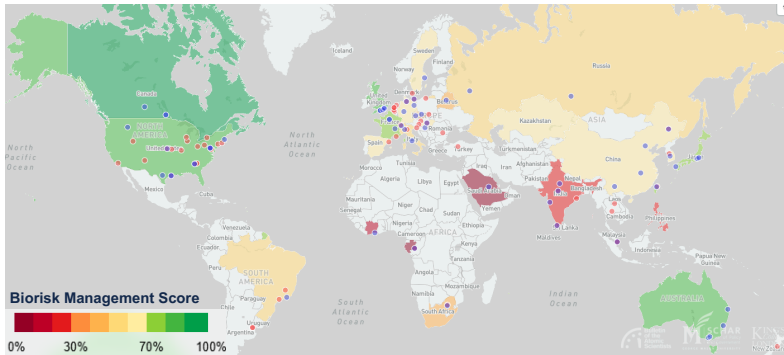
- **Unusual pneumonia increase detected in Virginia.** Officials report an "unusual" increase in reported pneumonia cases, particularly among children. A number of pathogens may be responsible, including rhinoviruses/enteroviruses and *Mycoplasma pneumoniae*.
- **Norovirus remains elevated in the region.** CDC test positivity data and wastewater surveillance both show elevated norovirus activity in the region.

Mpox

- **Germany reports new cases of clade 1b mpox.** Four new cases in the same household, including two children were reported near Cologne. One family member had recently traveled to Africa. The children's school was closed as a precaution.

Spotlight

BSL3+ & BSL4 Labs and Biorisk Management



By the beginning of 2023 there were 69 BioSafety Level-4 (BSL4) labs operating, under construction, or planned, along with 57 BSL3+ labs. Many of these are located in countries with weak or unstable governments, or with inadequate biorisk management frameworks. Image source: Globalbiolabs.org.

- An international group of scientists have warned about the risks of ‘mirror life’. Although development of microorganisms from ‘mirror-image’ molecules is likely a decade away, the group believes the risks are large enough to warrant examining biosecurity now.
- HPAI A(H5N1) testing demands are exacerbating workforce shortages at a California public health laboratory. Staff went public with concerns about staffing levels, overwork, and management, citing resulting delays, misplaced samples, errors, and other quality issues.

Other News

- A shooting at a school in Madison, WI, ended in three deaths, including the shooter. At least six others were hospitalized, two of whom suffered life-threatening injuries. It was the 322nd school shooting in the U.S. in 2024.
- Medetomidine, a strong animal sedative, is being found in illegal substances nationwide. While no cases have been confirmed in Virginia, experts believe the medication may already be in circulation as it is not detected on routine drug tests.
- The Downtown Tunnel in Portsmouth was closed in both directions after a car caught on fire Tuesday afternoon. The incident prompted an emergency response from Portsmouth, Norfolk, and Navy Regional Fire Rescue units. No injuries were reported.

Biosecurity Risks

- COVID-19 is not the first pandemic subject to an origin controversy. Thirty years after the 1977 H1N1 flu pandemic, genomic analysis led some to believe it was the result of an accident. Although these origins may never be settled definitively, two plausible pandemic events, along with numerous less significant ones, demonstrate the risks associated with lab accidents.
- A recent audit revealed 323 missing samples in an Australian public health lab. The paper trail for the samples ends in 2021, but there is no evidence the samples left the lab. The threat to the public was considered very low, and no associated outbreaks were identified.

Tornado Activity in Virginia, 1950 - 2023



Since 1950, tornado frequency has shown an overall upward trend in Virginia, with a spike in the early 2000s. Image Source: [Virginia Climate Center](https://VirginiaClimateCenter.org), George Mason University

- Tornado activity decreased 25% in the western U.S. and increased 12% in the eastern U.S. since 1951. Tornado activity has also shifted from warm to cool seasons. These changes are attributed to factors such as increased hurricane activity and climate change.