

## in this issue >>>>

*Syphilis Statewide Trends*

*Q&A: One Health Awareness*

*Ventilator-Associated Pneumonia in Kansas*

*Partner Spotlight*

*Petri Art* →

*Pseudomonas aeruginosa on a blood agar plate*

by Carolyn Toth, visit

[instagram.com/petridishpicasso/](https://www.instagram.com/petridishpicasso/)



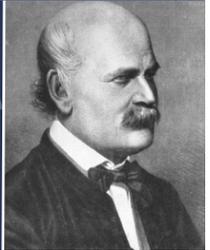
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A Quarterly Insight into Kansas Healthcare Associated Infections, Antimicrobial Resistance and Antimicrobial Stewardship Efforts with a One Health Focus

# Semmelweis Times



## Educational Activities >>>>

### Midwest Antimicrobial Stewardship Collaborative: Stewarding in the Era of AI

Noon-1:30 p.m. Feb 29, 2024

Virtual

Dr. Josh Herigan of Children's Mercy Hospital discusses the current and future landscape of antimicrobial stewardship in an era of artificial intelligence.

For more information and to [sign up](#)

Join via [Teams](#)

### KHA Infection Prevention Conference

March 21-22, 2024

Wichita

Kansas Hospital Association is hosting this in-person conference. Topics include IPC program importance, incentives for utilizing NHSN requirements, breaking the chain of infection, innovative ways to provide employee education, employee health 101, risk reduction in construction, syndromic surveillance to target surveillance efforts, and use of genomic epidemiology to better understand transmission dynamics.

[Sign up](#)

## Syphilis: A Spir(al)chete Out of Control

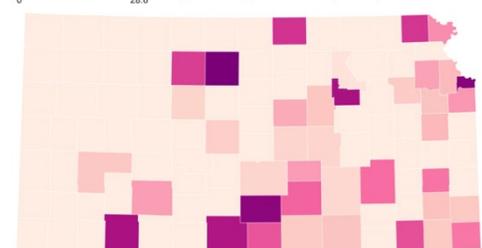
Austin Price, MD, MPH  
Infectious Disease Fellow  
University of Kansas Medical Center

Kansas recognizes April 9-15 as the National Sexually Transmitted Infection (STI) Awareness Week. This week provides an opportunity to raise awareness of infections which affect 1 in 5 Americans.<sup>1</sup> Many STIs present with no symptoms, and it is the job of clinicians to encourage testing for all sexually active individuals regardless of whether they are seeking testing or reporting symptoms.

While the nation has experienced sustained increases in syphilis over the past decade, rates in the Midwest are accelerating at a more dramatic rate than other parts of the U.S.<sup>2</sup> In Kansas, syphilis cases have increased 337% over the past decade.

Rural regions are not spared, with the highest incidence of syphilis occurring in Osborne (28.6 per 100,000 population), Wyandotte (27.5), Kingman (27.1), Geary (25) and Meade (24.9) counties.<sup>3</sup>

Rates of Early Syphilis per 100,000 by County, Kansas (2021)

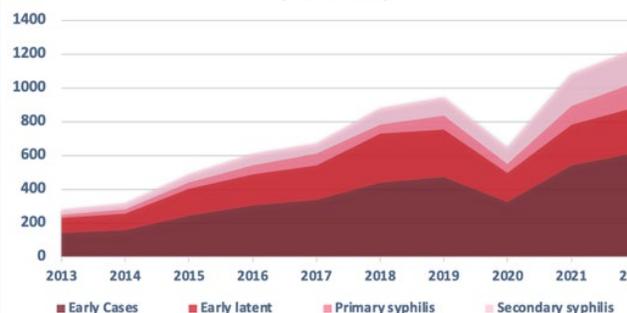


While the Kansas syphilis average rate is far below the national rate (27.4 per 100,000 and 53.2 per 100,000 respectively), trends are nevertheless concerning. Neighboring states largely exceed Kansas in terms of incidence, with Oklahoma at 75.3 per 100,000, Missouri at 61.3, and Colorado at

39.6 with Nebraska having the lowest rate (24.0).<sup>5</sup>

Most infections occur in the 15-44 age groups, with 20% of Kansas cases having been diagnosed amongst those aged 25-29, and 18% aged 20-24. However, amongst the 35-39 age group, there has been a 669% increase from 2013 to 2022.

Primary, Secondary, Early Latent Syphilis Cases in Kansas (2013-2022)



(continued next page)

## KU Area Health Education: Infectious Disease Updates for Kansas Clinicians

8:30-2:00 p.m. April 19, 2024  
Virtual

Half-day virtual Infectious Disease updates for Kansas clinicians regarding Tickborne infections (Dr. Victoria Poplin), C. diff treatment and prophylactics (Dr. Joanna Kimball), STIs including data on updated doxycycline PEP (Dr. Wissam El Atrouni), Vaccine updates including new RSV and pneumococcal vaccines (Dr. Kellie Wark), PO vs IV antibiotic options (Dr. Megan Klatt), COVID-19 updates (Dr. Dana Hawkinson), and Pre-Exposure Prophylaxis [PrEP] (Dr. Megan Herrman).

[Sign up](#)

## Minnesota Antibiotic Stewardship Conference

April 30-May 1, 2024  
Virtual

Minnesota Department of Health continues to host their excellent virtual annual Stewardship Conference. Geared towards stewardship teams, pharmacists, nurses, dentists, physicians and advanced practice providers, as well as public health workers interested in improving antibiotic use.

[For more information](#) and to [sign up](#)

## Kansas Infectious Disease Symposium 2024

May 9-10, 2024  
Overland Park

This year the annual Infectious Disease Symposium is hosting a full two-day event. Experts from public and private sectors will discuss emerging public health issues. Network with local, state, and federal partners, and learn the latest information on disease prevention and how to improve health outcomes.

[For more information](#) and to [sign up](#)

## Syphilis trends in KS (continued) >>>>

While those over age 55 only account for 7% total cases, this age group is the 4<sup>th</sup> most rapidly increasing rate (344%) over the past decade.

Another concerning trend is the increase in congenital syphilis. A decade ago, virtually no congenital syphilis cases were reported, however there has been over a 10-fold increase, peaking with 13 Kansas infants having been born with syphilis in 2022. These numbers do not account for those having culminated in stillbirths.

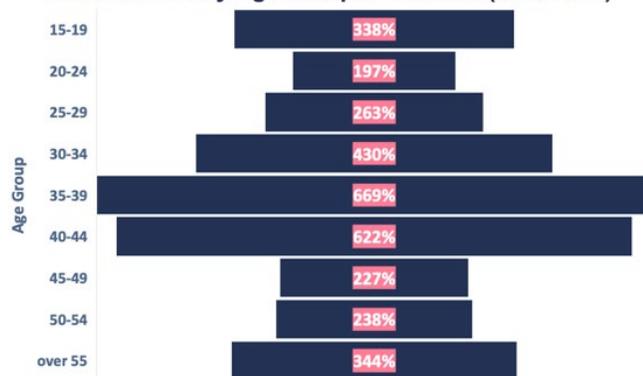
### Screening

The [CDC recommends](#) all sexually active individuals from age 15 to 65 be offered screening for syphilis, gonorrhea, chlamydia, and HIV. All pregnant women should be screened at the first prenatal visit and tested at least once, with repeat testing offered at 28 weeks if deemed higher risk (drug use, STI during pregnancy, multiple or new partners) and their partners should also be offered STI screening. Because these rates are escalating, the CDC also introduced a community based risk assessment, whereby all women residing in [high-incidence counties](#) (over 4.6 infections in females per 100,000) should be offered testing.<sup>6</sup> All asymptomatic sexually active men who have sex with men (MSM) should be offered syphilis testing every 3 to 6 months if deemed higher risk. MSM and transgender women receiving pre-exposure prophylaxis (PrEP) should be screened for syphilis and other STIs at each follow-up visit (every 3 to 4 months depending on PrEP regimen). Those with HIV should be screened upon entry to care, and annually (or more frequently) thereafter.

### Treatment

The standard of care for primary, secondary, and early latent syphilis is a single intramuscular (IM) 2.4-million-unit dose of penicillin (PCN) G benzathine (Bicillin-LA). Late latent syphilis and tertiary syphilis (gummatous or visceral disease) are treated with the same IM injection but require 3 once-weekly doses. In 2023 a nationwide shortage of Bicillin-LA arose in conjunction with dramatic increases in new syphilis diagnoses and supply chain issues. This forced many institutions to develop contingency plans to prioritize the use of Bicillin-LA. As such, patients diagnosed with primary, secondary, or early latent syphilis who are not pregnant and do not carry a diagnosis of HIV/AIDS can be treated with oral

### Rate Increase by Age Groups in Kansas (2013-2022)



Congenital Syphilis Cases Reported in Kansas (2013-2022)



doxycycline 100 mg BID for 14 days. For those diagnosed with late latent syphilis or tertiary syphilis (in absence of neurosyphilis) doxycycline 100 mg BID for 28 days is acceptable. Pregnant patients and those with HIV/AIDS should be treated with IM therapy. The Bicillin-LA shortage is projected to last at least through spring 2024.

Neurosyphilis can occur at any point in the course of infection, and requires intravenous (IV) therapy, preferably with 14 days of aqueous PCN G by continuous infusion. In addition, some providers administer a single dose of Bicillin-LA at the completion of IV therapy, especially if they also fall into the late latent category. For patients who are PCN-allergic, desensitization is preferable when available. If desensitization is not feasible, ceftriaxone 2 grams daily for 14 days is the acceptable alternative. Ocular and otic syphilis should be treated as neurosyphilis, regardless of the presence of other central nervous system manifestations.

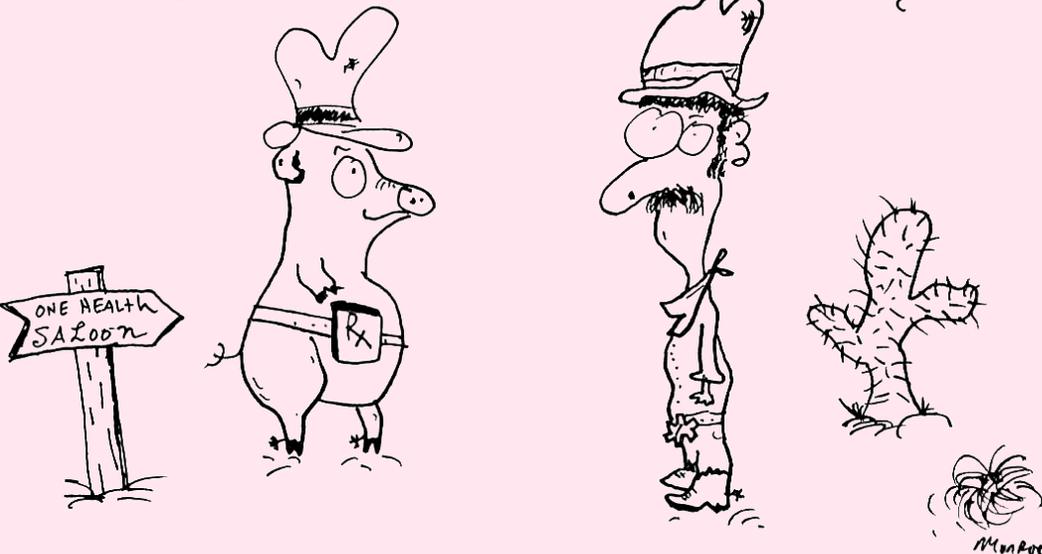
### Prophylaxis

A focus has developed surrounding viable preventative measures for bacterial STIs. A study conducted in France and published in 2018 explored the viability of doxycycline for post-exposure prophylaxis (PEP) against bacterial STIs, particularly syphilis.<sup>7</sup> This study was conducted in MSM who were actively taking PrEP for HIV, and reported a 47% decrease in total STI incidence, with a relative reduction (RR) in new syphilis and chlamydia infections of nearly 70%. There was no decrease in incidence of gonorrhea infections observed. In 2023, an open label randomized trial involving MSM and transgender women explored the viability of PEP in Seattle, WA and San Francisco, CA.<sup>8</sup>

(finished next page)

## Healthy Humor >>>>

SNEEZE ON the Court of THREE



"The Not O.K. Corral"

## Syphilis trends (cont'd) >>>>

The protocol called for a one-time dose of doxycycline 200 mg taken within 72 hours of an at-risk event. Results showed a significant decrease in all incident STIs (including gonorrhea) in both those with HIV and those on PrEP. With respect to syphilis, incident syphilis cases were reduced 52% (HR 0.48, 95% CI 0.28-0.83) in those with HIV and 64% (HR 0.34, 95% CI 0.23-0.51) in the PrEP cohort. These results suggest that PEP may be a necessary tool in the maintenance of sexual health for those at highest risk of bacterial STIs. Notably, national guidelines from CDC regarding PEP for bacterial STIs are under review following a public comment period which closed November 2023.



## ask the experts >>>>

January was One Health Awareness Month, so we chatted with Dr. Erin Petro, State Public Health Veterinarian at KDHE, to learn more about One Health.

**Q:** What is One Health, and why is One Health important?

**A:** One Health is the concept that the health and well-being of people, animals, plants, and our shared environment are all connected, and that a change in one of these domains will have an impact, which could be positive or negative, in the other domains. But beyond a simple definition, One Health is really a new way of thinking, especially when thinking about interventions. It embodies a systems thinking approach, in which we're not just looking at a "problem" in isolation, but really looking at the contributors to the problem, the potential consequences of our "solution" and all the upstream and downstream effects. This is why understanding and embracing One Health is so important. Often when we look to fix problems, our solutions can be more detrimental than the original problem.

**Q:** What are common One Health issues?

**A:** The exciting thing about One Health is that it is so broad. We see One Health in action in common issues that we face in Kansas, from Harmful Algal Blooms, rabies, and response to natural disasters to water and air quality initiatives, food safety, and everyday human-animal interactions.

**Q:** How does a One Health approach better prepare us for future emerging issues?

**A:** I think that emerging issues are where One Health really shines. It's estimated that about 75% of newly emerging infectious agents are zoonotic in origin; meaning both humans and animals can have and/or be affected by the organism. Humans becoming infected with zoonotic pathogens can happen for a number of reasons, but one of those that we see commonly is because humans are altering the environment in which they live, hunt, or recreate, which has an effect on the ecosystem. A great example of this in the U.S. are tickborne diseases, which have been on the rise over the past 20 years. There are a lot of different variables at play, including land use, the population of hosts like mice and deer, and changing climate conditions that favor expansion of different tick species into new geographic areas. One of the challenges that we face in public health is looking at these various drivers of tickborne disease to figure out how to reduce risk for humans and animals. When put into practice, One Health fosters multidisciplinary collaboration and drives ingenuity, which is really exciting for the future of our work!

For more information  
[KDHE](#) | [CDC](#)

# Ventilator-Associated Pneumonia Trends in Kansas

Jordan Harvey, BSN, RN, PCCN  
 MPH-candidate (KU Class of 2024)  
 University of Kansas Medical Center  
 Infection Control Nurse, TUKHS

For patients suffering from a critical respiratory illness, the initiation of mechanical ventilation can be a lifesaving therapy. In the U.S., it is estimated that more than 300,000 patients receive mechanical ventilation each year, with most requiring inpatient stays in an intensive care unit (ICU).<sup>9</sup> Patients receiving mechanical ventilation are at higher risk for complications such as ventilator-associated pneumonia (VAP), pulmonary embolism, acute respiratory distress syndrome, and endotracheal injuries.<sup>10</sup>

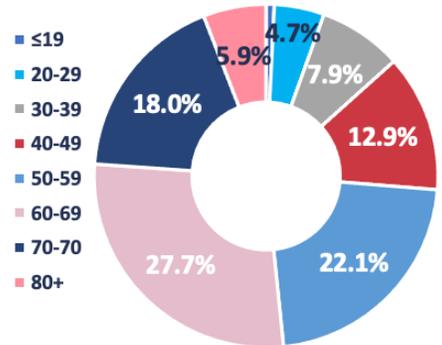
Almost 30% of patients requiring mechanical ventilation develop VAP or associated complication.<sup>11</sup> With these complications, patients are likely to experience longer stays in the ICU, higher healthcare costs, and increased morbidity and mortality.<sup>8</sup> However, using a bundle approach of prevention measures has been shown to decrease VAP and other complications that may arise from mechanical ventilation and improve patient outcomes.<sup>12</sup>

According to data available in the CDC's National Healthcare Safety Network (NHSN), Kansas healthcare facilities have observed a higher-than expected incidence rate for ventilator-associated events (VAEs) over the past several years. A VAE encompasses a range of events that may be infectious (VAP), or may be related to non-infectious etiologies (e.g., pulmonary embolism, pulmonary edema, barotrauma). VAEs are triggered when ventilator oxygenation (FiO2) or pressure changes (positive end expiratory pressure or PEEP) occur over the course of 2 or more days. From 2019 through 2023 (third quarter [Q3]) VAEs increased significantly starting mid-2020 and continued through Q1 of 2022 corresponding to the COVID-19 pandemic.

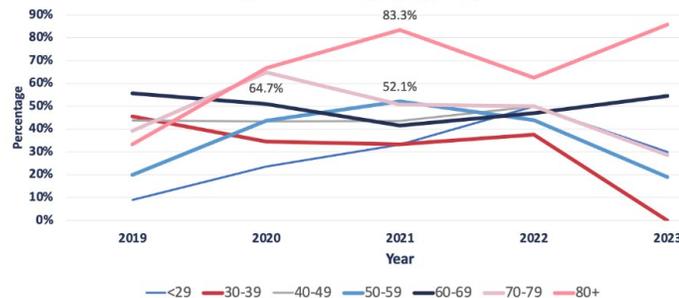
When categorized by age range, nearly a third of VAEs occurred in the 60-69 age group, 18% in 70-79-year-olds, and while only 5.9% of VAEs occurred in those 80 and over, these older adults accounted for 84% total mortality. Additionally, the average length of stay (LOS) increased from 2020 to 2022

peaking at an average of 24.0-day LOS for those with a reported VAE, with an average of 4.4-days in the facility before ventilation was started. In 2023, however, the average total LOS was down to 19.8-days with only a 1.6-day average until ventilated.

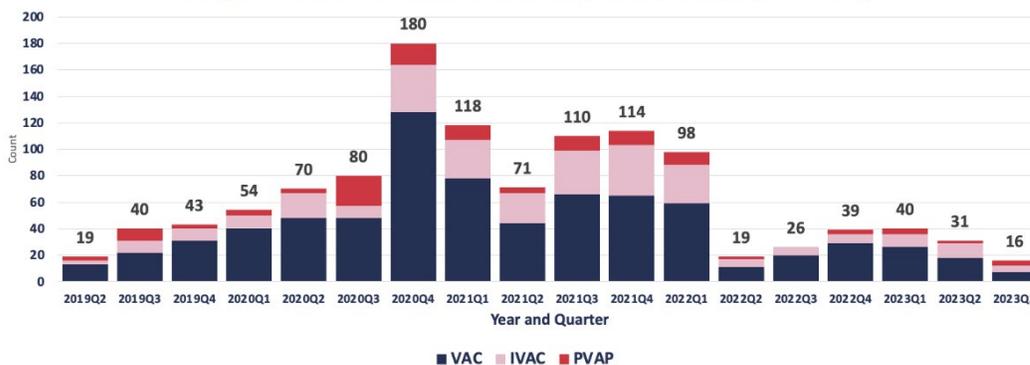
## Percentage of VAE by age group



## Percentage of deaths by age group, 2019-2023



## Changes over time in Ventilator Events Reported in Kansas (2019-2023)



Because NHSN does not provide additional insight into prevention efforts taken by healthcare facilities to reduce VAEs, we at KDHE have created a survey to explore both the barriers to reporting and the current status of prevention efforts for VAEs.

The survey is being disseminated amongst Kansas IPs to determine what types of ventilator bundles and prevention activities are occurring in our state.

To take our [survey](#) please follow the link.

## Partner Spotlight >>>>



**Patty Quinlan, RN**  
 Clinical Program Coordinator  
 Watkins Health Services

Patty Quinlan began her career in 1984 during the early years of the HIV/AIDS global pandemic. Her first job was at a general family practice with many patients who were men who were having sex with men. This began a lifelong interest in infectious diseases and a lifelong goal to improving the quality and access of care for underserved or underrepresented people.

In August of 1991 Patty began the next stage of her career focusing on college health at the Watkins Health Services on the University of Kansas (KU) campus. At Watkins, she managed the anonymous

HIV nurse clinic and partnered with the Lawrence Douglas County Health Department (LDCHD).

Patty was a member of the advisory council providing guidance to the KS State Legislature, which ultimately passed the college TB Screening requirements and helped develop the KU Housing Meningitis vaccine requirements. She collaborated with KDHE, LDCHD, and CDC during a March 2006 campus mumps outbreak.

Patty understands the global impact our college student population influences, and prepares staff for potential incidents including MERS, Avian Flu, Ebola, and most recently, COVID-19. She was on the medical team assisting KU leadership on how best to plan for and prevent the spread of SARS-CoV-2 on campus. Most recently she has led KU to achieve the highest rate of student vaccinations in the second annual KS statewide collegiate flu challenge.

# final thoughts...

## Kansas Health Alert Network (KS-HAN)

KS-HAN is an internet-based, secure, emergency alerting system that allows general public health and emergency preparedness information to be shared rapidly. KS-HAN can alert registrants by organization, occupation, county, or group through email, phone call, and via SMS text.



KS-HAN is an invitation-only system, to request access complete this [form](#) and then [email](#) the KS-HAN Administrator  
**For more information:**

[kdhe.ks.gov/801/](https://kdhe.ks.gov/801/)

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**Healthcare-Associated Infections  
& Antimicrobial Resistance Section**

