
Kansas
Department of Health and Environment
Division of Public Health
COVID-19 Update for Local Partners
Kansas Department of Health & Environment – September 1, 2022

Agenda – September 1, 2022

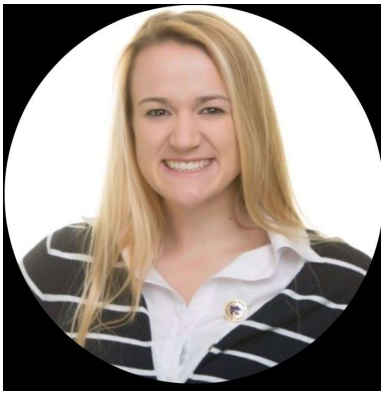
- Introduction: Sara Garcia & Larissa Render
- COVID-19 Update: Farah Ahmed
- Sars-CoV-2 Variants: John Anderson
- Monkeypox Update: Farah Ahmed
- Monkeypox Virus Variants: John Anderson
- Wastewater Surveillance: John Anderson
- Monkeypox Vaccine Update: Lauren Swensson
- Communications Update: James Roberts

Good morning everyone.

New Viral Hepatitis Program Manager

Sara Garcia, LBSW

- Housed within Prevention and Care Section in the Bureau of Disease Control and Prevention
- Oversees Viral Hepatitis Program; Manages CDC grant funding, Viral Hepatitis Elimination Advisory Council, Hepatitis C Linkage to Care position



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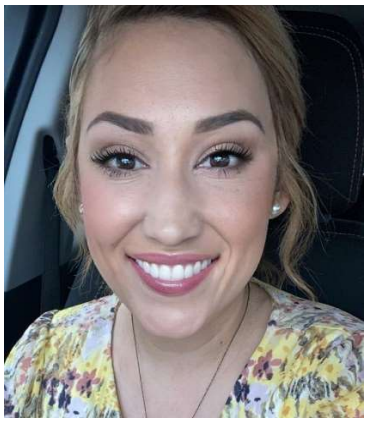
To protect and improve the health and environment of all Kansans

New Viral Hepatitis Nurse Consultant

Larissa Render, LPN

- Housed within Infectious Disease Management in the Bureau of Disease Control and Prevention
- Serves as a clinical resource for health care providers, LHD's, infection control nurses in hospitals, and staff of long-term care facilities



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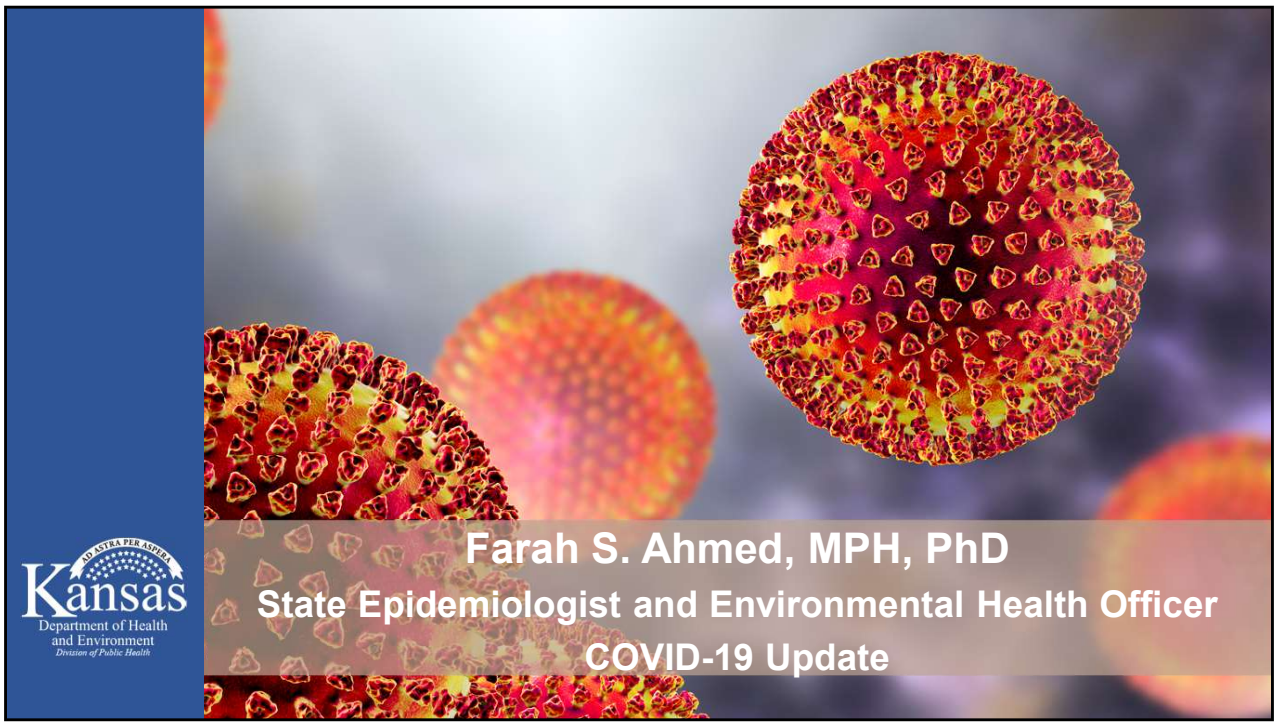
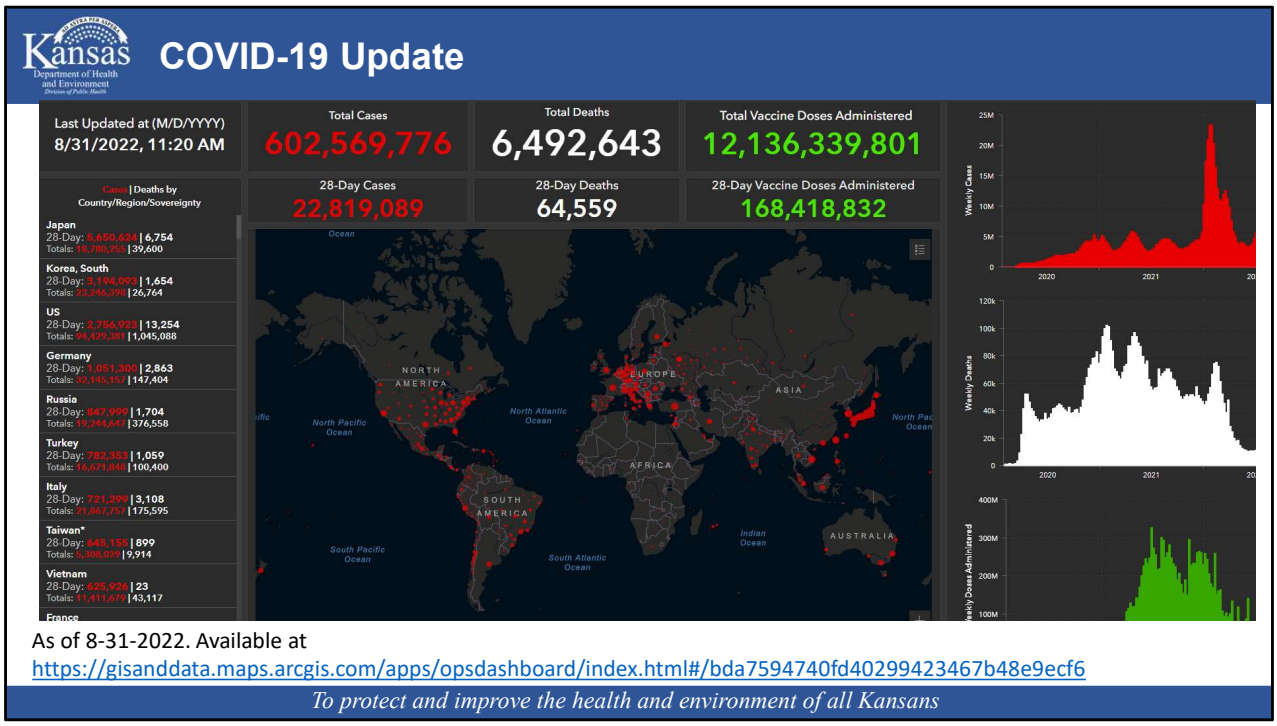
I am Larissa Render, the Viral Hepatitis Nurse Consultant for the state of Kansas. I have been with KDHE for a little over two months. My background is Occupational health and I have nearly two years of experience in workplace injuries, pre-employment testing, work-related illness, and vaccine preventable diseases. I currently collaborate with the medical investigator that is interviewing chronic hepatitis C cases under 45 years of age for our enhanced surveillance project, and I serve as a clinical consult for those cases. Ultimately, my position will be heavily involved with being a clinical resource for health care providers, local health departments, infection control nurses in hospitals, and staff of long-term care facilities to assist and provide clinical guidance regarding patient evaluation, diagnosis, treatment,

and care.



Good morning everyone.



As of 8-31-2022. Available at
https://gisanddata.maps.arcgis.com/apps/opsdashboard/index.html#/bda7594740fd40299423467b48e9ecf6

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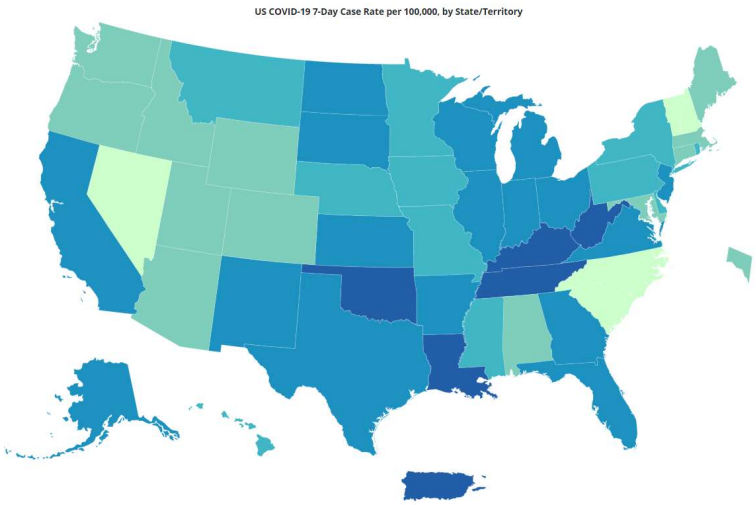
Currently, there are over 600 million cases and there are almost 6.5 million deaths around the world.

COVID-19 Update

- Total cases: 94,110,810



As of 8-31-2022. Available at https://covid.cdc.gov/covid-data-tracker/#cases_casesper100klast7days

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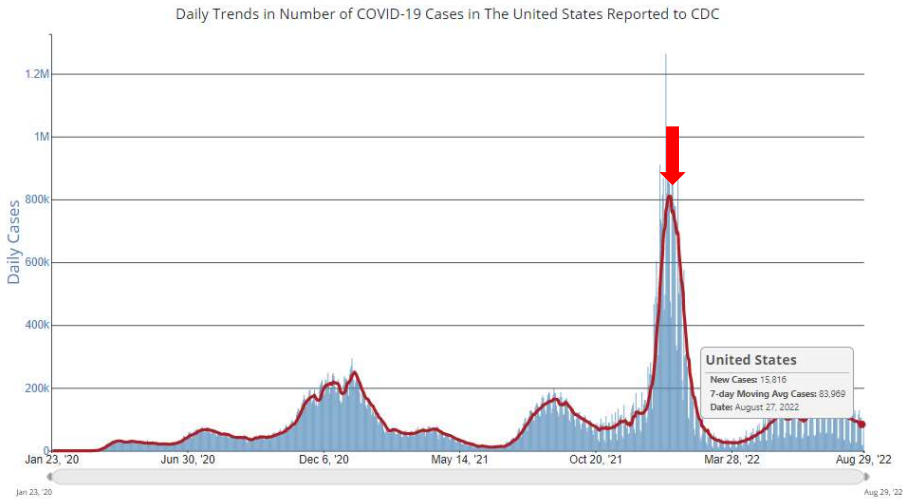
As of yesterday:

Total cases in the US: 94,110,810 reported cases.

This map shows the 7 day rate of cases per 100,000 population.

COVID-19 Update



As of 8-31-2022. Available at https://covid.cdc.gov/covid-data-tracker/#trends_dailycases

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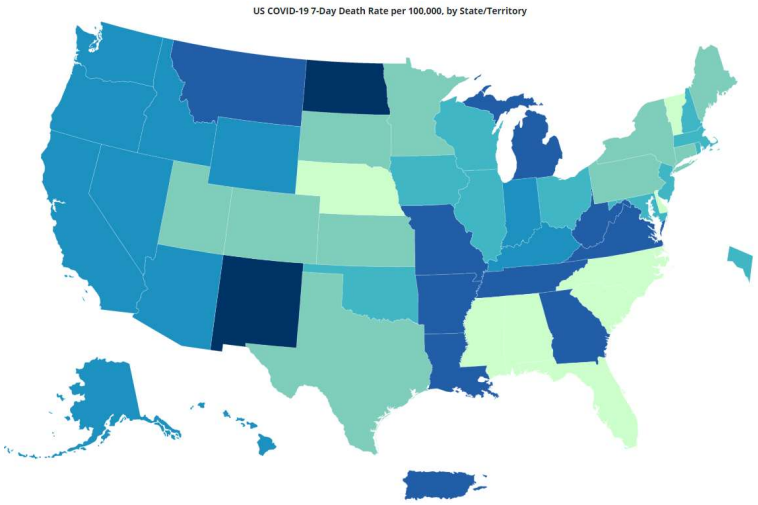
The 7 day rolling average number of cases in the US on August 27th (I cut off the most recent 5 days) was 83,969 cases per day. That peak 7 day average of 810,887 cases per day at the red arrow was January 15, 2022.

COVID-19 Update

- Total deaths: 1,039,055



As of 8-31-2022. Available at https://covid.cdc.gov/covid-data-tracker/#cases_deathsper100k

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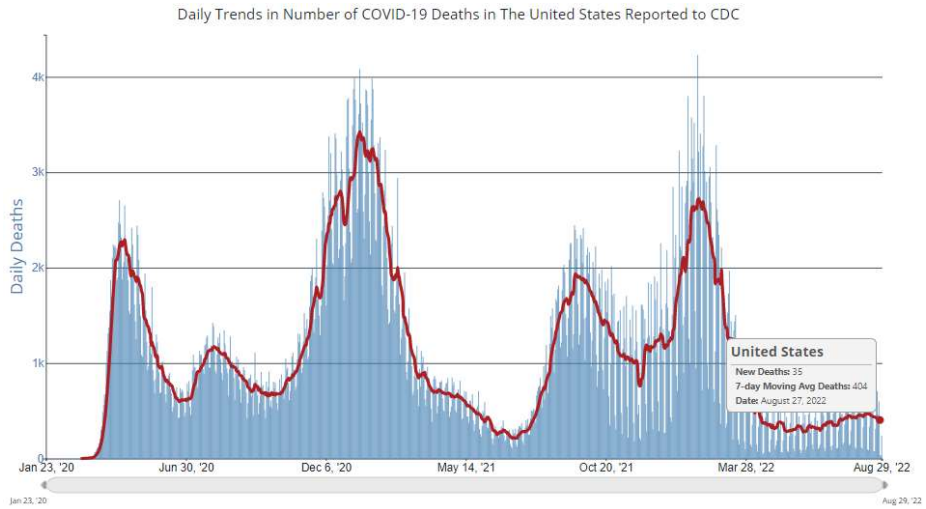
As of yesterday in the US: 1,039,055 deaths.

This map shows the 7 day death rate per 100,000 population.

COVID-19 Update



As of 8-31-2022. Available at https://covid.cdc.gov/covid-data-tracker/#trends_dailydeaths

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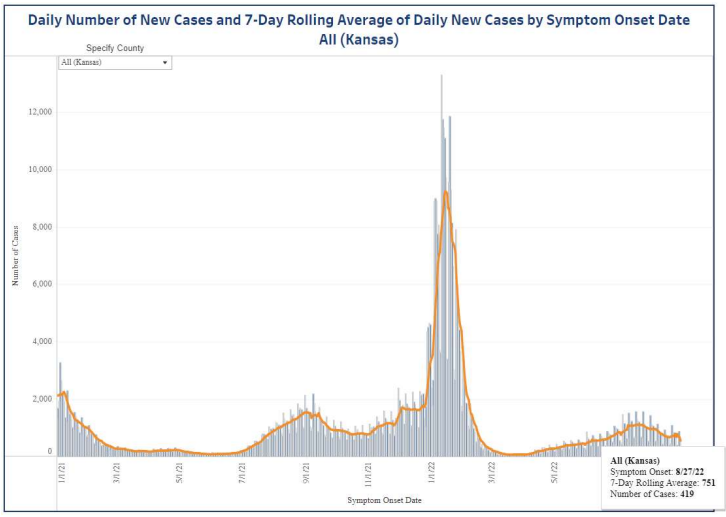
The 7 day rolling average number of deaths on August 27th was 404 deaths per day.

COVID-19 Update



Available at: https://www.coronavirus.kdheks.gov/160/COVID-19-in-Kansas; Data updated Wednesday 8/31/2022.

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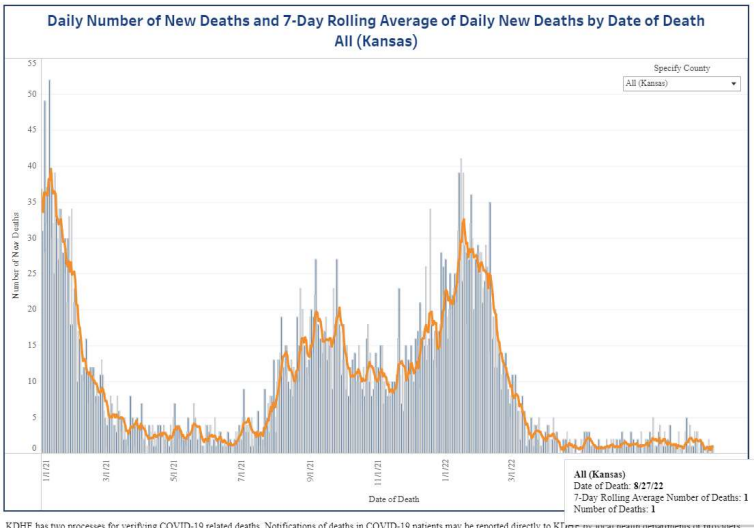
Looking at the situation in Kansas:

Cutting off the most recent 5 days to allow for lags in reporting, we see that the 7 day rolling average number of new cases by symptom onset date (not date reported) was 751 new cases per day on August 27th. Last month, I reported we were around 422 new cases per day on July 30th but it looks like we got a lot more labs in after that and were actually at 1,004 cases per day so we are not at an increase from last month.

COVID-19 Update



Available at: https://www.coronavirus.kdheks.gov/160/COVID-19-in-Kansas; Data updated Wednesday 8/3/2022.

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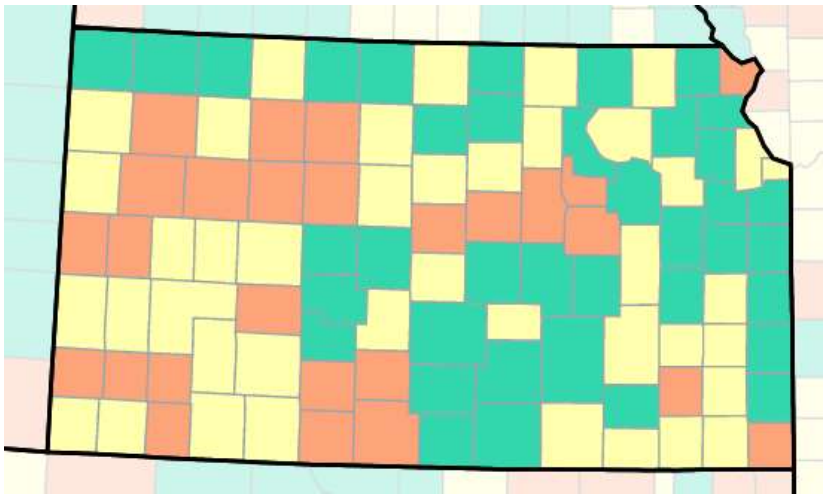
The 7 average number of deaths on July 30th was 1 death per day.

COVID-19 Update



Available at: https://covid.cdc.gov/covid-data-tracker/#county-view?list_select_state=Kansas&data-type=CommunityLevels&null=CommunityLevels ; Map updated Thursday 8/25/2022.

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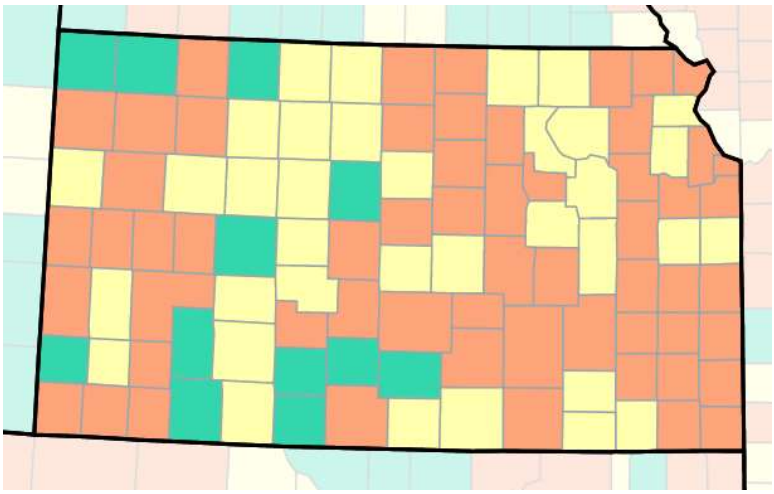
Looking at CDC's Community Level Map, a lot more green and yellow than we have seen in a while. These are the low and medium risk levels per CDC.

Time Period: COVID-19 Community Levels were calculated on Thu August 25, 2022.

New COVID-19 cases per 100,000 population (7-day total) are calculated using data from Thu Aug 18 2022 - Wed Aug 24 2022. New COVID-19 admissions per 100,000 population (7-day total) and Percent of inpatient beds occupied by COVID-19 patients (7-day average) are calculated using data from Wed Aug 17 2022 - Tue Aug 23 2022.

COVID-19 Update



Available at: https://covid.cdc.gov/covid-data-tracker/#county-view?list_select_state=Kansas&data-type=CommunityLevels&null=CommunityLevels ; Map updated Thursday 7/28/2022.

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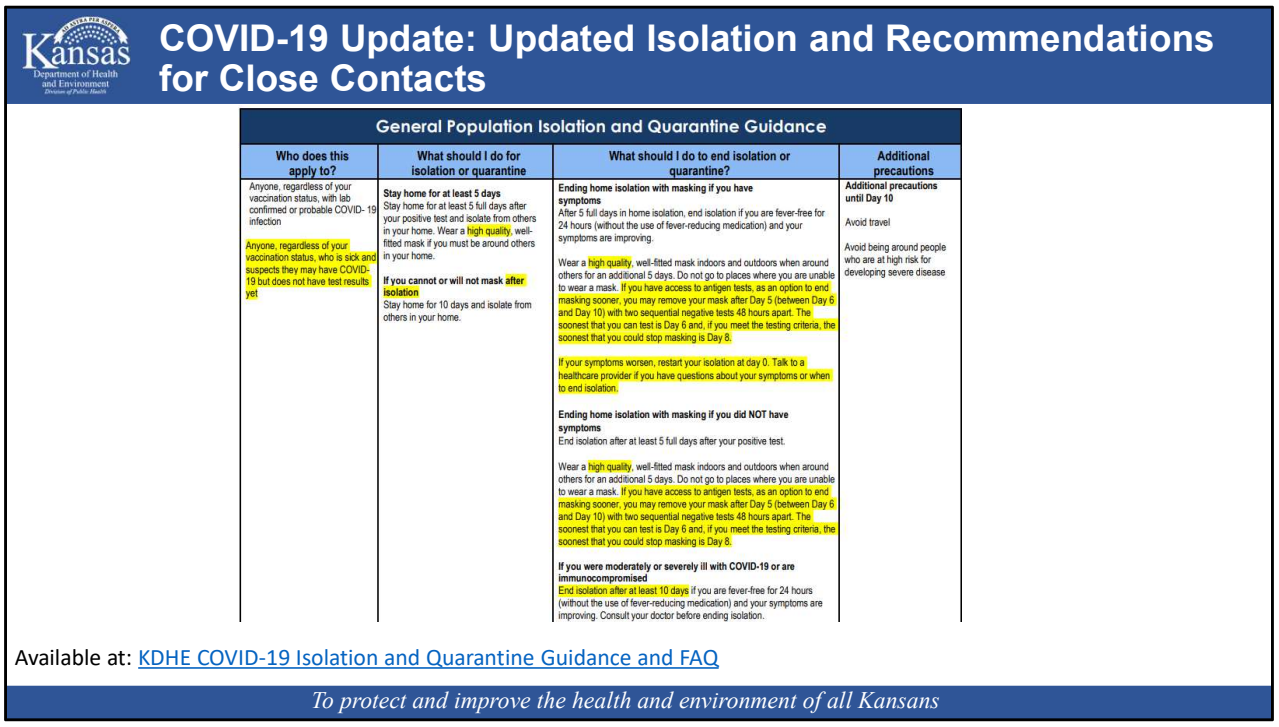
This is what it looked like a month ago.

Time Period: COVID-19 Community Levels were calculated on Thu Jul 28 2022.

New COVID-19 cases per 100,000 population (7-day total) are calculated using data from Thu Jul 21 2022 - Wed Jul 27 2022. New COVID-19 admissions per 100,000 population (7-day total) and Percent of inpatient beds occupied by COVID-19 patients (7-day average) are calculated using data from Wed Jul 20 2022 - Tue Jul 26 2022.



COVID-19 Update: Updated Isolation and Recommendations for Close Contacts

General Population Isolation and Quarantine Guidance

Who does this apply to?	What should I do for isolation or quarantine	What should I do to end isolation or quarantine?	Additional precautions
Anyone, regardless of your vaccination status, with lab confirmed or probable COVID- 19 infection Anyone, regardless of your vaccination status, who is sick and suspects they may have COVID-19 but does not have test results yet	**Stay home for at least 5 days** Stay home for at least 5 full days after your positive test and isolate from others in your home. Wear a high quality, well-fitted mask if you must be around others in your home. **If you cannot or will not mask after isolation** Stay home for 10 days and isolate from others in your home.	**Ending home isolation with masking if you have symptoms** After 5 full days in home isolation, end isolation if you are fever-free for 24 hours (without the use of fever-reducing medication) and your symptoms are improving. Wear a high quality, well-fitted mask indoors and outdoors when around others for an additional 5 days. Do not go to places where you are unable to wear a mask. If you have access to antigen tests, as an option to end masking sooner, you may remove your mask after Day 5 (between Day 6 and Day 10) with two sequential negative tests 48 hours apart. The soonest that you can test is Day 6 and, if you meet the testing criteria, the soonest that you could stop masking is Day 8. If your symptoms worsen, restart your isolation at day 0. Talk to a healthcare provider if you have questions about your symptoms or when to end isolation. **Ending home isolation with masking if you did NOT have symptoms** End isolation after at least 5 full days after your positive test. Wear a high quality, well-fitted mask indoors and outdoors when around others for an additional 5 days. Do not go to places where you are unable to wear a mask. If you have access to antigen tests, as an option to end masking sooner, you may remove your mask after Day 5 (between Day 6 and Day 10) with two sequential negative tests 48 hours apart. The soonest that you can test is Day 6 and, if you meet the testing criteria, the soonest that you could stop masking is Day 8. **If you were moderately or severely ill with COVID-19 or are immunocompromised** End isolation after at least 10 days if you are fever-free for 24 hours (without the use of fever-reducing medication) and your symptoms are improving. Consult your doctor before ending isolation.	**Additional precautions until Day 10** Avoid travel Avoid being around people who are at high risk for developing severe disease

Available at: KDHE COVID-19 Isolation and Quarantine Guidance and FAQ

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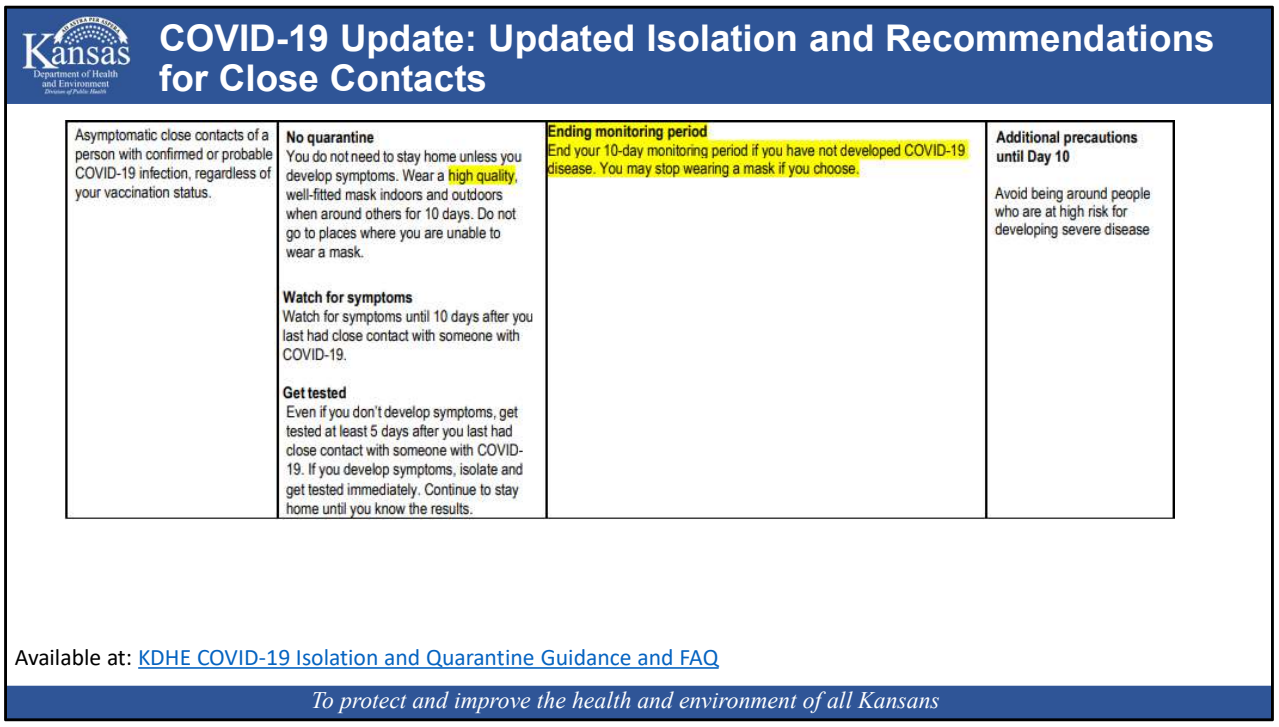
Since the last time we talked, CDC changed the recommendations for isolation and quarantine. We have updated the to reflect the changes. First off, there are no changes to the guidance for healthcare settings, although we did hear several weeks when the updated guidance for the general population was published, that there would be updated guidance for healthcare coming.

The updates are highlighted in the document.

First off, minor update to isolation. Anyone who tests positive still needs to isolate at home for a minimum of 5 days wearing a mask if they have to be around others. After ending home isolation, the recommendation to mask around other for days 6-10 still remains as well. The update was adding an option to essentially use testing to indicate when you can stop masking between days 6 through 10. So, if you have access to antigen tests, you have the option to remove your mask with two negative sequential negative tests taken 48 hours apart. The soonest that you can test is Day 6 and, if you meet the testing criteria of two negative tests taken 48 hours apart, the soonest you could stop masking is Day 8.

There is also a new piece of guidance around symptoms that rebound and that is that, if your symptoms worsen, you should restart isolation at Day 0 and talk to a healthcare provider before ending isolation.

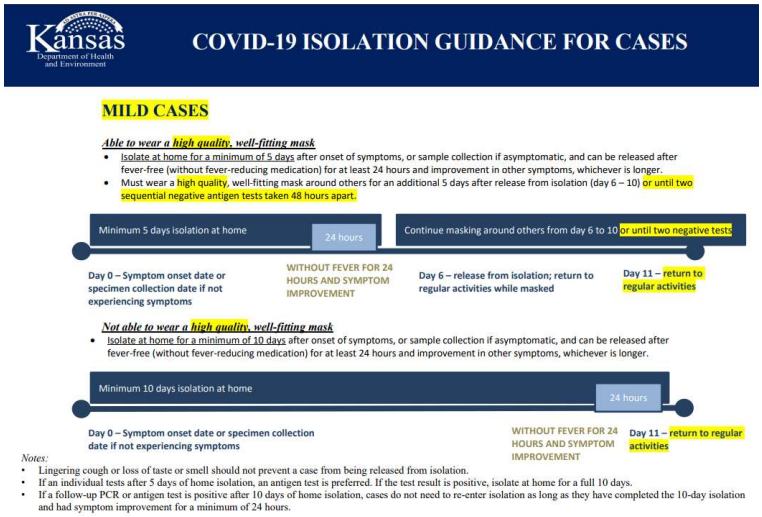
And previously people who were severely ill were recommended to isolate between 10 and 20 days, now the guidance says they can end isolation after 10 days if fever free and with consultation with their provider.



Of course, the biggest change is that asymptomatic close contacts, regardless of immunity status, are no longer recommended to home quarantine. Now, the recommendation is for a 10 day monitoring period. You should still wear a high quality, well-fitting mask around others for the 10 days, watch for symptoms, and get tested on day 5 or later, or immediately if you start to have symptoms.

So, this guidance applies to the general public, which includes colleges/universities, daycares, K-12 schools, etc.

COVID-19 Update: Updated Isolation and Recommendations for Close Contacts



Available at: Isolation and Quarantine Release Graphic

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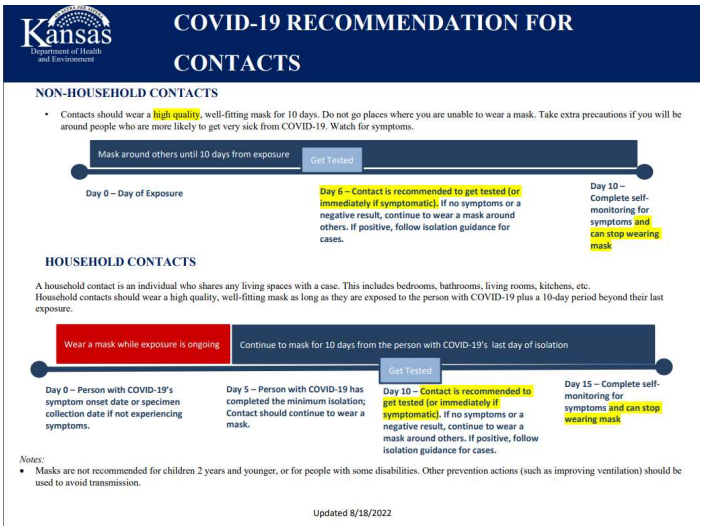
COVID-19 Update: Updated Isolation and Recommendations for Close Contacts



COVID-19 RECOMMENDATION FOR CONTACTS

NON-HOUSEHOLD CONTACTS

- Contacts should wear a high quality, well-fitting mask for 10 days. Do not go places where you are unable to wear a mask. Take extra precautions if you will be around people who are more likely to get very sick from COVID-19. Watch for symptoms.

Mask around others until 10 days from exposure

Get Tested

Day 0 – Day of Exposure

Day 6 – Contact is recommended to get tested (or immediately if symptomatic). If no symptoms or a negative result, continue to wear a mask around others. If positive, follow isolation guidance for cases.

Day 10 – Complete self-monitoring for symptoms and can stop wearing mask

HOUSEHOLD CONTACTS

A household contact is an individual who shares any living spaces with a case. This includes bedrooms, bathrooms, living rooms, kitchens, etc. Household contacts should wear a high quality, well-fitting mask as long as they are exposed to the person with COVID-19 plus a 10-day period beyond their last exposure.

Wear a mask while exposure is ongoing

Continue to mask for 10 days from the person with COVID-19's last day of isolation

Get Tested

Day 0 – Person with COVID-19's symptom onset date or specimen collection date if not experiencing symptoms.

Day 5 – Person with COVID-19 has completed the minimum isolation; Contact should continue to wear a mask.

Day 10 – Contact is recommended to get tested (or immediately if symptomatic). If no symptoms or a negative result, continue to wear a mask around others. If positive, follow isolation guidance for cases.

Day 15 – Complete self-monitoring for symptoms and can stop wearing mask

Notes:

- Masks are not recommended for children 2 years and younger, or for people with some disabilities. Other prevention actions (such as improving ventilation) should be used to avoid transmission.

Updated 8/18/2022

Available at: Isolation and Quarantine Release Graphic

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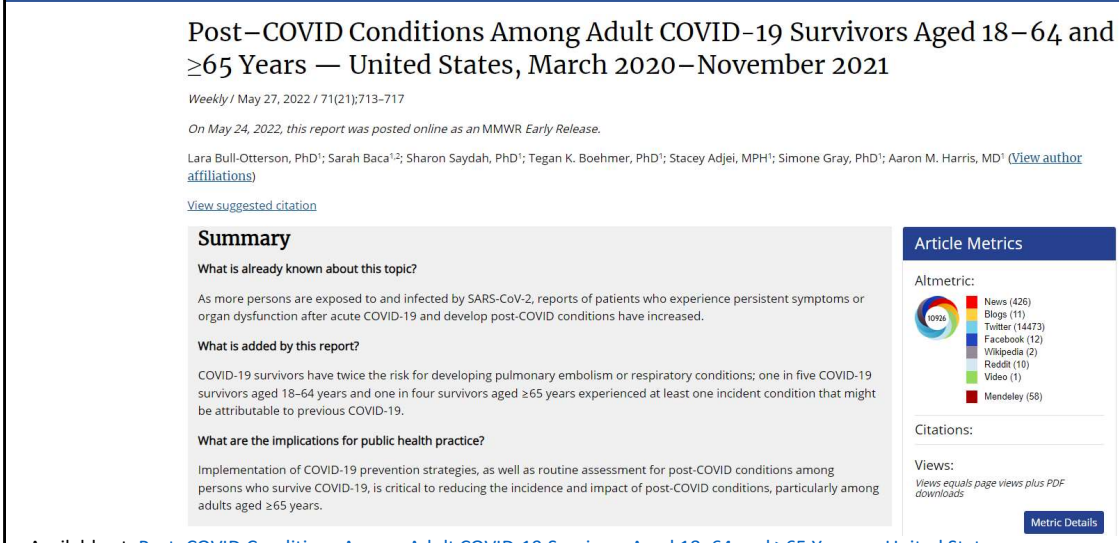
As of 8/11/2022, CDC has moved away from the previous definition of a close contact and moved toward information for individuals on Understanding Exposure Risks. There are a number of factors that increase the risk of getting COVID-19 after being exposed to someone with COVID-19 including: 1) longer time spent with the infected person, 2) if the infected person was coughing, singing, shouting or breathing heavily, 3) if the infected person had symptoms, 4) if neither the infected person or the exposed person were wearing a high-quality mask, 5) if the space was poorly ventilated, and 6) if the exposed person was very close or touching the infected person.

COVID-19 Update: New Literature



Post–COVID Conditions Among Adult COVID-19 Survivors Aged 18–64 and ≥65 Years — United States, March 2020–November 2021

Weekly / May 27, 2022 / 71(21);713–717

On May 24, 2022, this report was posted online as an MMWR *Early Release.*

Lara Bull-Otterson, PhD[1]; Sarah Baca[1,2]; Sharon Saydah, PhD[1]; Tegan K. Boehmer, PhD[1]; Stacey Adjei, MPH[1]; Simone Gray, PhD[1]; Aaron M. Harris, MD[1] (View author affiliations)

View suggested citation

Summary

What is already known about this topic?

As more persons are exposed to and infected by SARS-CoV-2, reports of patients who experience persistent symptoms or organ dysfunction after acute COVID-19 and develop post-COVID conditions have increased.

What is added by this report?

COVID-19 survivors have twice the risk for developing pulmonary embolism or respiratory conditions; one in five COVID-19 survivors aged 18–64 years and one in four survivors aged ≥65 years experienced at least one incident condition that might be attributable to previous COVID-19.

What are the implications for public health practice?

Implementation of COVID-19 prevention strategies, as well as routine assessment for post-COVID conditions among persons who survive COVID-19, is critical to reducing the incidence and impact of post-COVID conditions, particularly among adults aged ≥65 years.

Article Metrics

Altmetric:

10926

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Reddit (10)
Video (1)
Mendeley (58)

Citations:

Views:

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Metric Details

Available at: Post–COVID Conditions Among Adult COVID-19 Survivors Aged 18–64 and ≥65 Years — United States, March 2020–November 2021 | MMWR (cdc.gov)

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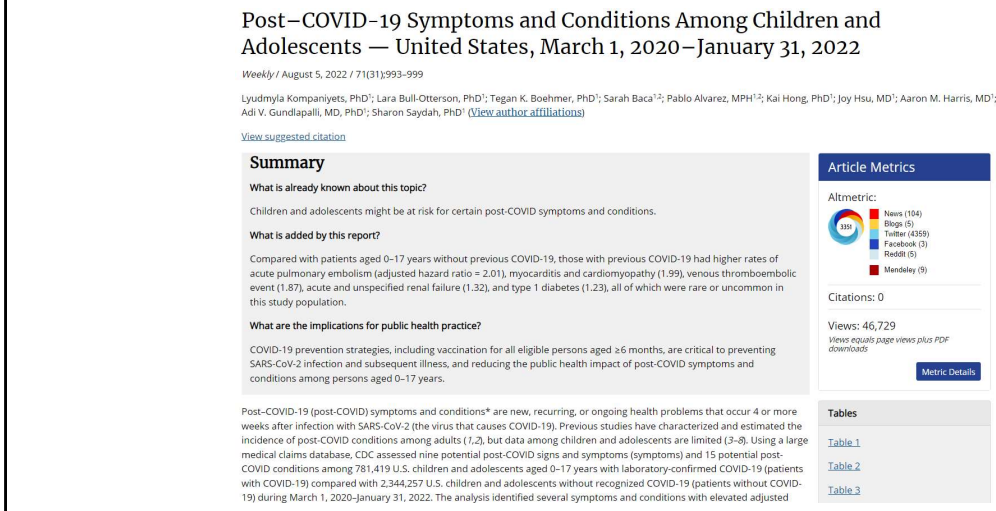
- Cerner EHR data between March 2020 and November 2021 were analyzed, occurrence of 26 conditions often attributed to long COVID, 350K cases and 1.6M controls, 30–365 days after acute COVID-19
- Among all patients aged ≥18 years, 38% of case-patients experienced an incident condition compared with 16% of controls; conditions affected multiple systems, and included cardiovascular, pulmonary, hematologic, renal, endocrine, gastrointestinal, musculoskeletal, neurologic, and psychiatric signs and symptoms.
- Among those aged 18–64 years, 35.4% of case-patients experienced an incident condition compared with 14.6% of controls. Among those aged ≥65 years, 45.4% of case-patients experienced an incident condition compared with 18.5% of controls. These findings translate to one in five COVID-19 survivors aged 18–64 years, and one in four survivors aged ≥65 years experiencing an incident condition that might be attributable to previous COVID-19.
- Therefore, prevention of COVID-19 is critical to reducing the incidence and impact of post-COVID conditions
- **CDC calls for routine assessment for post-COVID conditions**

COVID-19 Update: New Literature



Post–COVID-19 Symptoms and Conditions Among Children and Adolescents — United States, March 1, 2020–January 31, 2022

Weekly / August 5, 2022 / 71(31);993–999

Lyudmyla Kompaniyets, PhD[1]; Lara Bull-Otterson, PhD[1]; Tegan K. Boehmer, PhD[1]; Sarah Baca[1,2]; Pablo Alvarez, MPH[1,2]; Kai Hong, PhD[1]; Joy Hsu, MD[1]; Aaron M. Harris, MD[1]; Adi V. Gundlapalli, MD, PhD[1]; Sharon Saydah, PhD[1] (View author affiliations)

View suggested citation

Summary

What is already known about this topic?

Children and adolescents might be at risk for certain post-COVID symptoms and conditions.

What is added by this report?

Compared with patients aged 0–17 years without previous COVID-19, those with previous COVID-19 had higher rates of acute pulmonary embolism (adjusted hazard ratio = 2.01), myocarditis and cardiomyopathy (1.99), venous thromboembolic event (1.87), acute and unspecified renal failure (1.32), and type 1 diabetes (1.23), all of which were rare or uncommon in this study population.

What are the implications for public health practice?

COVID-19 prevention strategies, including vaccination for all eligible persons aged ≥6 months, are critical to preventing SARS-CoV-2 infection and subsequent illness, and reducing the public health impact of post-COVID symptoms and conditions among persons aged 0–17 years.

Post–COVID-19 (post-COVID) symptoms and conditions* are new, recurring, or ongoing health problems that occur 4 or more weeks after infection with SARS-CoV-2 (the virus that causes COVID-19). Previous studies have characterized and estimated the incidence of post-COVID conditions among adults (*1*,*2*), but data among children and adolescents are limited (*3*–*8*). Using a large medical claims database, CDC assessed nine potential post-COVID signs and symptoms (symptoms) and 15 potential post-COVID conditions among 781,419 U.S. children and adolescents aged 0–17 years with laboratory-confirmed COVID-19 (patients with COVID-19) compared with 2,344,257 U.S. children and adolescents without recognized COVID-19 (patients without COVID-19) during March 1, 2020-January 31, 2022. The analysis identified several symptoms and conditions with elevated adjusted

Article Metrics

Altmetric:

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Mendeley (9)

Citations: 0

Views: 46,729

Views equals page views plus PDF downloads

Metric Details

Tables

Table 1
Table 2
Table 3

Available at: Post–COVID-19 Symptoms and Conditions Among Children and Adolescents — United States, March 1, 2020–January 31, 2022 | MMWR (cdc.gov)

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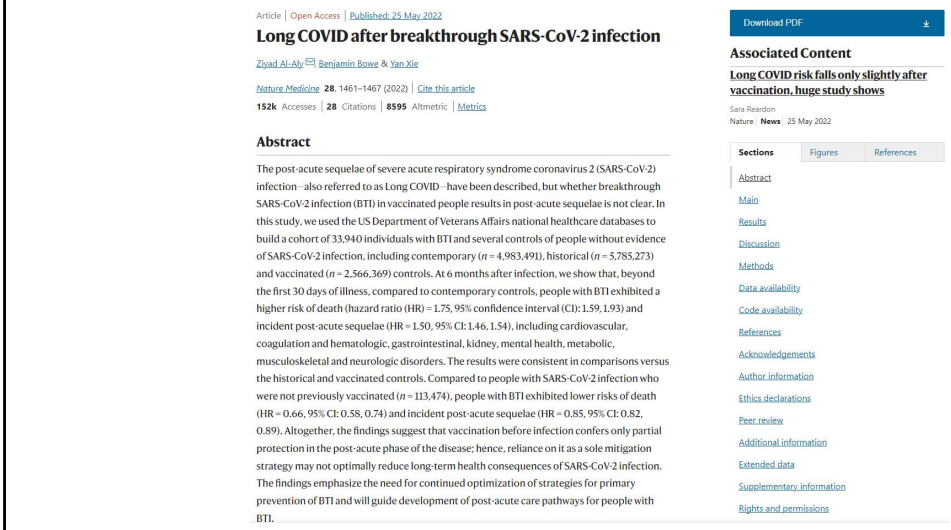
- Using a large medical claims database, this CDC study assessed post-COVID-19 symptoms and conditions among 781,419 U.S. children aged 0–17 years with COVID-19 who presented for medical care.
- During March 1, 2020–January 31, 2022, investigators found an increased risk of four symptoms and eight conditions 31–365 days following COVID-19 among children aged 0–17 years.
- Children who had COVID-19 were at a higher rate of experiencing certain symptoms or conditions, including blood clots, heart conditions, kidney failure, and type 1 diabetes.
- Many of these conditions were rare or uncommon among children in this analysis, but even a small increase in these conditions is notable.
- Caregivers and health care professionals who are in contact with children aged 0–17 years need to be aware of the common symptoms and warning signs of post-COVID19 conditions.

COVID-19 Update: New Literature



Article | Open Access | Published: 25 May 2022

Long COVID after breakthrough SARS-CoV-2 infection

Ziyad Al-Aly ✉, Benjamin Bowe & Yan Xie

Nature Medicine **28**, 1461–1467 (2022) | Cite this article

152k Accesses | **28** Citations | **8595** Altmetric | Metrics

Abstract

The post-acute sequelae of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection—also referred to as Long COVID—have been described, but whether breakthrough SARS-CoV-2 infection (BTI) in vaccinated people results in post-acute sequelae is not clear. In this study, we used the US Department of Veterans Affairs national healthcare databases to build a cohort of 33,940 individuals with BTI and several controls of people without evidence of SARS-CoV-2 infection, including contemporary (n = 4,983,491), historical (n = 5,785,273) and vaccinated (n = 2,566,369) controls. At 6 months after infection, we show that, beyond the first 30 days of illness, compared to contemporary controls, people with BTI exhibited a higher risk of death (hazard ratio (HR) = 1.75, 95% confidence interval (CI): 1.59, 1.93) and incident post-acute sequelae (HR = 1.50, 95% CI: 1.46, 1.54), including cardiovascular, coagulation and hematologic, gastrointestinal, kidney, mental health, metabolic, musculoskeletal and neurologic disorders. The results were consistent in comparisons versus the historical and vaccinated controls. Compared to people with SARS-CoV-2 infection who were not previously vaccinated (n = 113,474), people with BTI exhibited lower risks of death (HR = 0.66, 95% CI: 0.58, 0.74) and incident post-acute sequelae (HR = 0.85, 95% CI: 0.82, 0.89). Altogether, the findings suggest that vaccination before infection confers only partial protection in the post-acute phase of the disease; hence, reliance on it as a sole mitigation strategy may not optimally reduce long-term health consequences of SARS-CoV-2 infection. The findings emphasize the need for continued optimization of strategies for primary prevention of BTI and will guide development of post-acute care pathways for people with BTI.

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Associated Content

Long COVID risk falls only slightly after vaccination, huge study shows

Sara Reardon

Nature | News | 25 May 2022

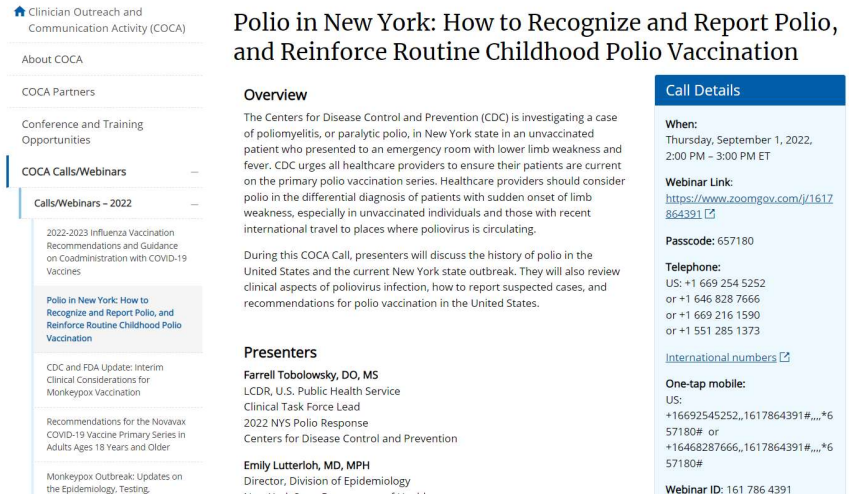
Sections | Figures | References

Abstract
Main
Results
Discussion
Methods
Data availability
Code availability
References
Acknowledgements
Author information
Ethics declarations
Peer review
Additional information
Extended data
Supplementary information
Rights and permissions

Available at: Long COVID after breakthrough SARS-CoV-2 infection | Nature Medicine

•VA EHR data, occurrence of 47 conditions, 33,940 vaccinated people who subsequently got SARS-CoV-2 (breakthrough) infection compared with 113K unvaccinated with SARS-CoV-2 infection controls and 13M uninfected controls
Long Covid, including increased risks of death and post-acute sequelae (long COVID), occurs in vaccinated individuals who get infected (people with breakthrough infections)
Compared to people with SARS-CoV-2 infection who were not previously vaccinated (n = 113,474), people with BTI exhibited lower risks of death (HR = 0.66, 95% CI: 0.58, 0.74) and incident post-acute sequelae (HR = 0.85, 95% CI: 0.82, 0.89).
•Therefore, vaccines modestly reduce (but do not eliminate) the risk of Long Covid and urgent need for prevention strategies

COCA Call: Polio in New York



Available at: COCA Call webpage

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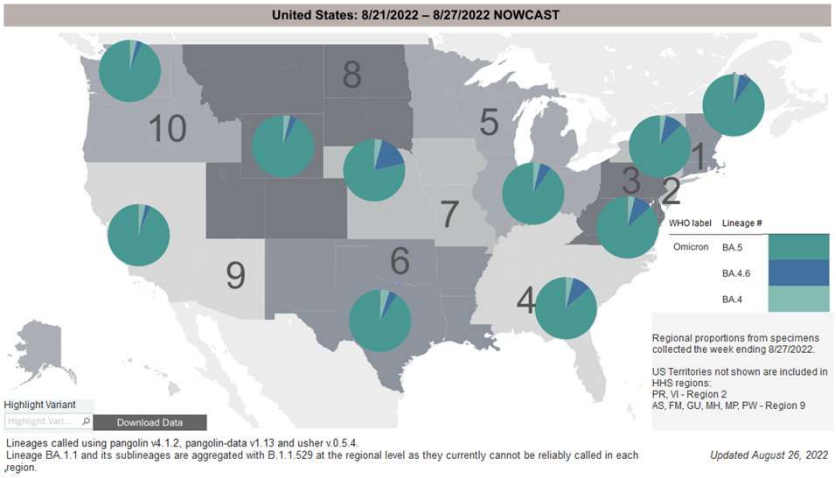
And unrelated to COVID, if you are interested there is a COCA call today at 1:00pm on the polio outbreak in New York.

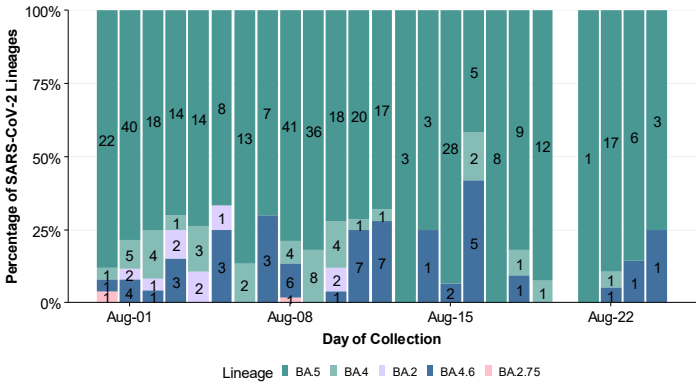

Kansas
Department of Health and Environment
Division of Public Health
John Anderson, MPH, PhD
Director Genomic Epidemiology
SARS-CoV-2 Variants and COVID-19 Projections Update

SARS-CoV-2 Lineage Proportions in the USA



- Most recent samples across all regions in the USA are BA.4, BA.4.6, and BA.5
- Region 7 may have slightly more BA.4.6 than other regions.

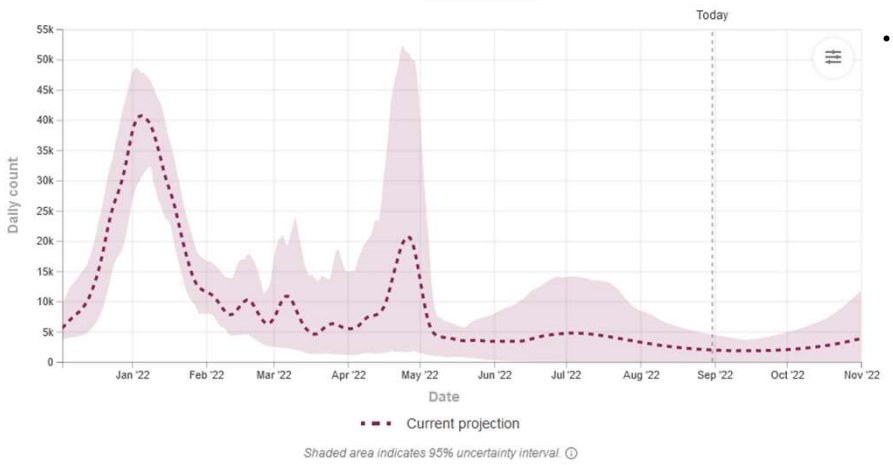
Daily SARS-CoV-2 Lineage Proportions in Kansans



*Values represent the number of samples for each variant per day.

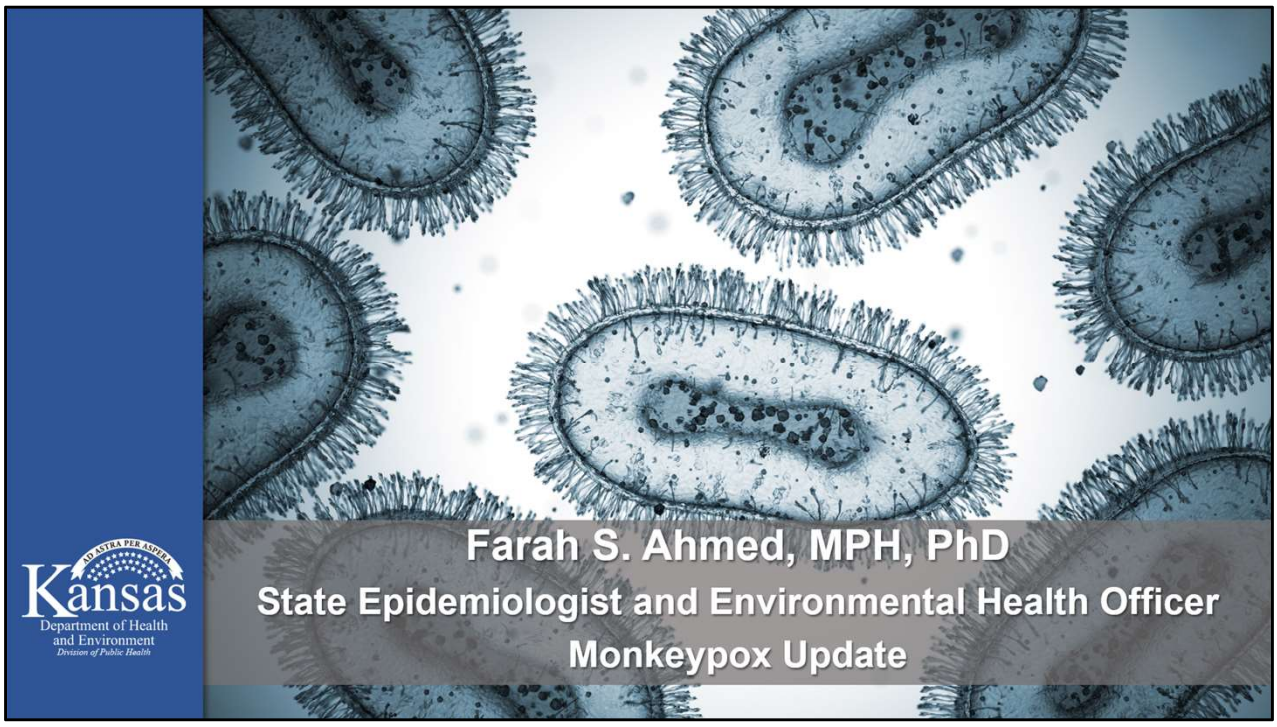
- Most recent samples across all counties sampled are BA.4.6 and BA.5
  - BA.4.6 has recently overtaken other BA.4 lineages and may be competing with BA.5 lineages.
- Two BA.2.75 samples were identified.
  - These are likely independent introductions because the BA.2.75 samples are not genetically related.

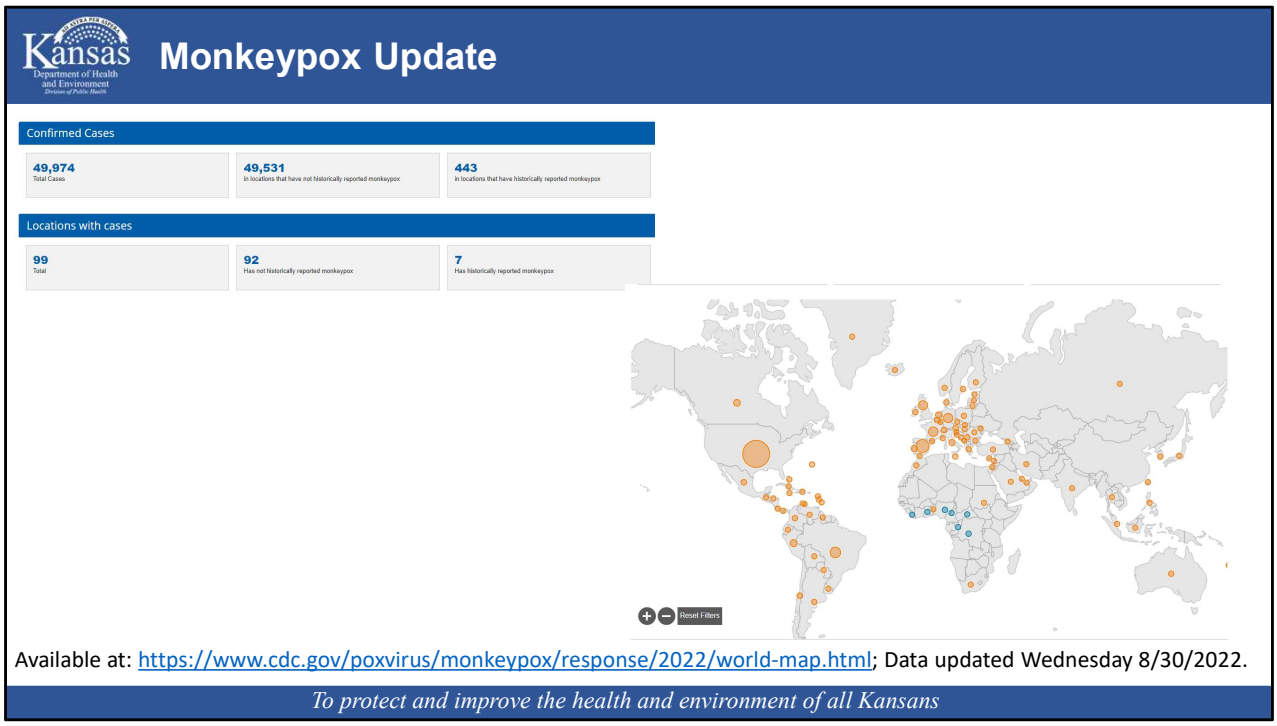
Projections for Case Counts through November 2022 in Kansas



https://covid19.healthdata.org/united-states-of-america/kansas?view=infections-testing&tab=trend&test=infections

- Projections from the Institute for Health Metrics and Evaluation (IMHE) predict that COVID-19 cases will stay level through September and may start increasing in October due to the BA.4 and BA.5 variants.

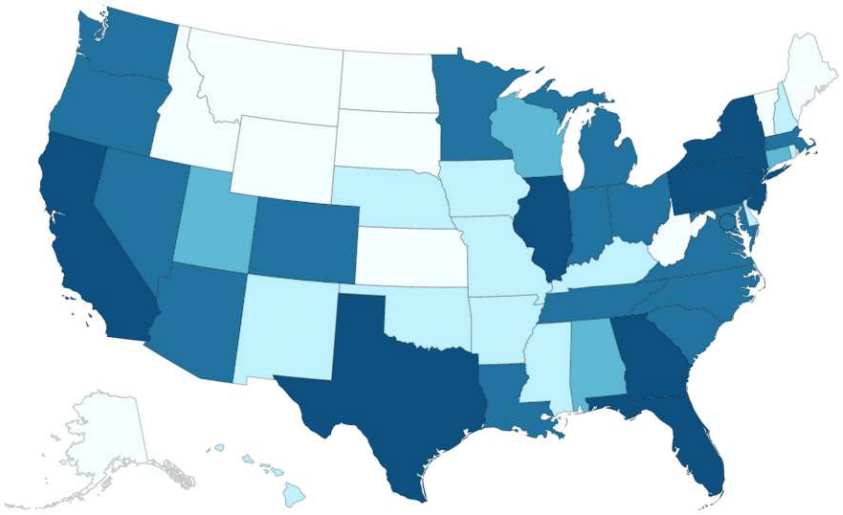

Kansas
Department of Health and Environment
Division of Public Health
Farah S. Ahmed, MPH, PhD
State Epidemiologist and Environmental Health Officer
Monkeypox Update



Globally, there are a total of **49,974** cases (almost double where we were last month).

The US has the most cases, followed by Spain, Brazil, France, Germany, and the United Kingdom.

Monkeypox Update



Available at: https://www.cdc.gov/poxvirus/monkeypox/response/2022/mpx-trends.html; Data updated Wednesday 8/30/2022.

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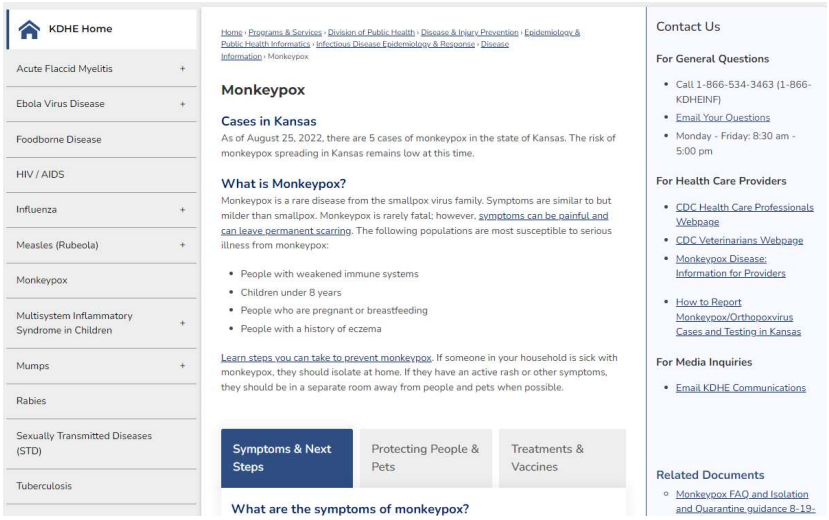
The US has about **18,417** total confirmed monkeypox/orthopoxvirus cases as of August 30th.

California has the most cases, followed by New York, Florida, Texas, Georgia and Illinois (all of these states have more than 1000 cases reported each).

Monkeypox Update



Available at: https://www.kdhe.ks.gov/1923/Monkeypox;

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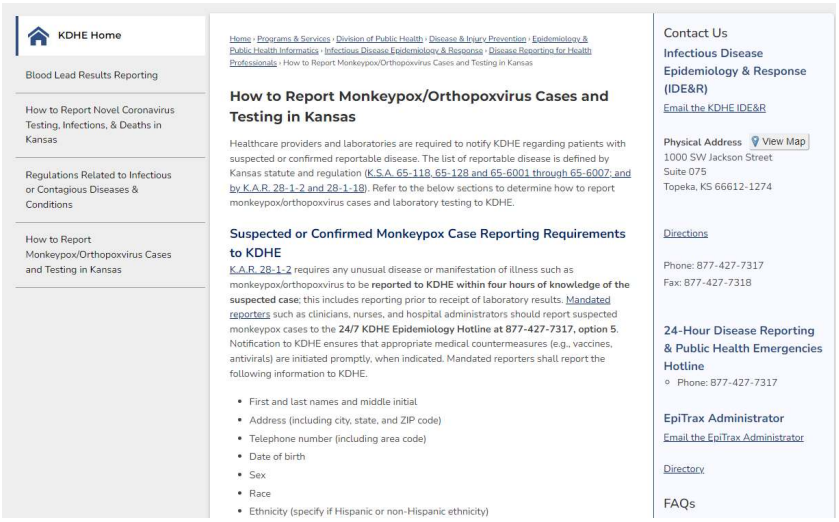
As a reminder, KDHE does have a monkeypox landing page.

Monkeypox Update



KDHE Home

Blood Lead Results Reporting

How to Report Novel Coronavirus Testing, Infections, & Deaths in Kansas

Regulations Related to Infectious or Contagious Diseases & Conditions

How to Report Monkeypox/Orthopoxvirus Cases and Testing in Kansas

Home › Programs & Services › Division of Public Health › Disease & Injury Prevention › Epidemiology & Public Health Informatics › Infectious Disease Epidemiology & Response › Disease Reporting for Health Professionals › How to Report Monkeypox/Orthopoxvirus Cases and Testing in Kansas

How to Report Monkeypox/Orthopoxvirus Cases and Testing in Kansas

Healthcare providers and laboratories are required to notify KDHE regarding patients with suspected or confirmed reportable disease. The list of reportable disease is defined by Kansas statute and regulation (K.S.A. 65-118, 65-128 and 65-6001 through 65-6007; and by K.A.R. 28-1-2 and 28-1-18). Refer to the below sections to determine how to report monkeypox/orthopoxvirus cases and laboratory testing to KDHE.

Suspected or Confirmed Monkeypox Case Reporting Requirements to KDHE

K.A.R. 28-1-2 requires any unusual disease or manifestation of illness such as monkeypox/orthopoxvirus to be **reported to KDHE within four hours of knowledge of the suspected case**; this includes reporting prior to receipt of laboratory results. Mandated reporters such as clinicians, nurses, and hospital administrators should report suspected monkeypox cases to the **24/7 KDHE Epidemiology Hotline at 877-427-7317, option 5**. Notification to KDHE ensures that appropriate medical countermeasures (e.g., vaccines, antivirals) are initiated promptly, when indicated. Mandated reporters shall report the following information to KDHE.

- First and last names and middle initial
- Address (including city, state, and ZIP code)
- Telephone number (including area code)
- Date of birth
- Sex
- Race
- Ethnicity (specify if Hispanic or non-Hispanic ethnicity)

Contact Us

Infectious Disease Epidemiology & Response (IDE&R)

Email the KDHE IDE&R

Physical Address View Map
1000 SW Jackson Street
Suite 075
Topeka, KS 66612-1274

Directions

Phone: 877-427-7317
Fax: 877-427-7318

24-Hour Disease Reporting & Public Health Emergencies Hotline

- Phone: 877-427-7317

EpiTrax Administrator

Email the EpiTrax Administrator

Directory

FAQs

Available at: How to Report Monkeypox/Orthopoxvirus Cases and Testing in Kansas | KDHE, KS

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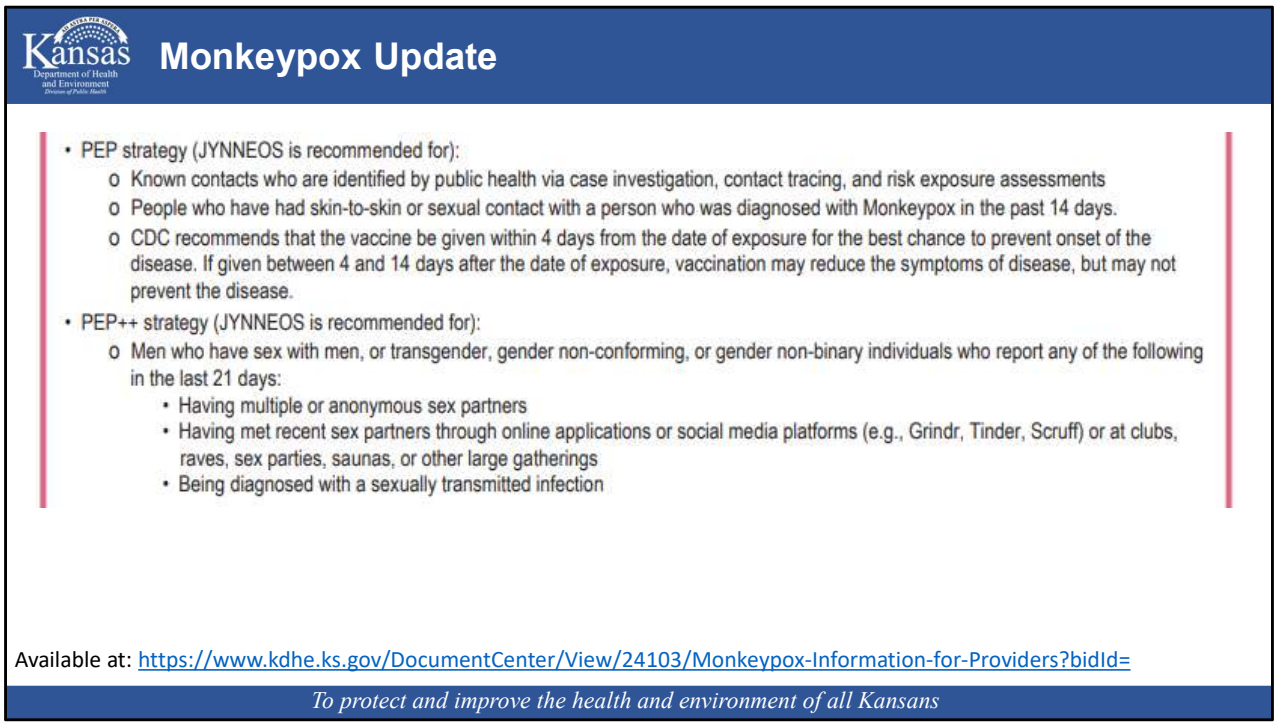
Either from the monkeypox page, or directly using this link, you will find a new landing site on how to report monkeypox cases. As a reminder, monkeypox is reportable to the KDHE Epidemiology Hotline within 4 hours of suspicion, meaning if you are testing someone because you suspect they have monkeypox, you should be reporting the suspect case to KDHE.

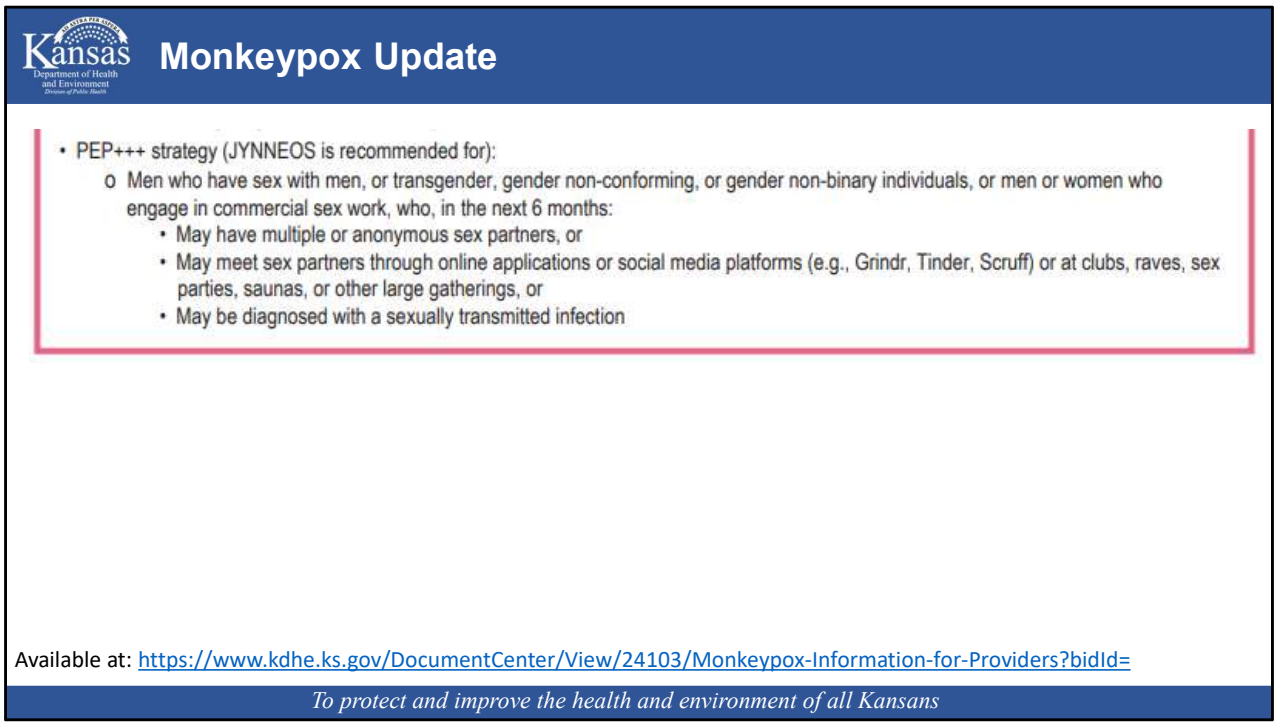
We have also included information on what labs need to report to KDHE, which is all results within 24 hours plus additional information about the sample.



We also talked about the KDHE Monkeypox Information for Providers document, which hadn't been posted last time we met. We have actually updated this document, in case you saved an old version, to include information on the populations we would like to reach with information on JYNNEOS vaccine.

The first group is the group that has a known exposure, they have been told by public health that they have been a close contact with someone who was positive while that person was infectious. We want you as providers to be talking to that group about JYNNEOS. Given within 4 days of exposure, the vaccine has the best chance of preventing onset of disease. Given between 4 and 14 days, the vaccine may help reduce the symptoms of the disease but may not prevent the disease.

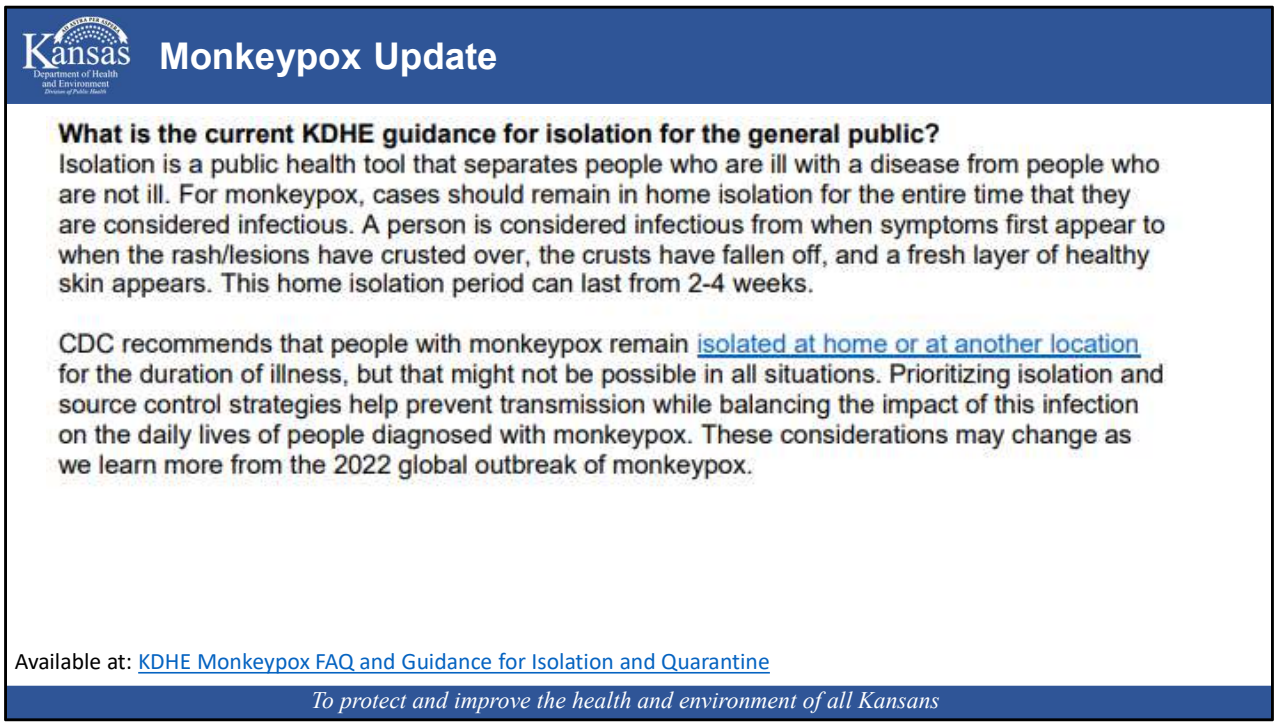
The next group are the people that may not have been told by public health that they are a close contact to someone with monkeypox, but in the last 21 days they engaged in activities that would have put them at higher risk of exposure. So, that is having multiple or anonymous sex partners, meeting sex partners through online apps or at clubs, raves, sex parties, large gatherings, etc. Or, they have been diagnosed with an STI in the last 21 days.



The newest part of this vaccination strategy is that if you have a patient who may be exposed in the next 6 months, we would really encourage you to have the conversation about JYNNEOS. In particular, we want to reach men who have sex with men, or transgender, gender non-conforming, or gender non-binary individuals, or men or women who engage in commercial sex work, who in the next 6 months MAY:

Have multiple or anonymous sex partners
May meet partners through an online app or at clubs, large gatherings, etc.
Or may be diagnosed with an STI

So, obviously this strategy focuses on the population most at risk of becoming exposed so please know that JYNNEOS is recommended for this population.



We have also created a Monkeypox FAQ and Isolation and Quarantine Guidance document.

So, the home isolation period for monkeypox is the entire time that the person is considered infectious. At this time, a person is considered infectious from when symptoms first appear to when the rash/lesions have crusted over, the crusts have fallen off, and there is fresh layer of health skin. This home isolation period can last from 2 to 4 weeks.

Monkeypox Update

What is the current KDHE guidance for quarantine for the general public?
Quarantine is a public health tool that separates people who have been exposed to a disease from people who have not been exposed to a disease. For monkeypox, at this time, quarantine is not recommended for people who have been exposed to monkeypox and do not have any monkeypox-like symptoms because we do not believe a person becomes infectious to others until they start showing symptoms. If a person who has been exposed to monkeypox begins to show symptoms, they should see a healthcare provider.

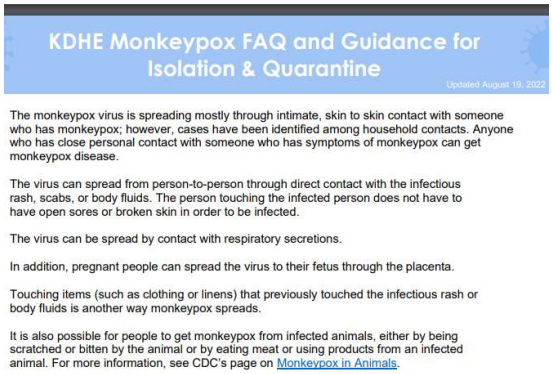
Available at: KDHE Monkeypox FAQ and Guidance for Isolation and Quarantine

To protect and improve the health and environment of all Kansans

For close contacts that don't have symptoms, home quarantine is not recommended because we do not believe at this time that a person becomes infectious to others until they start showing symptoms. Close contacts are monitored by public health and should seek healthcare if they start to show symptoms so that testing can be ordered.

Monkeypox Update

How does monkeypox spread?
At this time, we think that people who do not have monkeypox symptoms cannot spread the virus to others. Monkeypox can spread from the time symptoms start until the rash has fully healed and a fresh layer of skin has formed. The illness typically lasts 2-4 weeks.



KDHE Monkeypox FAQ and Guidance for Isolation & Quarantine

Updated August 19, 2022

The monkeypox virus is spreading mostly through intimate, skin to skin contact with someone who has monkeypox; however, cases have been identified among household contacts. Anyone who has close personal contact with someone who has symptoms of monkeypox can get monkeypox disease.

The virus can spread from person-to-person through direct contact with the infectious rash, scabs, or body fluids. The person touching the infected person does not have to have open sores or broken skin in order to be infected.

The virus can be spread by contact with respiratory secretions.

In addition, pregnant people can spread the virus to their fetus through the placenta.

Touching items (such as clothing or linens) that previously touched the infectious rash or body fluids is another way monkeypox spreads.

It is also possible for people to get monkeypox from infected animals, either by being scratched or bitten by the animal or by eating meat or using products from an infected animal. For more information, see CDC's page on Monkeypox in Animals.

Available at: KDHE Monkeypox FAQ and Guidance for Isolation and Quarantine

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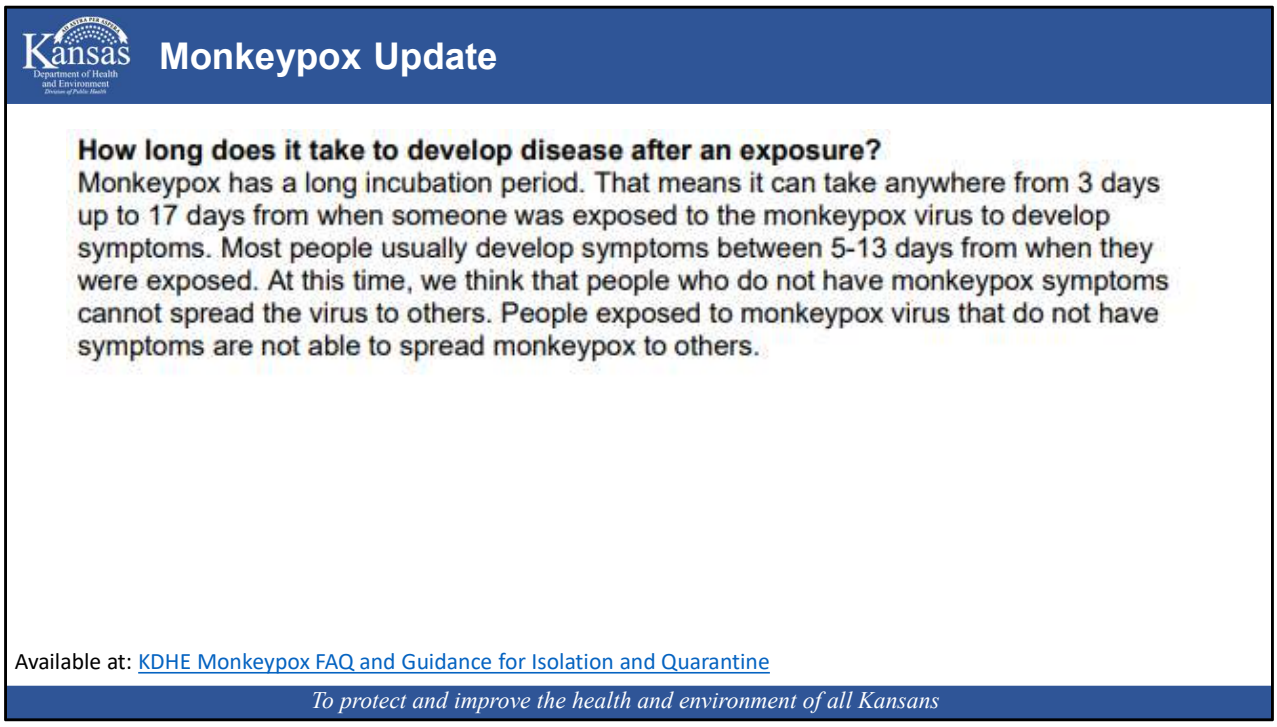
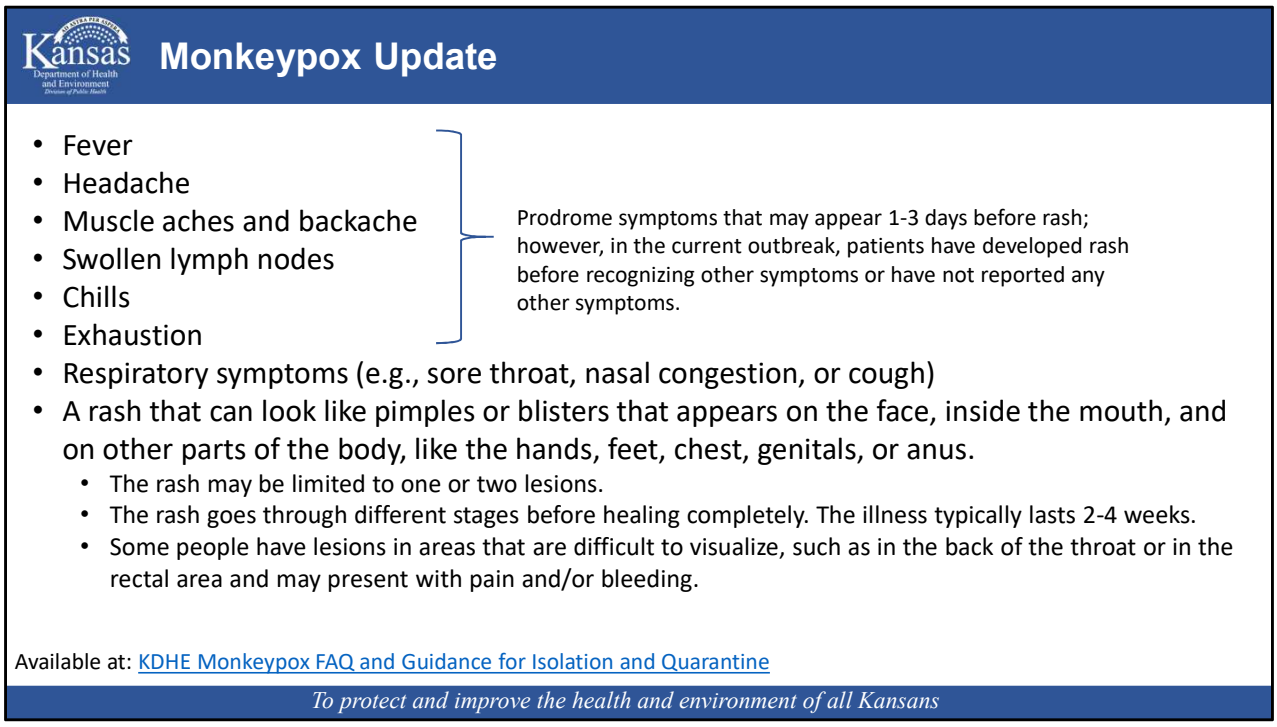
We have some good basic information in the FAQ about what monkeypox disease is, how it spreads (which is mainly through close, intimate, skin to skin contact) but can also spread through the close sharing of respiratory secretions. It's really important for people to understand that monkeypox is NOT COVID, it does not spread nearly as easily. The majority of the transmission is through this close, intimate skin to skin contact. And while it can be spread through respiratory secretions, we are still talking about close contact and sharing of those large droplets like through kissing, sharing utensils, etc. not just being in the same room.



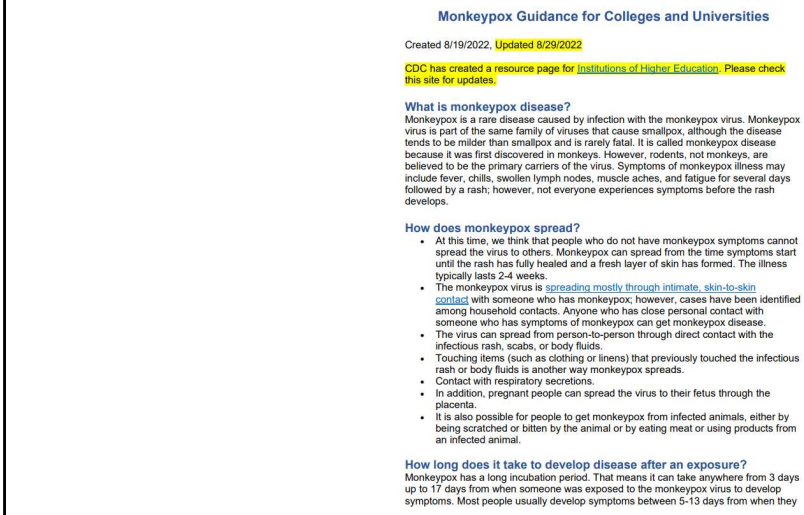
You'll find information on how long it takes to develop disease after exposure, which is anywhere from about 3 to 17 days which most people developing symptoms between 5 and 13 days after exposure. Again, we don't believe at this time that people can spread the virus until they start to show symptoms so people that are exposed but don't have symptoms aren't believed to spread the virus at this time.



Information about symptoms of monkeypox disease.

In many cases, disease starts off with flu-like symptoms like fever, headache, muscle aches, swollen lymph nodes and exhaustion. But there are a number of cases in the current US outbreak that have patients reporting rash before any other symptoms, or not reporting any symptoms other than rash. And sometimes, the rash is limited to just one or two lesions.

Monkeypox Update



Monkeypox Guidance for Colleges and Universities

Created 8/19/2022, Updated 8/29/2022

CDC has created a resource page for Institutions of Higher Education. Please check this site for updates.

What is monkeypox disease?

Monkeypox is a rare disease caused by infection with the monkeypox virus. Monkeypox virus is part of the same family of viruses that cause smallpox, although the disease tends to be milder than smallpox and is rarely fatal. It is called monkeypox disease because it was first discovered in monkeys. However, rodents, not monkeys, are believed to be the primary carriers of the virus. Symptoms of monkeypox illness may include fever, chills, swollen lymph nodes, muscle aches, and fatigue for several days followed by a rash; however, not everyone experiences symptoms before the rash develops.

How does monkeypox spread?

- At this time, we think that people who do not have monkeypox symptoms cannot spread the virus to others. Monkeypox can spread from the time symptoms start until the rash has fully healed and a fresh layer of skin has formed. The illness typically lasts 2-4 weeks.
- The monkeypox virus is spreading mostly through intimate, skin-to-skin contact with someone who has monkeypox; however, cases have been identified among household contacts. Anyone who has close personal contact with someone who has symptoms of monkeypox can get monkeypox disease.
- The virus can spread from person-to-person through direct contact with the infectious rash, scabs, or body fluids.
- Touching items (such as clothing or linens) that previously touched the infectious rash or body fluids is another way monkeypox spreads.
- Contact with respiratory secretions.
- In addition, pregnant people can spread the virus to their fetus through the placenta.
- It is also possible for people to get monkeypox from infected animals, either by being scratched or bitten by the animal or by eating meat or using products from an infected animal.

How long does it take to develop disease after an exposure?

Monkeypox has a long incubation period. That means it can take anywhere from 3 days up to 17 days from when someone was exposed to the monkeypox virus to develop symptoms. Most people usually develop symptoms between 5-13 days from when they

Available at: Monkeypox Guidance for Colleges and Universities

To protect and improve the health and environment of all Kansans

We have also created a document to help colleges and universities plan for monkeypox on campuses, including getting ready to test and vaccinate. We also met this week with IHEs to go through the guidance documents and have a discussion about preparations at different campuses.

Monkeypox Update: CDC Resources

New and Updated:

MMWR: Modeling the Impact of Sexual Networks in the Transmission of Monkeypox virus Among Gay, Bisexual, and Other Men Who Have Sex With Men — United States, 2022 **NEW**
MMWR: Strategies Adopted by Gay, Bisexual, and Other Men Who Have Sex with Men to Prevent Monkeypox virus Transmission — United States, August 2022 **NEW**
CDC's Monkeypox Toolkit for Event Organizers **NEW**
2022 Monkeypox Outbreak Global Map **UPDATED**
2022 U.S. Map & Case Count **UPDATED**
Preparation and Collection of Specimens **UPDATED**
Large or Social Gatherings Toolkit for Health Departments **NEW**
U.S. Monkeypox Case Trends Reported to CDC **UPDATED**
Print Resources **NEW**
Clinical Recognition **UPDATED**
Clinical Considerations for Monkeypox in Children and Adolescents **NEW**
Monkeypox Cases by Age and Gender, Race/Ethnicity, and Symptoms **NEW**
Demographics of Patients Receiving TPOXX for Treatment of Monkeypox **NEW**
Impact of Monkeypox Outbreak on Select Behaviors **NEW**
Non-Variola Orthopoxvirus and Monkeypox Virus Laboratory Testing Data **NEW**
Interim Clinical Considerations for Use of JYNNEOS and ACAM2000 Vaccines during the 2022 U.S. Monkeypox Outbreak **UPDATED**

To protect and improve the health and environment of all Kansans

I won't go through the next few slides but I will end with there are a lot of very good and useful CDC resources available. There's a toolkit for event organizers, the clinical recognition has been updated, there is a new document for clinical considerations in children and adolecents,

Monkeypox Update

General

2022 U.S. Monkeypox Outbreak
- U.S. Map & Case Count **UPDATED**
- U.S. Monkeypox Case Trends Reported to CDC **UPDATED**
- Global Map & Case Count **UPDATED**

Print Resources **NEW**
CDC's Monkeypox Toolkit for Event Organizers **NEW**
Monkeypox Cases by Age and Gender, Race/Ethnicity, and Symptoms **NEW**
Demographics of Patients Receiving TPOXX for Treatment of Monkeypox **NEW**
Impact of Monkeypox Outbreak on Select Behaviors **NEW**
FACT SHEET: White House Announces New Actions to Combat Monkeypox Outbreak
Signs and Symptoms
Treatment
Schools, Early Care and Education Programs, and Other Settings Serving Children or Adolescents
What You Need to Know about Monkeypox if You are a Teen or Young Adult (print resource)
Considerations for Reducing Monkeypox Transmission in Congregate Living Settings
Monkeypox in Animals
Pets in the Home
Monkeypox Frequently Asked Questions
Technical Report: Multi-National Monkeypox Outbreak, United States, 2022

To protect and improve the health and environment of all Kansans

And the next few slides organize the resources by general,

Monkeypox Update

If You Are Sick

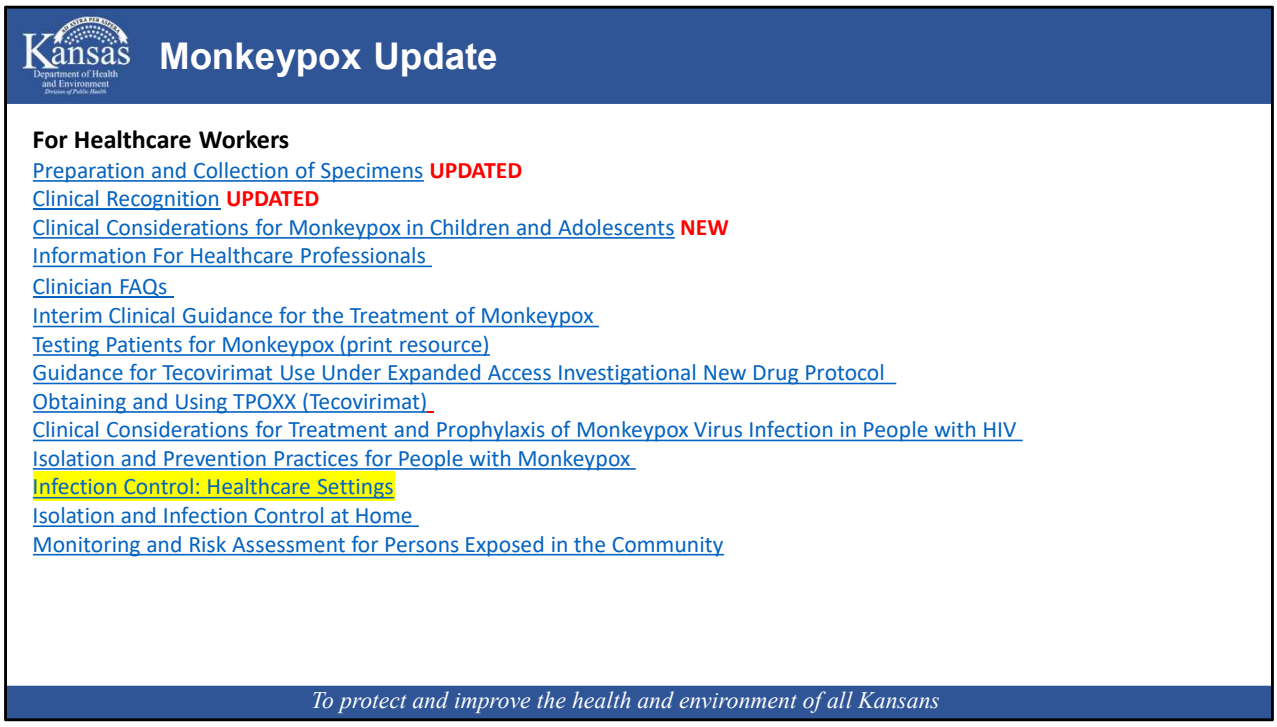
What to Do If You Are Sick
Preventing Spread to Others
Disinfecting Home and Other Non-Healthcare Settings
Notifying Close Contacts

Vaccination

Interim Clinical Considerations for Use of JYNNEOS and ACAM2000 Vaccines during the 2022 U.S. Monkeypox Outbreak **UPDATED**
Vaccination Strategies
How to administer a JYNNEOS vaccine intradermally
Seven Questions on Monkeypox Vaccines with Dr. Daskalakis- YouTube
Vaccination Administration Considerations for Specific Populations
Vaccine Administration Errors and Deviations
ASPR: JYNNEOS Monkeypox Vaccine Distribution by Jurisdiction
ASPR: Operational Planning Guide
FDA: Emergency Use Authorization Fact Sheet
COCA Call - CDC and FDA Update: Interim Clinical Considerations for Monkeypox Vaccination
JYNNEOS Smallpox and Monkeypox Vaccine Storage and Handling Summary

To protect and improve the health and environment of all Kansans

Information for people who are sick, info on vaccination,



Information for healthcare workers including infection control in healthcare settings

Monkeypox Update

Community Engagement

CDC's Monkeypox Toolkit for Event Organizers **NEW**
Safer Sex, Social Gatherings, and Monkeypox
Reducing Stigma in Monkeypox Communication and Community Engagement

Recent Morbidity and Mortality Weekly Reports (MMWR)

MMWR: Modeling the Impact of Sexual Networks in the Transmission of Monkeypox virus Among Gay, Bisexual, and Other Men Who Have Sex With Men — United States, 2022 **NEW**
MMWR: Strategies Adopted by Gay, Bisexual, and Other Men Who Have Sex with Men to Prevent Monkeypox virus Transmission — United States, August 2022 **NEW**
MMWR: High-Contact Object and Surface Contamination in a Household of Persons with Monkeypox Virus Infection — Utah, June 2022

Additional Resources

- Monkeypox Vaccine Locator (mpoxvaxmap.org) **NEW**
- WHO Interim Rapid Response Guidance: Clinical Management and Infection Prevention and Control of Monkeypox
- WHO: Community Engagement

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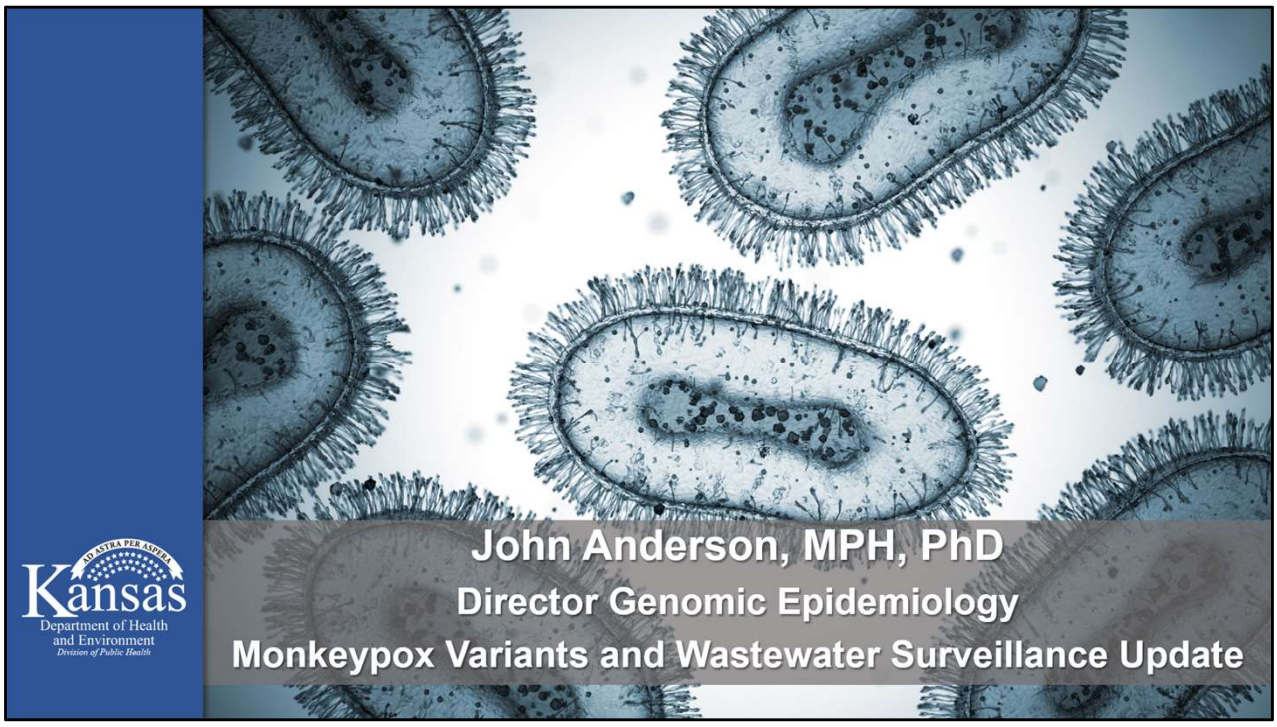
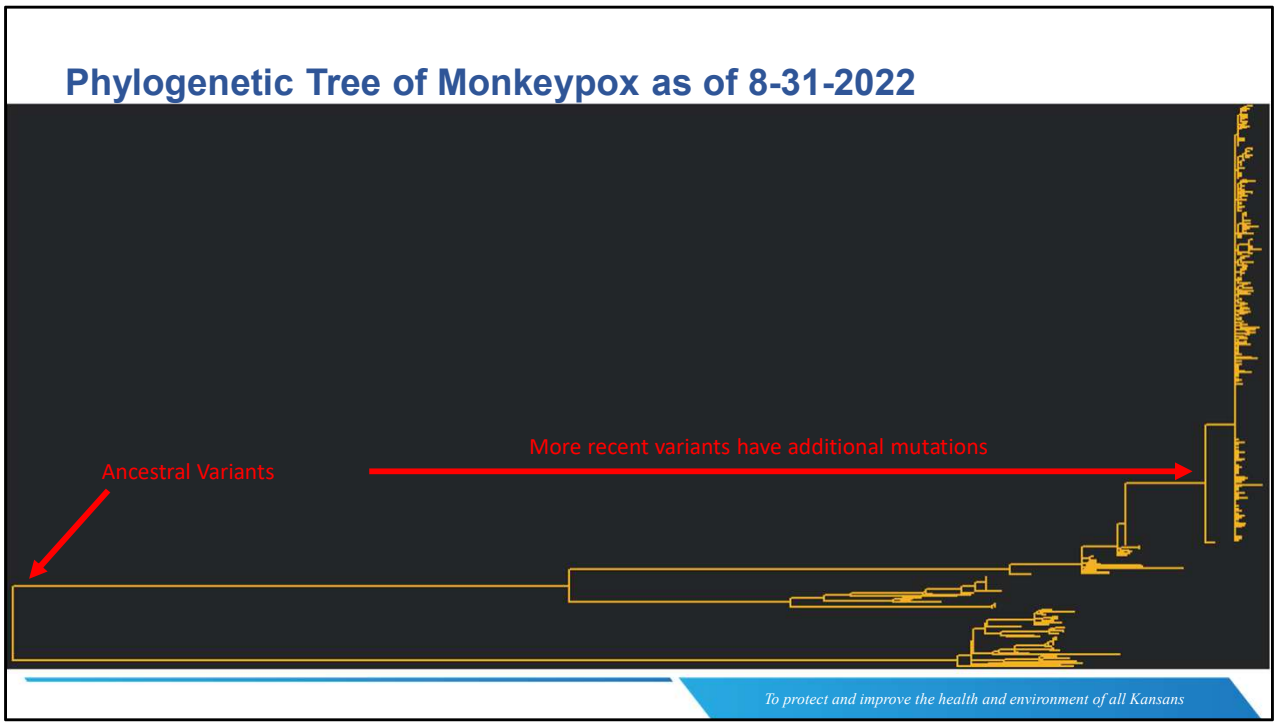
And information on community engagement and recent articles.


Kansas
Department of Health and Environment
Division of Public Health
John Anderson, MPH, PhD
Director Genomic Epidemiology
Monkeypox Variants and Wastewater Surveillance Update

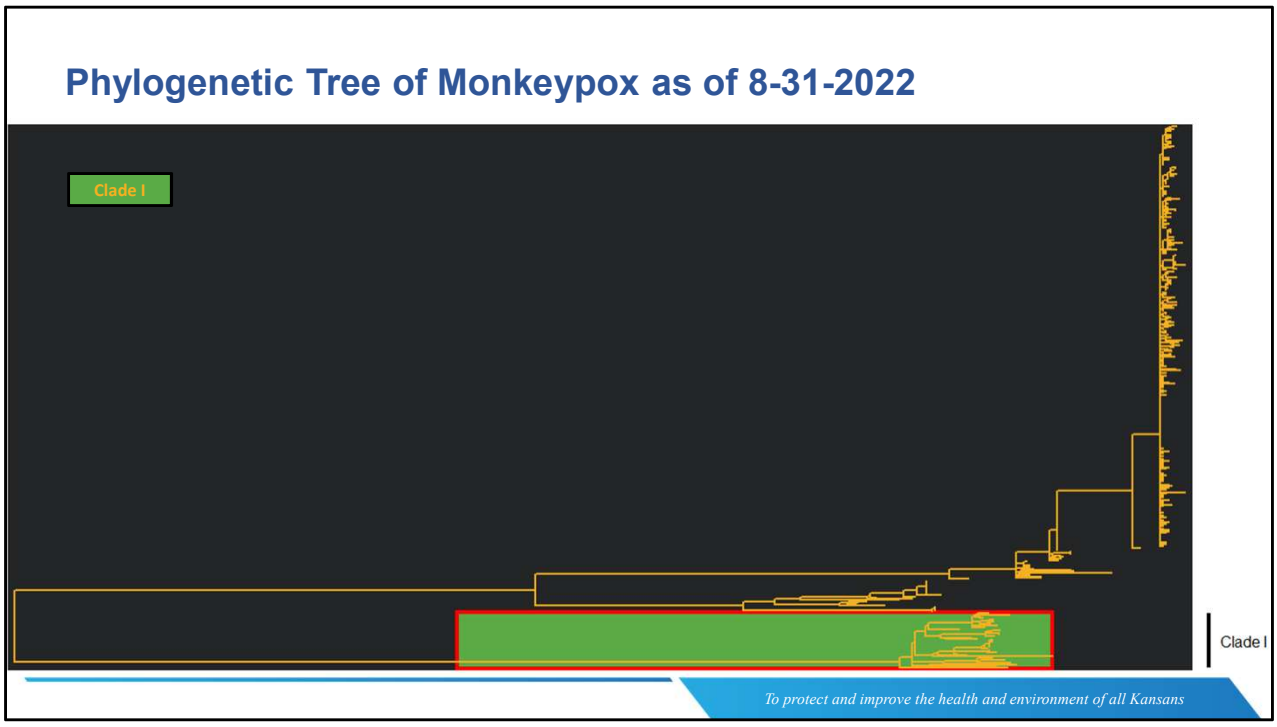
Updates to Monkeypox Nomenclature

- Monkeypox nomenclature has been updated to no longer reference locations:
  - Congo Basin Clade = Clade I
  - West African Clade = Clade II
    - Includes Clade IIa and Clade IIb
- The current human monkeypox outbreak is in Clade IIb in the B.1 lineage.
- There are 8 named sub-lineages of B.1 as of 8-31-2022
  - These lineages are meant to assist genomic epidemiology of monkeypox in humans and they do not imply any biological or phenotypic differences.

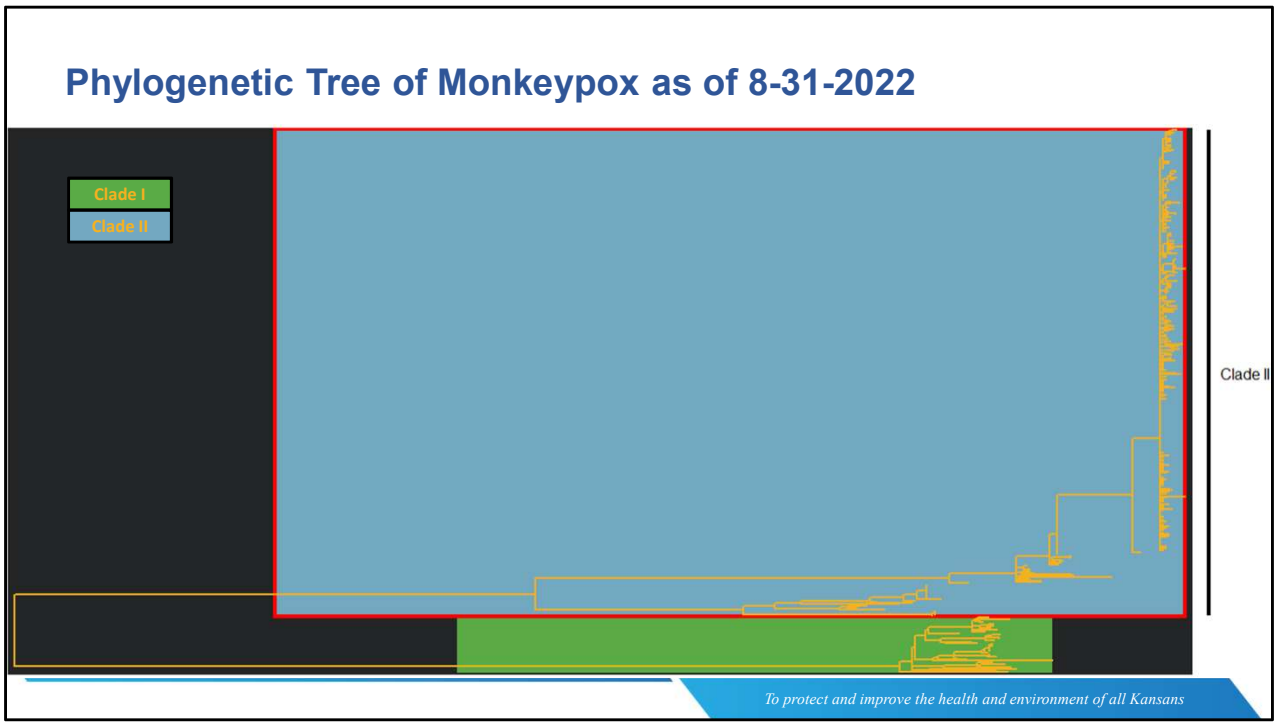
Differences Between SARS-Cov-2 and Monkeypox Lineages	
SARS-CoV-2	Monkeypox
• Lineages are created based on genetic and epidemiological relationships.	• Lineages are created based on genetic relationships only.
• Lineages often have notable impacts on public health.	• Lineages are used for tracking purposes only and may or may not have an impact on public health
• Estimated to acquires 2-3 mutations per month and results in many lineages.	• The human monkeypox virus is acquiring up to 10 mutations per year and will have a smaller number of lineages.



The line in orange shows the phylogenetic tree of monkeypox, think of it as a family tree. The tips of each branch of the tree represent a monkeypox sample that has been sequenced. Branches that are on the left side of the screen are more ancestral, like great-grandparents, and branches on the right side are more recent, like children

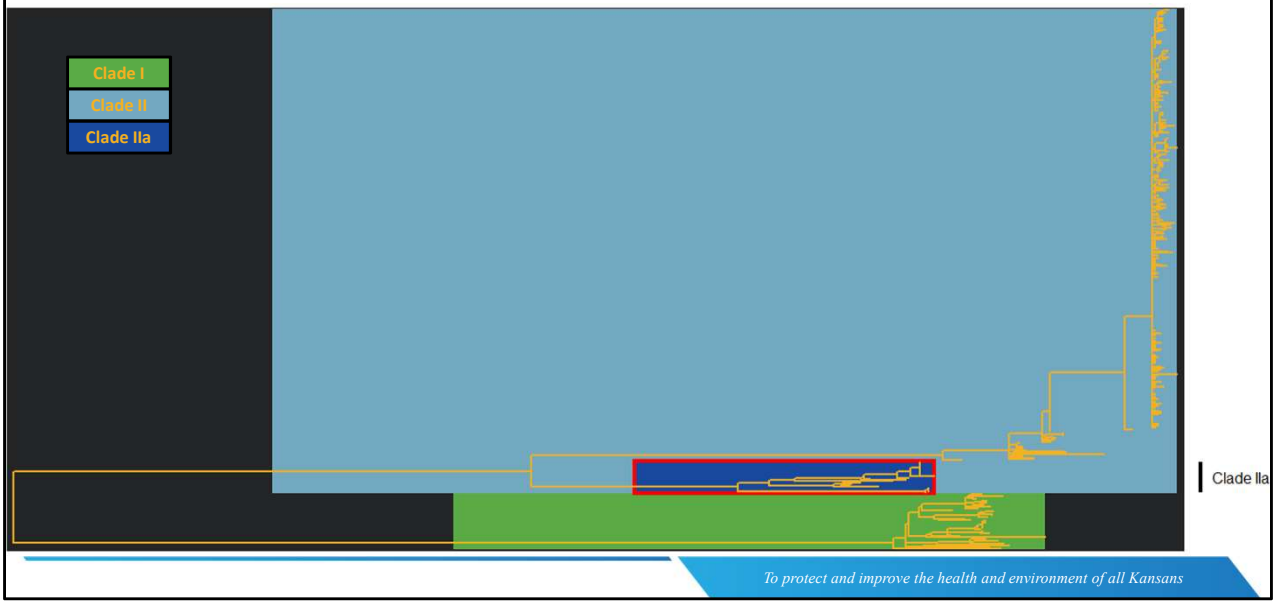


The section highlighted in green shows Clade I (formerly the Congo Basin clade)



Tthe section highlighted in light blue shows Clade II (formerly the West African Clade).

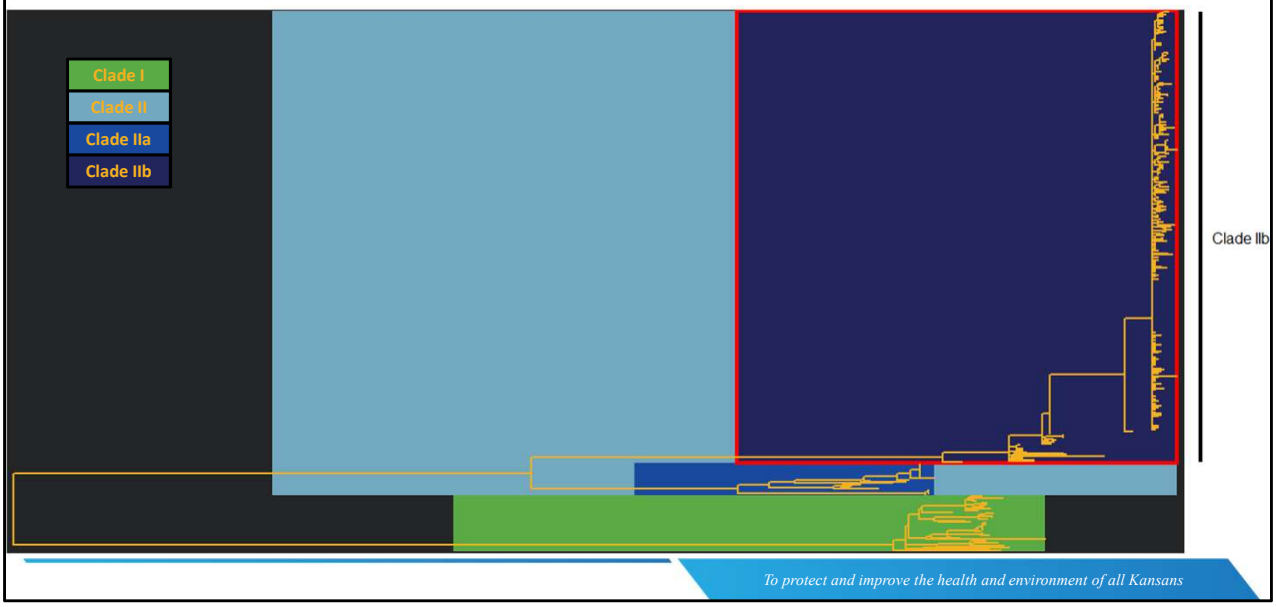
Phylogenetic Tree of Monkeypox as of 8-31-2022



To protect and improve the health and environment of all Kansans

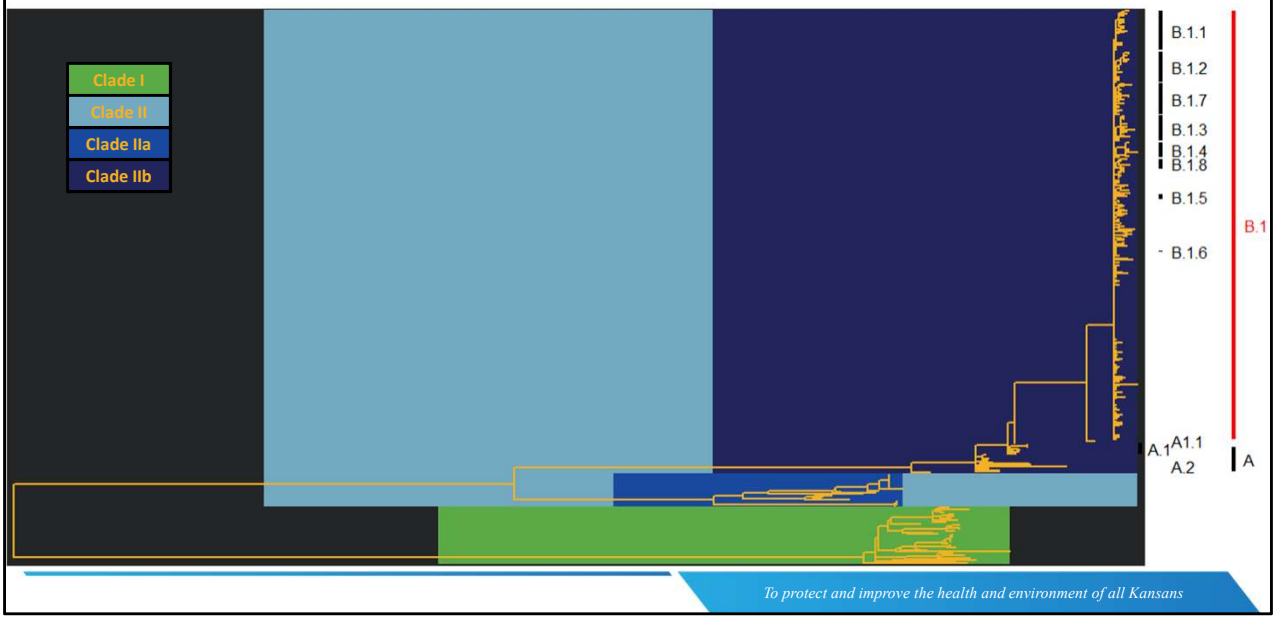
The section highlighted in the darker blue color is Clade IIa

Phylogenetic Tree of Monkeypox as of 8-31-2022



The section highlighted in the darkest blue color is Clade IIb.

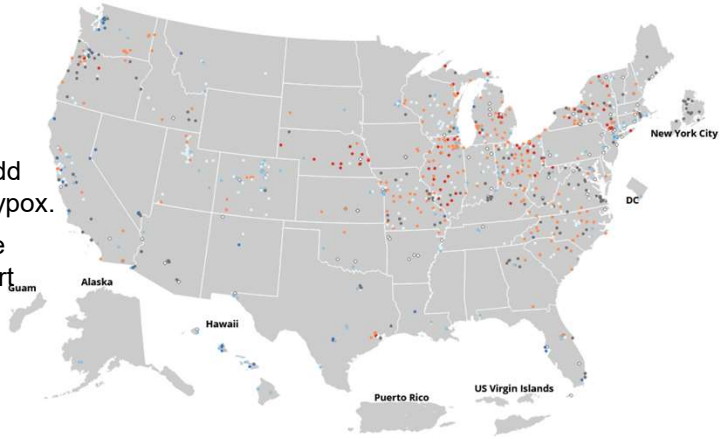
Phylogenetic Tree of Monkeypox as of 8-31-2022



Clade IIb contains lineage B.1 (highlighted in red) and is the current source of the monkeypox outbreak in humans.

Sources for Wastewater Data

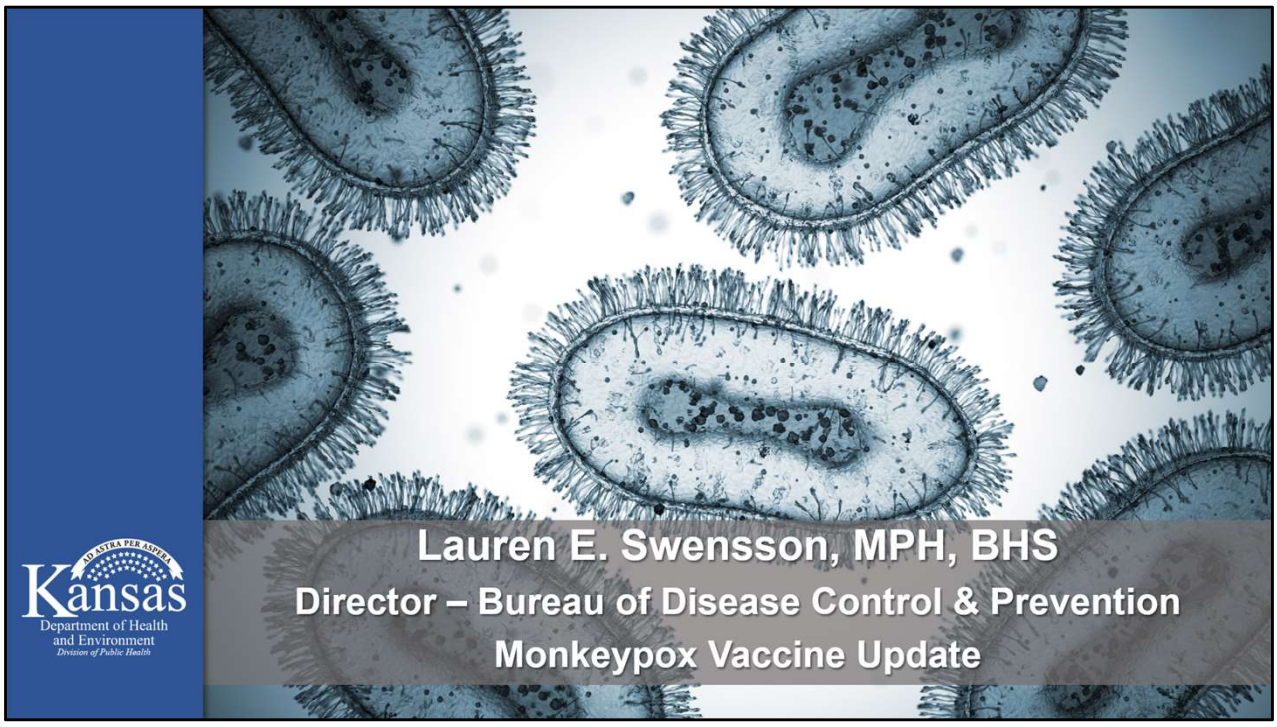
- SARS-CoV-2 is being measured in 12 sewersheds in Kansas
- 10 sewersheds are monitored by Biobot through a CDC contract.
  - These data can be found on the CDC's COVID data tracker.
  - The CDC is exploring options to add wastewater surveillance of monkeypox.
- 2 sewersheds (Lawrence and Salina) are monitored by the Sewer Coronavirus Alert Network (SCAN). https://publichealth.verily.com/
  - The SCAN sewersheds are also measuring monkeypox.
- Currently, ~50% of sewersheds in the USA have a decreasing trend of SARS-CoV-2.



Select legend categories to filter points on the map.

New site | 0% to 19% | 20% to 39% | 40% to 59% | 60% to 79% | 80% to 100% | No recent data

https://covid.cdc.gov/covid-data-tracker/#wastewater-surveillance


Kansas
Department of Health and Environment
Division of Public Health
Lauren E. Swensson, MPH, BHS
Director – Bureau of Disease Control & Prevention
Monkeypox Vaccine Update

Providers Interested in MPX Vaccine

Providers looking for a vaccine site:

- Please call the Epi Hotline (877-427-7317) site in your area

Providers looking for vaccine to administer to their pt population:

- Please email Lauren at lauren.swensson@ks.gov
  - CDC & State Requirements
  - Eligibility for Vaccination
    - PEP, PEP++, PEP+++
    - Storage requirements
    - HPOP requirements & registration
    - WebIZ requirements & registration

Where is the Vaccine Located?

- Community Health Center of Southeast Kansas – Arma, KS - (620) 820-3630
- Ellis County Health Department – Hays, KS - (785) 259-0452
- Geary County Health Department – Junction City, KS - (785) 762-2588
- Genesis Family Health Clinic – Garden City, KS – (620) 287-6765
- Heartland Health – Lawrence, KS – (785) 312-1805
- Infectious Disease St. Francis Campus – Topeka, KS – (785) 295-5311
- Internal Medicine Group – Lawrence, KS – (785) - 505-6445
- Johnson County Health Department – Olathe, KS
- Riley County Health Department – Manhattan, KS - (785) 776-4779
- Salina Family Healthcare Center – Salina, KS – (785) 825-7251

Where is the Vaccine Located?

- Sedgwick County Health Department – Wichita, KS – (316) 660-7324
- Shawnee County Health Department – Topeka, KS
- Stormont Infectious Disease Clinic – Topeka, KS – (785) 554-6679
- University of Kansas Health System – Lenexa, KS – (913) 929-0454
- University of Kansas School of Medicine, Midtown Clinic – Wichita, KS (316) 239-8764
- Vibrant Health Wyandotte – Kansas City, KS – (913) 342-2552
- Wyandotte County Health Department – Kansas City, KS (913) 573-8847

Bivalent COVID-19 Booster Vaccine

On August 31st, the U.S. Food and Drug Administration (FDA) amended the emergency use authorizations (EUAs) of the Moderna COVID-19 Vaccine and the Pfizer-BioNTech COVID-19 Vaccine to authorize bivalent formulations of the vaccines for use as a single booster dose at least two months following primary or booster vaccination.

The Centers for Disease Control and Prevention (CDC) Advisory Committee on Immunization Practices (ACIP) will convene on September 1-2, 2022, to discuss potential recommendations.

Administration of any new bivalent COVID-19 boosters can begin only after the CDC Director provides official recommendations.

Bivalent COVID-19 Booster Vaccine

Moderna COVID-19 Vaccine, Bivalent is authorized for use in individuals 18 years of age and older as a single booster dose administered at least 2 months after either:

- completion of primary vaccination with any authorized or approved monovalent COVID-19 vaccine, or
- receipt of the most recent booster dose with any authorized or approved monovalent COVID-19 vaccine.

Bivalent COVID-19 Booster Vaccine

Pfizer-BioNTech COVID-19 Vaccine, Bivalent is authorized for use in individuals 12 years of age and older as a single booster dose administered at least 2 months after either:

- completion of primary vaccination with any authorized or approved monovalent1 COVID-19 vaccine, or
- receipt of the most recent booster dose with any authorized or approved monovalent COVID-19 vaccine

Bivalent COVID-19 Booster Vaccine

From the FDA press release:

With today's authorization, the FDA has also revised the EUA of the Moderna COVID-19 Vaccine and the Pfizer-BioNTech COVID-19 Vaccine to remove the use of the monovalent Moderna and Pfizer-BioNTech COVID-19 vaccines for booster administration for individuals 18 years of age and older and 12 years of age and older, respectively. These monovalent vaccines continue to be authorized for use for administration of a primary series for individuals 6 months of age and older as described in the letters of authorization. At this time, the Pfizer-BioNTech COVID-19 Vaccine remains authorized for administration of a single booster dose for individuals 5 through 11 years of age at least five months after completing a primary series of the Pfizer-BioNTech COVID-19 Vaccine.

Bivalent COVID-19 Booster Vaccine

With FDA's authorization, the monovalent mRNA COVID-19 vaccines are no longer authorized as booster doses for individuals 12 years of age and older.

Appointments for monovalent Pfizer-BioNTech or Moderna boosters in people 12 years of age and older must be rescheduled for when locations have the bivalent COVID-19 vaccines available.

REMINDER:
Administration of bivalent COVID-19 boosters can begin only after the CDC Director provides official recommendations.

Bivalent COVID-19 Booster Vaccine

The Kansas Department of Health and Environment (KDHE) has add the vaccine to the ordering site effective 5:01 p.m. on August 31, 2022. There will be a limited number of doses available and KDHE will fill orders as equitable as possible.

All bivalent COVID-19 booster vaccine orders placed after 5:01 p.m. Wednesday, August 31, 2022 through 5:00 p.m. on Wednesday, September 7, 2022 will be filled and delivered the week of September 12, 2022.

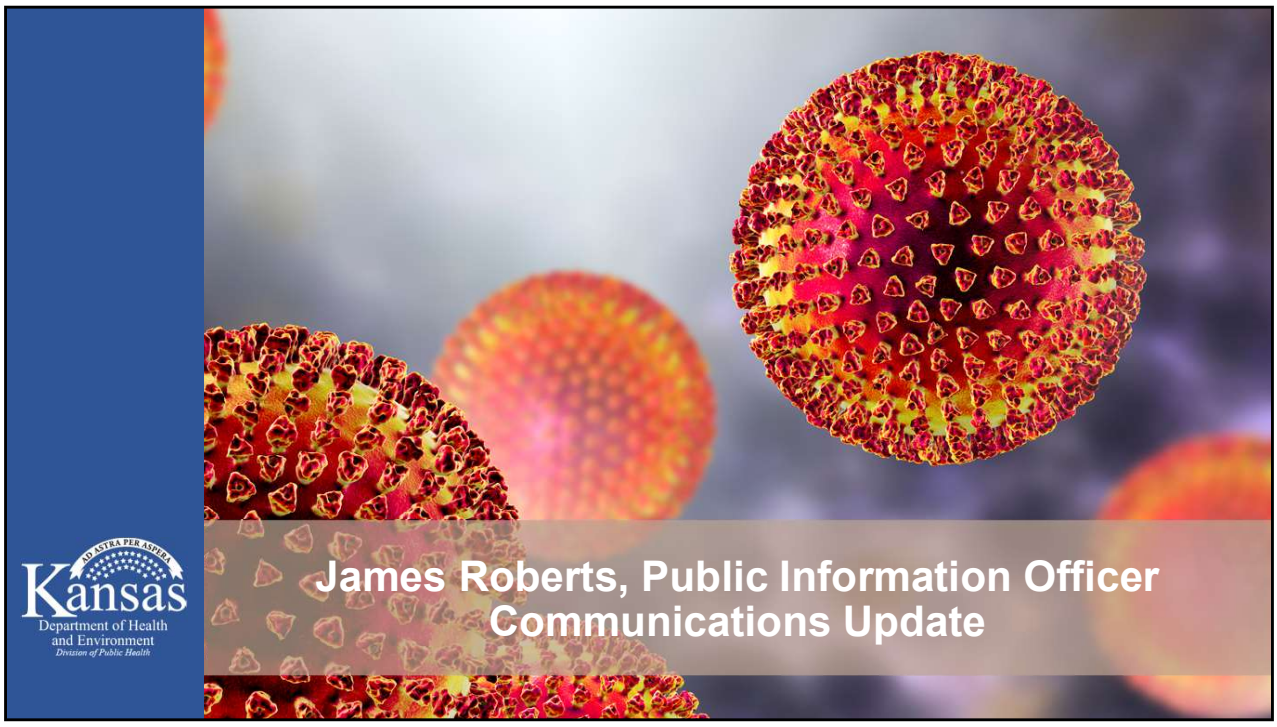
Currently, there are 53,700 doses of Pfizer Bivalent and 20,700 doses of Moderna Bivalent available to Kansas.

Bivalent COVID-19 Booster Vaccine

New Fact Sheets are available on the FDA website for both Moderna COVID-19 Vaccines and Pfizer-BioNTech COVID-19 Vaccines.

Moderna COVID-19 Vaccines | FDA

Pfizer-BioNTech COVID-19 Vaccines | FDA


Kansas
Department of Health and Environment
Division of Public Health
James Roberts, Public Information Officer
Communications Update

CDC National Preparedness Month Campaign

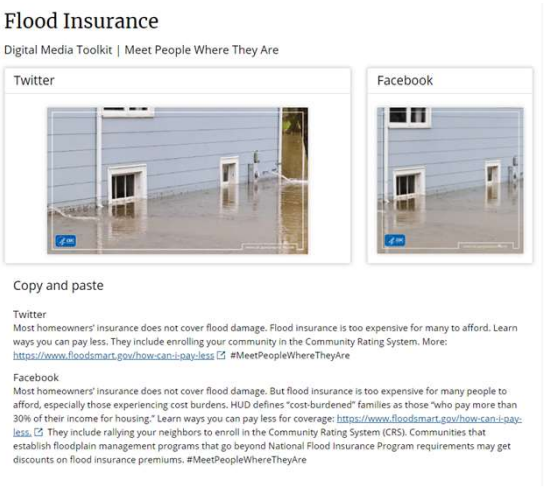
#MeetPeopleWhereTheyAre

- This the theme of this year's campaign
- Looks at ways social determinants of health can impact personal health preparedness and response
- Suggests ways the whole community can create opportunities and conditions for everyone to prepare for and respond to emergencies to their full potential

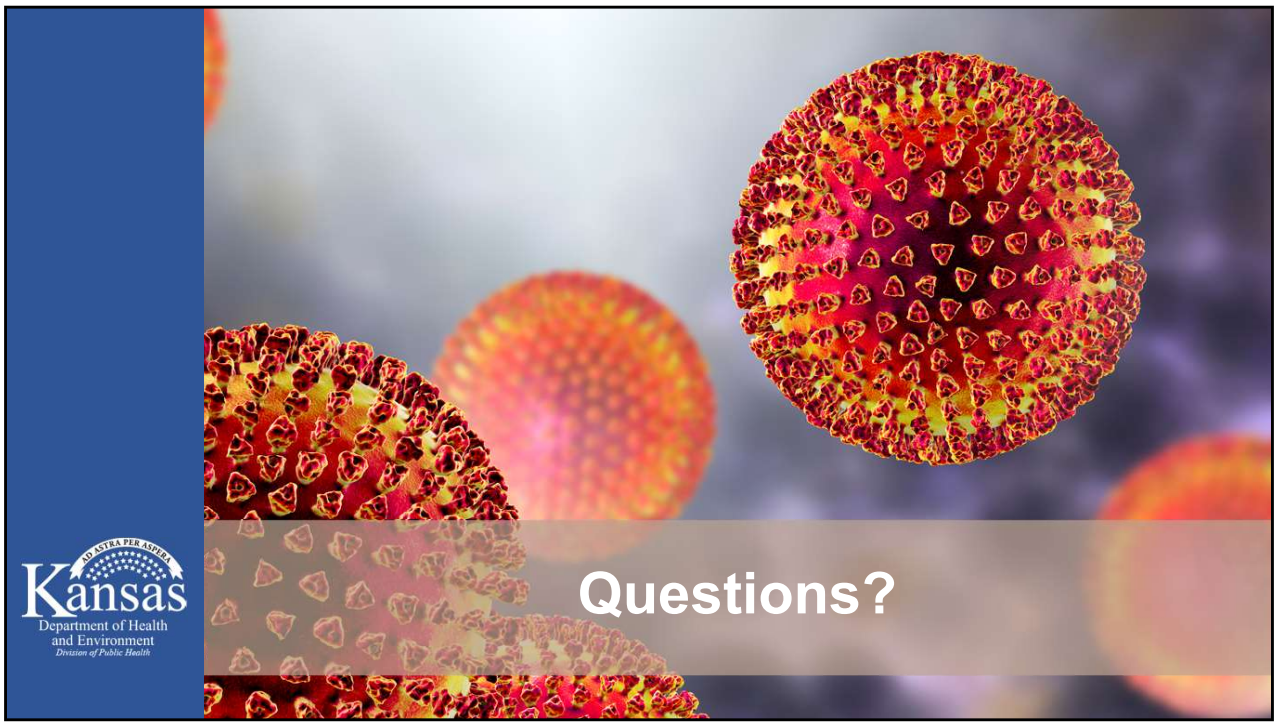
CDC National Preparedness Month Campaign

Digital Media Toolkit

- https://www.cdc.gov/prepyourhealth/toolkits/wheretheyare.htm
- Toolkit includes sample social media messages and graphics
- Material is downloadable and shareable.
- Flood Insurance Example:
  - Graphics for Twitter & Facebook
  - Copy/Paste messages for Twitter & Facebook



https://www.cdc.gov/prepyourhealth/socialmedia/wheretheyare/economic/floodinsurance.htm


Kansas
Department of Health and Environment
Division of Public Health
Questions?

Additional Literature

Reinfection with BA.5

COVID-19 Literature

In a highly vaccinated population (> 98%), a previous BA.1/BA.2 infection conferred substantial protection against BA.5 re-infection at 3 months (RR=0.12; 95% CI: 0.11-0.12) and reduced at 5 months by two-fold (RR=0.24; 0.23-0.24).

In a highly vaccinated population (>98%), the protection effectiveness against BA.5 after a prior infection vs. an uninfected group is:

- Initial infection of Wuhan-Hu-1: 52.9% (95% CI, 51.9 – 53.9%)
- Initial infection of Alpha: 54.9% (51.2 – 58.3%)
- Initial infection of Delta: 62.3% (61.4 – 63.3%)
- Initial infection of BA.1/BA.2: 80.0% (79.7 – 80.2%)

In the UK's QCovid4 mortality model in men (with similar trends in woman) hazard ratios for mortality were highest for those with the following conditions:

- Kidney transplant (6.1-fold increase)
- Down's syndrome (4.9-fold)
- Radiotherapy (3.1-fold)
- Type 1 diabetes (3.4-fold)
- Chemotherapy grade A (3.8-fold) - grade B (5.8-fold) - grade C (10.9-fold)
- Solid organ transplant ever (2.4-fold)
- Dementia (1.62-fold)

Parkinson’s disease (2.2-fold)
Liver cirrhosis (2.5-fold).

The probability of COVID-19 rebound 2-8 days after Paxlovid treatment was higher in patients who contracted COVID-19 during the BA.5 than the BA.2.12.1 predominance period.

Neutralizing Antibody to Omicron BA.1, BA.2 and BA.5 in COVID-19 Patients

Susanne L. Linderman, Lilin Lai, Estefany L. Bocangel Gamarra, Nicholas M. Mohr, Kevin W. Gibbs, Jay S. Steingrub, Matthew C. Exline, Nathan I. Shapiro, Anne E. Frosch, Nida Qadir, Srilatha Edupuganti, Diya Surie, Mark W. Tenforde, Meredith E. Davis-Gardner, James D. Chappell, Max S Y Lau, M. Juliana McElrath, Adam S. Lauring, Mehul S. Suthar, Manish M. Patel, Wesley H. Self, Rafi Ahmed

doi: https://doi.org/10.1101/2022.08.21.22278552

Major findings:

- In a highly vaccinated population (> 98%), a previous BA.1/BA.2 infection conferred substantial protection against BA.5 re-infection at 3 months (RR=0.12; 95% CI: 0.11-0.12).
- However, although still significant, the protection was reduced by two-fold at 5 months post-infection (RR=0.24; 0.23-0.24).

Limitations: Data on disease severity or symptoms was unavailable.
URL: https://www.medrxiv.org/content/10.1101/2022.08.21.22278552v1

Summary: The authors used the national Portuguese COVID-19 registry to investigate the waning of protective immunity conferred by prior BA.1/BA.2 infection towards BA.5. Study individuals were divided into groups that were infected during the period of BA.1/BA.2 dominance (>90% of sample isolates) in successive 15-day intervals and then the risk of subsequent infection with BA.5 over a fixed period was determined. Over two months (from 3 to 5 months after the
first infection), the relative risk (RR) doubled (from ~0.12 to ~0.25). The results also suggest that the rate of decline is faster in the initial months, with a greater change of the RR between months 3 and 4. The authors noted that previous studies found that prior infection and/or vaccination still reduced the risk of severe disease.

Risk of BA.5 infection in individuals exposed to prior SARS-CoV-2 variants

João Malato, Ruy M. Ribeiro, Pedro Pinto Leite, Pedro Casaca, Eugénia Fernandes, Carlos Antunes, Válter R. Fonseca, Manuel Carmo Gomes, Luis Graca

doi: https://doi.org/10.1101/2022.07.27.22277602

Major findings:

- In a highly vaccinated population (>98%), the protection effectiveness against BA.5 after a prior infection vs. an uninfected group is:
  - Initial infection of Wuhan-Hu-1: 52.9% (95% CI, 51.9 – 53.9%)
  - Initial infection of Alpha: 54.9% (51.2 – 58.3%)
  - Initial infection of Delta: 62.3% (61.4 – 63.3%)
  - Initial infection of BA.1/BA.2: 80.0% (79.7 – 80.2%)

Limitations: None, good study

URL: https://www.medrxiv.org/content/10.1101/2022.07.27.22277602v1

Summary: The population included in the study was all Portuguese residents aged 12 years and older, obtained from the National Census 2021. The authors used the national COVID-19 registry (SINAVE) to obtain information on all notified cases of infection, irrespective of clinical presentation. The "uninfected" population was defined as the population over 12 years of age without a documented infection in the registry. The number of uninfected people in June 1st, 2022 (the start of the study period) was 5 328 287, representing 57% of the Portuguese population over 12. The data available in the national COVID-19 registry (SINAVE) only include cases of tests (PCR tests and rapid antigen tests) performed by healthcare workers in accredited diagnostic facilities. Testing by an accredited facility is a requisite for access to social security compensation for days of isolation – this is a reason for the comprehensiveness of the registry and the exclusive
inclusion of validated tests. The authors used the national SARS-CoV-2 genetic surveillance database to identify periods when different variants represented >90% of the sample isolates, as also used in other studies. With this information, the authors identified the individuals who were infected in the period of dominance of each variant (Wuhan-Hu-1, Alpha, Delta, BA.1/BA.2, BA.5). The authors also pooled the BA.1 and BA.2 infections, given the slow transition between the period of

dominance of these two subvariants. The authors excluded from the analyses all individuals who had more than one infection before June 1st. In summary, the population included in the study comprises: (1) All individuals resident in Portugal aged 12 years and older without a documented infection until June 1st 2022 and (2) All individuals resident in Portugal aged 12 years and older with a single documented infection before June 1st, when this infection occurred during periods of clear dominance (>90% of cases) of the different variants, but not in the 90 days before June 1st.

The authors found that prior SARS-CoV-2 infection reduced the risk for BA.5 infection. The protection effectiveness, related to the uninfected group, for a first infection with Wuhan-Hu-1 was 52.9% (95% CI, 51.9 – 53.9%), for Alpha 54.9% (51.2 – 58.3%), for Delta 62.3% (61.4 – 63.3%), and for BA.1/BA.2 80.0% (79.7 – 80.2%).

Mortality due to Omicron

QCovid 4 - Predicting risk of death or hospitalisation from COVID-19 in adults testing positive for SARS-CoV-2 infection during the Omicron wave in England

Julia Hippisley-Cox, Kamlesh Khunti, Aziz Sheikh, Jonathan S Nguyen-Van-Tam, Carol AC Coupland

doi: https://doi.org/10.1101/2022.08.13.22278733

Major findings:

- In the UK's QCovid4 mortality model in men (with similar trends in woman) hazard ratios for mortality were highest for those with the following conditions:
  - Kidney transplant (6.1-fold increase)
  - Down's syndrome (4.9-fold)
  - Radiotherapy (3.1-fold)
  - Type 1 diabetes (3.4-fold)
  - Chemotherapy grade A (3.8-fold) - grade B (5.8-fold) - grade C (10.9-fold)
  - Solid organ transplant ever (2.4-fold)
  - Dementia (1.62-fold)
  - Parkinson's disease (2.2-fold)
  - Liver cirrhosis (2.5-fold).

Limitations: This study does not account for BA.4/BA.5 (although BA.4/BA.5 have been shown to have similar severity to BA.1/BA.2).
URL: https://www.medrxiv.org/content/10.1101/2022.08.13.22278733v1

Summary: Researchers used the UK's Population-based cohort study using the QResearch database linked to national data on COVID-19 vaccination, high risk patients prioritized for COVID-19 therapeutics, SARS-CoV-2 results, hospitalization, cancer registry, systemic anticancer treatment, radiotherapy and the national death registry to create a model that would predict mortality in individuals who contracted Omicron. The authors split this dataset into 1.3 million adults in the derivation cohort and 0.15 million adults in the validation cohort aged 18-100 years with a SARS-CoV-2 positive test between 11th December 2021 and 31st March 2022 with follow up to 30th June 2022. This model (QCovid4) builds upon the previous models created to more accurately predict COVID-19 mortality during Omicron dominance. Overall, the factors associated with increased risk in earlier models, were still associated with increased risk in the QCOVID4 model. An exception was ethnic minority groups where the previously elevated risks, particularly associated with South Asian and Black ethnicities for COVID-19 death in QCOVID1 and QCOVID2, were no longer apparent in QCOVID4.

The authors found that infection with SARS-CoV-2 prior to the study period was associated with approximately 50% lower risk of COVID-19 mortality in both men and women. This was independent of age, ethnicity, deprivation (similar to SVI in

the USA), co-morbidity and vaccination status. Similarly, there was a dose-dependent reduction in mortality risk in men and women following COVID-19 vaccination with each subsequent dose conferring additional benefits.

Overall, the COVID-19 mortality rate in men (with similar trends in woman) increased with age and deprivation. In the QCovid4 model in men hazard ratios were highest for those with the following conditions: kidney transplant (6.1-fold increase); Down's syndrome (4.9-fold); radiotherapy (3.1-fold); type 1 diabetes (3.4-fold); chemotherapy grade A (3.8-fold), grade B (5.8-fold); grade C (10.9-fold); solid organ transplant ever (2.4-fold); dementia (1.62-fold); Parkinson's disease (2.2-fold); liver cirrhosis (2.5-fold).

Paxlovid Rebound for BA.5

COVID-19 rebound after Paxlovid treatment during Omicron BA.5 vs BA.2.12.1 subvariant predominance period

Lindsey Wang, Nora D. Volkow, Pamela B. Davis, Nathan A. Berger, David C. Kaelber, Rong Xu
doi: https://doi.org/10.1101/2022.08.04.22278450

COVID−19 rebounds after Paxlovid treatment during Omicron BA.5 vs BA.2.12.1 subvariant predominance period

Rebound outcome	BA.5 (n=5,161)	BA.2.12.1 (n=10,752)	HR (95% CI)
Before matching			
COVID−19 infection	2.81%(145/5,161)	3.42%(368/10,752)	1.15 (0.95−1.40)
COVID−19 symptoms	2.42%(125/5,161)	2.87%(309/10,752)	1.24 (1.01−1.53)
After matching			
COVID−19 infection	2.80%(144/5,142)	3.31%(170/5,142)	1.32 (1.06−1.66)
COVID−19 symptoms	2.39%(123/5,142)	2.98%(153/5,142)	1.32 (1.04−1.68)

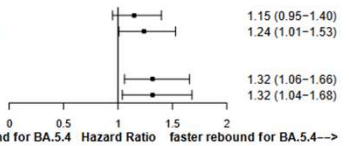


Figure 1. COVID-19 rebounds 2-8 days after Paxlovid treatment between the BA.5 and BA.2.12.1 cohorts before and after propensity-score matching.

Major findings:
- The probability of COVID-19 rebound 2-8 days after Paxlovid treatment was higher in patients who contracted COVID-19 during the BA.5 than the BA.2.12.1 predominance period.
- The cumulative risk of rebound COVID-19 after Paxlovid treatment between BA.5 and BA.2.12.1 was similar.

Limitations: The data are fairly close between rebound infections for BA.5 and BA.2.12.1 and only indicate that individuals are more likely to rebound with BA.5 sooner after Paxlovid vs. BA.2.12.1
URL: https://www.medrxiv.org/content/10.1101/2022.08.04.22278450v1

Summary: The authors used the TriNetX Analytics COVID-19 Research Network platform that contains nation-wide and real-time de-identified electronic health records (EHRs) of 98 million unique patients from 76 health care organizations with both inpatient and outpatient facilities across 50 states in the US , covering diverse geographic locations, age groups, racial and ethnic groups, income levels and insurance types. The study population comprised 15,913 patients age ≥ 12 years who contracted COVID-19 between 5/8/2022-7/18/2022 and were prescribed Paxlovid within 5 days of their COVID-19 infection. The study population was divided into 2 cohorts: (1) BA.5 (mostly BA.5.4) cohort (n=5,161) – contracted COVID-19 during 6/19/22-7/18/22 when BA.5 was the predominant subvariant. (2) BA.2.12.1 cohort (n=10,752) – contracted COVID-19 during 5/8/22-6/18/22 when the BA.2.12.1 was the predominant subvariant. Overall, The BA.5 and BA.2.12.1 cohorts did not differ except that the BA.5 cohort comprised more Hispanics. After propensity-score matching, the two cohorts were balanced.

After propensity-score matching, instantaneous risks of both rebound infections and symptoms were higher in the BA.5 cohort than in the matched BA.2.12.1 cohort: rebound infections (HR: 1.32, 95% CI: 1.06-1.66), rebound symptoms (HR:

1.32, 95% CI: 1.04-1.68). While the cumulative risk of rebound COVID-19 after Paxlovid treatment between BA.5 and BA.2.12.1 was similar.