

**Sent on behalf of William Isenberg, M.D., Ph.D, Chief Medical & Quality Officer, Sutter Health, and Jeffrey Silvers, M.D., Medical Director of Pharmacy and Infection Control, Sutter Health**

## **Emerging Infections Newsletter for Clinicians**

*June 8, 2023*

***Written by Dr. Silvers with contributions from Dr. Joan Etzell (Lab), Lisa Rieg (Pharmacy), and Gordon Sproul (Pharmacy). Please use Google Chrome for the best experience.***

### **Topics**

1. COVID-19
  - a. Systematic review of mother-to-child transmission in high-income countries
  - b. A working definition of Post-acute Sequelae of SARS-CoV-2 Infections (PASC)
    - i. Also called “Long COVID”
  - c. United States sequence data
2. Syphilis
  - a. Congenital syphilis on the rise in California again
  - b. Screen and treat
  - c. Benzathine penicillin G (Bicillin® -LA) national shortage
    - i. Prioritization of limited supplies
3. Influenza
  - a. WHO situation update
  - b. Should we go back to a trivalent vaccine?
4. Mpox
  - a. What is the risk of a sustained outbreak?
5. West Nile Virus Season Update
6. Share the newsletter

### **COVID-19**

- The risk of newborn infants acquiring COVID from an infected mother.
  - Perinatal acquisition risk for COVID was evaluated by a systematic review and meta-analysis published in [Nature](#) May 31.
  - Twenty-six studies showed that 3.7% of babies born to a mother with SARS-CoV-2 infections developed COVID. Only 5% of those required any oxygen support.

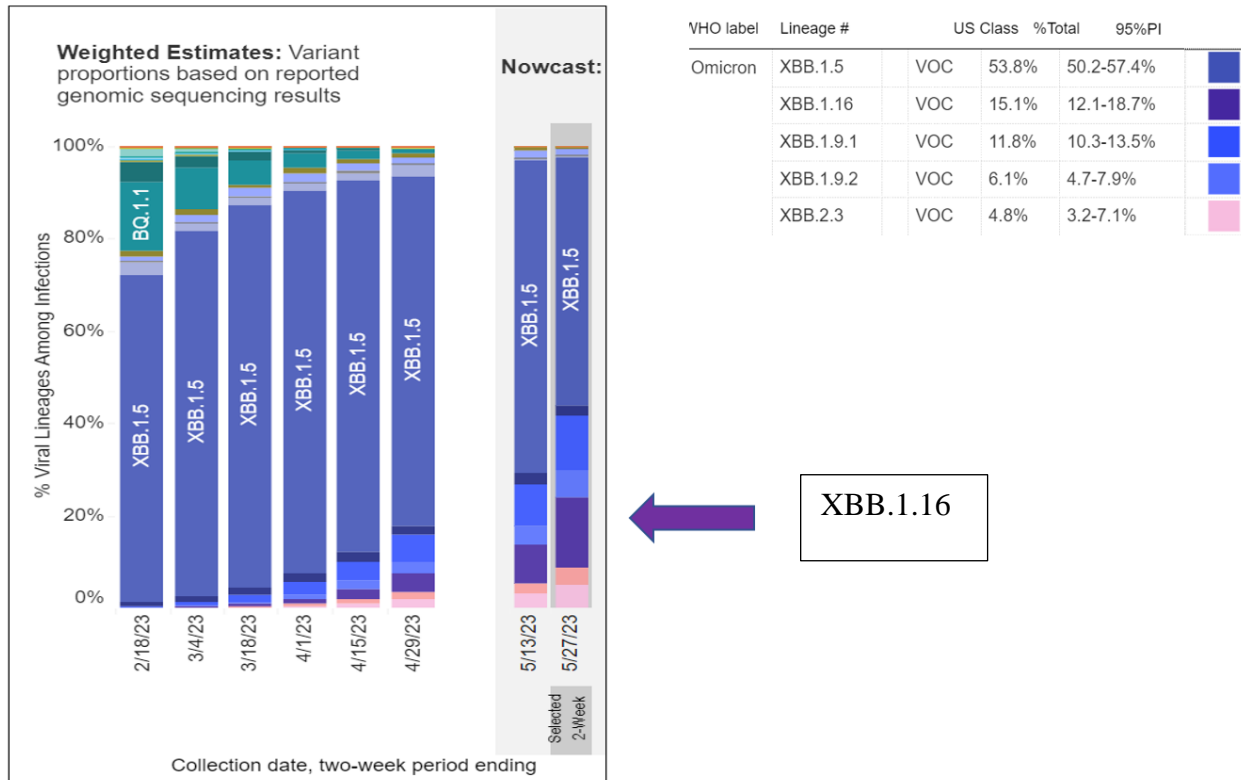
Population	Totals	Developed COVID-19	Required Oxygen or Vent. Support
Mothers	2,653	2,653 (100%)	126/2,653 (4.7%)
Children	2,677	100 (3.7%)	5 /100 (5%)

- Proportion meta-analysis overall estimate of newborn acquiring SARS-CoV-2 within 30 days after birth was 2.3% (95% CI:1.4-3.2%).
- Rooming-in without implementing any infection control measures created an increased risk of transmission (3.2% in table below).

Risk of developing COVID			
All Rooming-in	Rooming-in w/ 0-1 prevention measures	Rooming-in w/ 2 or more prevention measures	No Rooming-in
1.4%	3.2%	1.0%	1.3%

- Newborns have a low risk of acquiring COVID from mothers.
- Rooming-in with two or more transmission prevention measures lowers the risk to 1%.
- Post-acute Sequelae of SARS-CoV-2 Infections (PASC)
  - PASC, also called “long COVID”, is defined as relapsing, persisting or new symptoms/conditions presenting 30 or more days after an infection with SARS-CoV-2.
  - A definition of PASC was developed based on symptoms in a large, multi-state, prospective, observational, adult cohort. Twelve symptoms were identified and this was posted online by [JAMA](#) on May 25.
  - 9,764 participants were divided into persons with a history of SARS-CoV-2 infection and those without prior COVID (no history of COVID and antibody negative).
    - Persons with disease were divided into the acute cohort (entry within 30 days of diagnosis) and post-acute cohort (study entry more than 30 days after index infection).
    - Analysis was performed on those who participated in a study visit 6 months or more since their index infection.
    - Participants were divided into pre-omicron and omicron groups. The questionnaire included 44 symptoms.
    - Data were adjusted for infection status, age, sex and vaccination status at the index date.
    - A symptom was considered positive if the proportion reporting a symptom of mild to moderate severity was 2.5% or higher.
  - Symptoms were counted when there was more than a 15% absolute difference in frequency comparing infected to uninfected.
    - Examples included post-exertional malaise (PEM), fatigue, dizziness, brain fog and GI symptoms.
  - In total, 12 symptoms met the final criteria as being consistent with PASC.
  - Symptom differences between infected and uninfected persons were least in the acute omicron subgroup and highest in the post-acute, pre-omicron subgroup.
  - Symptom frequencies were the lowest in the fully vaccinated participants in the acute omicron group.
  - Uninfected participants were more likely to be fully vaccinated (77% vs 55%)
  - PASC symptoms were 10% of the acute omicron subcohort, 17% in the post-acute omicron subcohort and a full 35% in the post-acute, pre-omicron group.
  - This study had some important findings:
    - The incidence of PASC at 6 months after the index infection was 50% less in those who developed the infection with omicron compared to pre-omicron (17% versus 35%).
    - Uninfected participants were more likely to be fully vaccinated.
    - Symptoms were less frequent in fully vaccinated participants within 30 days of infection onset.

- Symptoms cross multiple organ systems, but neurologic complaints dominated (PEM, fatigue, dizziness and brain fog).
  - This study had adequate power to develop a working definition of PASC.
- U.S. Sequence Data
  - XBB.1.16 (Arcturus) is now 15% of isolates. Although isolates are increasing, a significant escalation in cases in the near-term is not anticipated.
  - Genomic sequencing data below shows the percentage of isolates due to a particular sequence. This does not correspond with virulence or activity levels in any community.

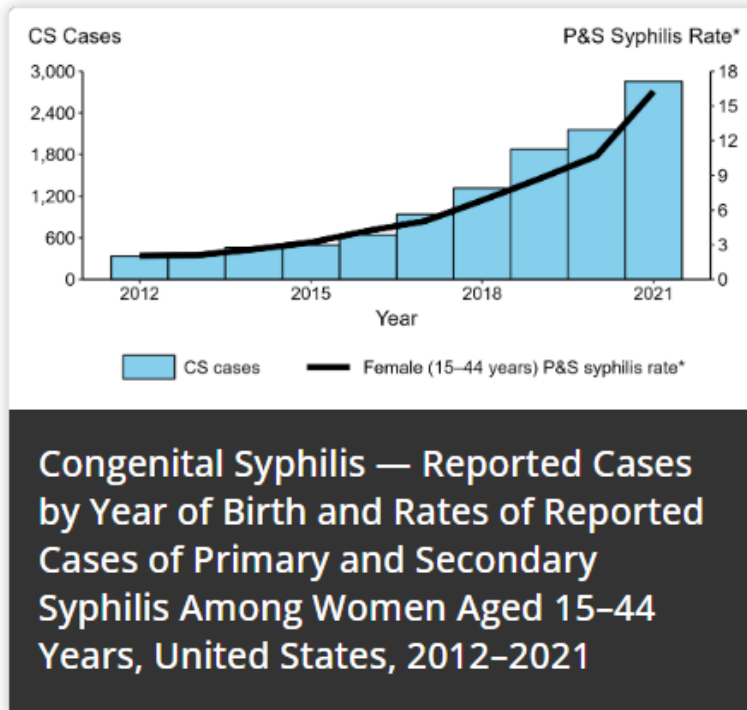


### Take-Home on COVID

- The risk of transmission of SARS-CoV-2 from mother to newborn baby is low, including rooming-in.
  - Infection prevention is effective at decreasing the risk of transmission.
  - Although a meta-analysis has inherent weaknesses, the statistical measurements for heterogeneity ( $I^2$ ) in this study are reassuring enough to trust these results.
- A working symptom-based definition of PASC was developed and published.
  - Fully vaccinated persons were more likely to be uninfected in this study.
  - The risk of PASC was twice as high in persons infected before omicron (35% vs. 17%).
  - Neurologic complaints dominate the findings in PASC.
- Circulating strains of COVID appear relatively stable at this time.
- **Related Links**
  - [CDC Data Tracker](#)
  - [CDC Latest Updates](#)
  - [CDC Vaccine Information](#)
  - [Sutter Health for Clinicians](#)
  - [Sutter Health for Patients](#)
  - [WHO Table of Contents](#)

## Syphilis

- Reported cases of congenital syphilis have been progressively increasing since 2013. This can result in miscarriage, stillbirth, low-birth weight, preterm birth and infant death. Untreated infants can develop [multiple abnormalities](#) throughout life.
- The [CDC graph](#) below demonstrates the relentless incline.



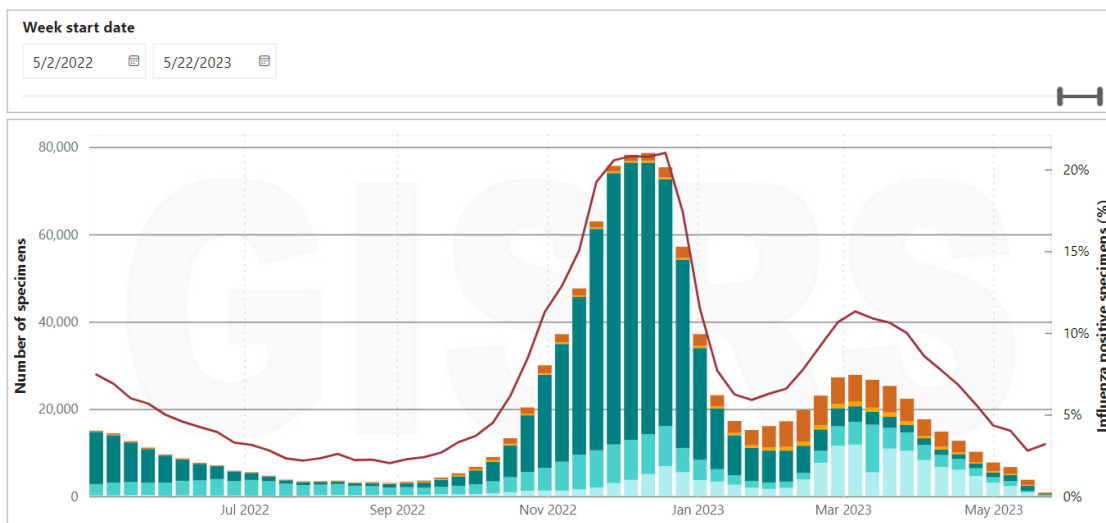
- In 2020, [CDPH](#) published expanded syphilis screening recommendations during pregnancy.
- In 2021, the [California rate](#) of congenital syphilis was number 11 in the nation.
- CDPH released a limited circulation Communicable Disease Brief on June 2 reporting increasing cases of congenital syphilis and syphilis among persons who could become pregnant in the Central Coast region.
- Cases of congenital syphilis were increasing before the COVID-19 pandemic and continues unabated.
- All pregnant patients should be screened for syphilis at least twice during pregnancy, once ideally in the first trimester and again in the third trimester. This includes the emergency room and urgent care screening if no documentation of a syphilis test.
- Evaluate and treat all patients with syphilis.
- Complicating this increase in syphilis among pregnant patients is a national shortage of benzathine penicillin G (Bicillin® – LA).
  - Estimated resolution date for the shortage is the second quarter of 2024.
  - Prioritize remaining supply for the following situations:
    - [Treatment of pregnant patients](#) with syphilis or syphilis exposure.
    - [Treatment of infants](#) with possible congenital syphilis in utero.
    - Treatment of patients with syphilis with significant contraindications to doxycycline such as anaphylaxis, hemolytic anemia or Steven-Johnson syndrome.
  - All other patients with syphilis should be treated with doxycycline 100 mg orally twice a day for 14 or 28 days depending on clinical presentation, as per CDC [STI treatment guidelines](#).

## Take-Home on Syphilis

- Cases of congenital syphilis continue to increase. This can result in severe disability, morbidity and/or mortality.
- Treatment of pregnant persons with syphilis can decrease the risk of congenital syphilis.
- All pregnant persons should be screened at least twice during pregnancy. Once in the first trimester and once in the third trimester.
- Pregnant persons evaluated in the emergency department or urgent care should be screened for syphilis if not previously documented.
- Benzathine penicillin G (Bicillin® LA) is in short supply nationally. Supplies need to be prioritized for treatment of syphilis in pregnant patients, infants and patients who have significant contraindications to doxycycline.
- Follow CDC guidance included in links above.

## Influenza

- WHO report of circulating levels of influenza
  - The WHO provided an updated [report](#) on June 1 that includes data from the first two weeks of May.
  - 319,245 specimens were tested in 115 countries.
    - 13,435 were positive (4.2%)
    - 71% Influenza A (2/3 H1N1 and 1/3 H3N2)
    - 29% Influenza B (All Victoria)
  - Positivity rates are low throughout the world at this time.
- Influenza B Yamagata has not been identified to be circulating since April 2020 and is likely [extinct](#).
  - The very few isolates identified in 2021 and 2022 were likely secondary to live-attenuated vaccines.
- The chart below shows 1 year of worldwide [data](#):



#### Influenza subtype

Select all

- Influenza B (lineage not determined)
- Influenza B (Victoria)
- Influenza B (Yamagata)
- Influenza A not subtyped
- Influenza A(H3)
- Influenza A(H1N1)pdm09
- Influenza A(H1)
- Influenza A(H5)

Influenza positive specimens %

- We remain at inter-seasonal influenza levels.

#### Take-Home on Influenza

- Influenza is at low inter-seasonal influenza levels throughout the world.
- Circulating influenza A is predominantly H1N1 compared to last year, which was mostly H3N2.
- Influenza B Victoria appears to have been the only circulating B strain for over three years.
  - If the WHO can confirm, returning to a trivalent vaccine as the standard should be considered.

#### MPOX

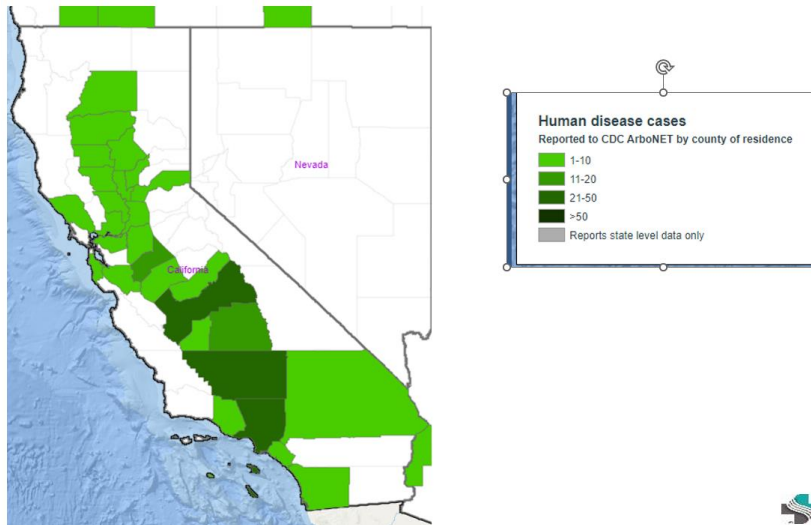
- The [CDC](#), on May 26, published a mathematical model of the potential for sustained, recurrent Mpx outbreaks in the U.S.
  - The risk of an outbreak is inversely proportional to the immunity of the at-risk population. This depends on receipt of one or two doses of the Jynneos vaccine or having previously developed Mpx disease.
  - This article includes a [table](#) of estimated Mpx immunity levels in the 50 jurisdictions at highest risk for HIV. Sacramento, Alameda and San Francisco counties are predicted to be at low risk of a sustained outbreak (defined as over 3 months in duration) because immunity levels were estimated at 52%, 75% and 100% respectively.
  - Mathematical models can be very useful, although they usually have a lot of limitations.
  - This analysis assumes no additional vaccinations after April 28, no behavioral adaptation among MSM in response to an outbreak, and a steady state immunity based on receiving either one or both doses of the Jynneos vaccine or from infection. Immunity levels were assumed 37% after one dose, 67% after two doses and 100% after infection.

#### Take-Home on Mpx

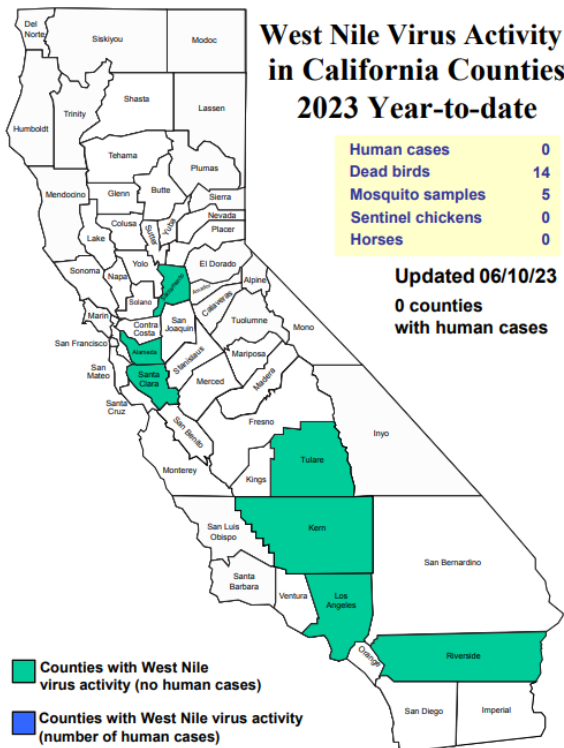
- A mathematical model suggests that a sustained recurrent Mpx outbreak is unlikely in the high-risk population in Sacramento, Alameda and San Francisco counties.
- Cases are still likely to be identified in the next few months.

#### West Nile Virus (WNV)

- No major outbreaks of WNV are being reported yet this season. The first graphic below shows California and the number of human cases identified by county in 2022.



- The graphic below shows our present situation this year. No detected/reported cases in humans and only small numbers of dead birds identified thus far.



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**Take-Home on WNV**

- Still watching.

**Share the Newsletter**

Anyone who would like to be added to the Emerging Infections newsletter should send a request to [bryan.gardner@sutterhealth.org](mailto:bryan.gardner@sutterhealth.org)

*This communication is intended for clinicians caring for Sutter patients. If you have questions, please reach out to us at [clinicians@sutterhealth.org](mailto:clinicians@sutterhealth.org).*

