

in this issue >>>

Monkeypox on the Rise

Kansas Educational Activities

Staff Highlights

Partner Recognition

Q&A: Reportable Disease Reporting

Journal Club: Antimicrobial Resistance

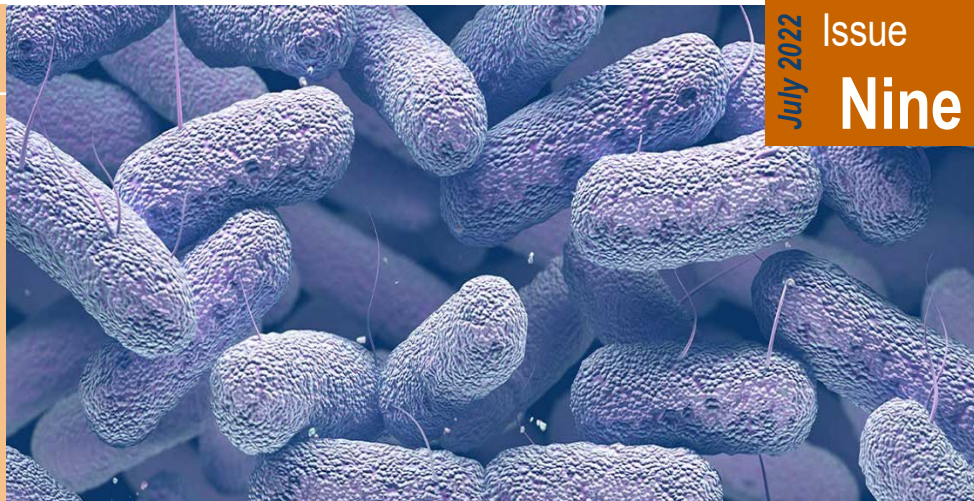
and One Health, MDROs Everywhere

Kansas Reimbursement Program for CIC

July 2022

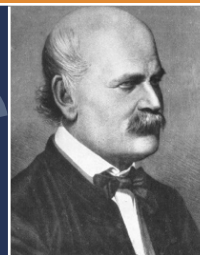
Issue

Nine



A Quarterly Insight into Kansas Healthcare-Associated Infections, Antimicrobial Resistance, and Antimicrobial Stewardship Efforts

Semmelweis Times



current topics >>>

Preparing Kansas Healthcare Facilities Response to Emerging and Established Infectious Threats

From 2019 to 2022 the HAI/AR Program has performed Infection Control Assessment & Response (ICARs) for 149 Kansas facilities. KDHE AR Epis and IPs want to help your facility ensure readiness to respond to endemic infections such as Carbapenem-resistant *Acinetobacter baumannii* and readiness for novel organism identified in our state such as *Candida auris*.

For more information:

kdhe.ks.gov/1514/



Think Outside the Box: The Truth About Monkeypox

Kellie Wark, MD, MPH
Asst. Prof. Infectious Diseases, KUMC
HAI/AR Program Subject Matter Expert

Previously a rare disease, Monkeypox (MPX) cases have in the past five years exceeded the previous four decades. Despite being named

“monkeypox” the natural reservoir remains unknown. Beginning in May 2022 many non-endemic countries began to report cases not associated with travel. Initial cases were identified through sexual health clinics amongst communities of gay, bisexual, and other men who have sex with men. As more cases emerged, it became apparent this outbreak was unlike previous with cases presenting differently than those of the past.

Transmission

Exposure occurs through unprotected contact with respiratory droplets, skin lesions, body fluids, contaminated surfaces and objects. The virus enters via mucus membranes,



broken skin, and through the respiratory tract. Airborne transmission via aerosols is possible but not a predominant mechanism of spread.

Clinical Course

The incubation period is 7 to 14 days, during which time people are not contagious. Prodromal phase most commonly manifest with lethargy and malaise (67-75%), fevers (40-60%) and half experience

lymphadenopathy. People become viremic during this phase, and are contagious. One to 4 days later oral, rectal, or genital ulcers develop, and over the next few days skin lesions progress from macules (flat) to papules (pimple-like) to vesicles (fluid-filled) to deep seated painful nodular lesions which progress to scabs which crust over. The rash progresses over 7 to 14 days, during which

Atypical presentations are the typical presentation in the current outbreak

Educational Activities >>>>

Regional Tickborne Diseases ECHO Series

Thursday. noon – 1 p.m.
August 4th, 11th, 18th & 25th

This 4-part weekly series, hosted by KDHE and The University of Kansas Medical Center, brings together epidemiologists, infectious disease physicians, veterinarians, and entomologists to explore tick distribution in KS, risk factors, clinical characteristics, and the complexities of diagnostics including the complexities around Lyme disease.

Free CE is offered.



For more information:

<https://www.kumc.edu/community-engagement/our-divisions/project-echo/current-series.html>

Sign up:

<https://redcap.kumc.edu/surveys/?s=DXYM3Y3KARARX8AK>

Midwest Antimicrobial Stewardship Collaborative (MASC) August 11th and Nov. 10th

Regional gathering of stewardship clinicians, leaders, industry representatives, and other supportive partners aiming to improve antimicrobial use through education, sharing, and promotion of best practices. The August session will discuss the role of emerging stewardship and vaccines as a core stewardship initiative. November will host Children's Mercy's team discussing pediatric stewardship.

For more information and to sign up email:
MidwestASC@gmail.com

Monkeypox (cont'd) >>>

time people remain infectious. Historically MPX rash progressed synchronously, however this outbreak is atypical in that lesions appeared varied at any one time. This outbreak is unusual in that many cases present with proctitis with minimal or no prodrome, and no known genital or peri-rectal lesions, and the lesions are fewer in number and smaller.

Complications

Sometimes pox lesions become secondarily infected and keratitis occurs when people inoculate their eyes with virus. Rarely vision loss occurs, and even less commonly pneumonia, airway obstruction, encephalitis, myopericarditis, and rarely, death. Since MPX was first recognized in humans in 1970, no deaths have occurred outside of Africa, including in the current outbreak. Those who perish from MPX infections generally do so as a result of co-infection with untreated HIV, and the very young, very old, and immunosuppressed.

Diagnosis

Kansas Health and Environment Lab (KHEL) performs PCRs with results in 1 to 2 days. Testing requires public health approval. July 6 [LabCorp offers PCR](#) testing, doubling the national testing capacity. CDC instructions for specimen collection available [here](#).

Medical Countermeasures

Prognosis is good, with the vast majority of cases being mild in nature, and self-limited without treatment. Tecovirimat (i.e. TPOXX) is available from CDC as an investigational new drug (IND) for immunosuppressed, and those with eczema because of their higher risk for severe disease. Brincidofovir is an oral antiviral which also shows in vitro and in vivo activity and may be considered.

Vaccinations

Two vaccines are available for post-exposure prophylaxis: ACAM2000 and JYNNEOS. ACAM2000 is a live replicating virus, and as such is contraindicated in those who are pregnant, immunosuppressed, infants under 1 year, and those with eczema, atopic dermatitis and other exfoliative skin conditions given their high risk for severe complications (e.g., progressive vaccinia, eczema vaccinatum, post-viral encephalitis). Myopericarditis occurred in 5.7 in 1000 primary vaccinees, and as such is contraindicated in those with cardiac conditions, or if three or more risk factors for heart disease (e.g., diabetes, hypertension, hyperlipidemia, tobaccoism, family history of premature heart disease). JYNNEOS is a nonreplicating virus, and is safe in people with eczema, immunosuppression and heart disease.

IPC for MPX >>>

Monkeypox Infection Control Considerations

Inpatient Settings

- Place in contact precautions
 - Gown and gloves plus
 - Eye protection
 - N95 or higher
- AIIR not required **unless** performing aerosolizing procedures
- Patient wears well-fitted surgical mask
- Any lesions should be covered
- Standard cleaning & disinfection using [EPA List Q](#) disinfectant
- Avoid dry dusting, sweeping, shaking and/or vacuuming
- Patient waste (e.g., soiled PPE, dressings) are handled and contained as **regulated medical waste**

Ambulatory Settings

- Prior to visit, instruct patient to cover lesions/rash (e.g., long-sleeves, dressings) and don facemask upon clinic entry
- Ensure patient placed into private room immediately and wears a facemask throughout visit
- Staff don same PPE (see Inpatient Settings list)
- Use single-use medical devices
- Ensure immediate cleaning of surfaces after visit with EPA List Q products (e.g., same nurse who roomed patient to minimize additional exposures when EVS not immediately available in outpatient settings)

ask the experts >>>>

Stephanie Lindemann, MPH

KDHE AR Epi answers questions

Q: *What are the reportable MDROs in Kansas, and what's the preferred process for reporting them?*

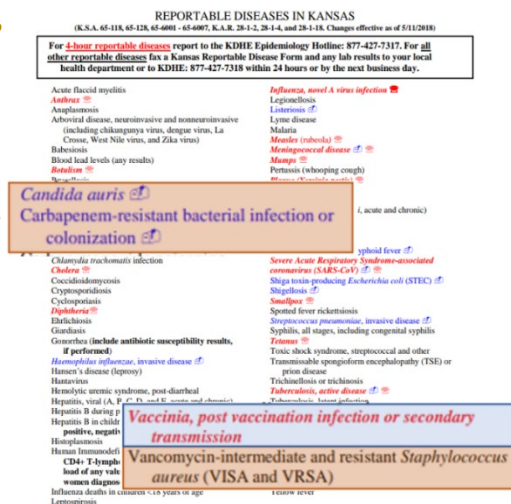
For the full [reportable disease list](#) follow this link

CROs, VISA/VRSA,

C. auris cases are

notifiable within 24 hours or by the next business day.

If there are concerns of vaccine-induced vaccinia infections (i.e., ACAM200, smallpox) reporting should be made within 4 hours.



Q: *Where do I report?*

All reportable diseases (except for TB, HIV, STIs) are to be reported to KDHE Infectious Disease Epidemiology and Response (IDER) Section. You can call your local health department or the **KDHE Epidemiology Hotline at 877-427-7317**. Or the reportable disease [form](#) faxed to 877-427-7318.

Four-hour reportable diseases (those in **red** on the reportable disease list, such as active TB, vaccinia, meningococcal disease, suspected outbreaks, and others as per the above reportable disease list) must be reported directly to KDHE via the Epidemiology Hotline (**877-427-7317**).

Q: Who is required to report?

Physicians, physician assistances, nurse practitioners, nurses, dentists, social workers, hospitals, and even school administrators or teachers are listed as mandatory reporters in [K.A.R. 28-1-2](#). Laboratories are also mandatory reporters ([K.A.R. 28-1-18](#)). For more details: [Disease Reporting for Health Professionals](#)

24/7 KDHE Epidemiology Hotline:

877-427-7317



Staff Highlight

Robert Geist, MPH, CIC, FAPIC

Robert Geist is an Advanced Epidemiologist with the HAI/AR Program at KDHE, focused on prevention of HAIs and infectious disease epidemiology response in healthcare settings. Rob earned a BA in Organismic Biology from Northeastern State University in 2007, then his MPH in Epidemiology from the Hudson College of Public Health at the University of Oklahoma in 2009. While getting his education he was able to gain experience in the



medical field working for the Susan G. Komen Foundation analyzing health statistics and developing public reports, as well as performing sleep studies as a polysomnographic technologist for a large health system. Robert found his career passion when he joined KDHE in 2010 during the initial implementation of the HAI/AR Program in Kansas.



Lance Williamson, MSN, RN, CIC

Partner Highlights >>>

Lance Williamson is an Infection Preventionist (IP) and IPaC team supervisor at The University of Kansas Health Systems in Kansas City, and a regional IP with the KDHE HAI/AR Program. Lance serves as past president of the Greater Kansas City Chapter of the Association of Professionals in Infection Control and Epidemiology (APIC) and was the recipient of a 2021 Chapter Leader Award for his outstanding leadership in 2021.

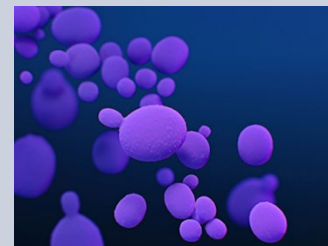
Multidrug Resistant Organisms Everywhere

One Health One World and Antimicrobial Resistance

Jerrica Werner, MD

Internal Medicine Physician

KUMC Internal Medicine Chief Resident 2022-2023



The One Health framework is a collaborative, multisectoral, and transdisciplinary approach recognizing that health is impacted by the interconnection between people, animals, plants, and the environment. These interactions lead to the spread of existing and emerging diseases and contribute to antimicrobial resistance.

Environment-Human Interface:

Medical Tape

A review article published in the American Journal of Infection control in 2021 evaluated the role of medical tape in cross-contamination in medical environments.¹ Reviewed articles indicated that, while non-sterilized rolls from unopened boxes were uncontaminated, after being opened and in normal use rolls quickly become contaminated. One ICU study found 23 of 23 rolls in a variety of locations to be contaminated within 5 days of being opened. Organisms isolated from opened medical tapes included *S. aureus*, Coagulase negative staphylococcus, alpha hemolytic Streptococcus, *Bacillus sp.*, *Klebsiella*, *S. marcescens*, *E. coli*, *P. aeruginosa*, and fungus. Another study of surgical adhesive tapes found 11 of 21 rolls positive for MRSA and/or VRE. The review included several case reports of bacterial or fungal infections under medical tapes that support that serious infections can occur due to medical tape.

Identified practices which increase contamination: unwrapped storage of rolls on open racks, shelves, drawers, IV trays, pockets, and stethoscopes; storing unused portions of tape in areas not routinely cleaned; manipulating tape using ungloved hands; the use of same roll by multiple clinicians and in treatment of multiple patients; and use of tape to remove surgical site hair after clipping.

Plant-Human Interface: *Candida auris* and apples

A study published April 2022 in mBio demonstrated that stored fruits could serve as a possible selective force for and a transmission reservoir of MDR *C. albicans*.² Freshly harvested ($n = 20$) apples did not demonstrate *C. auris*. However, stored apples ($n = 42$) purchased from local fruit vendors had increased rate of positivity for *C. auris* (8 apples, 16 colonies). This transformation was speculated to have occurred after exposure by hands of persons colonized by *C. auris*, being treated with wax coating carrying agricultural fungicides, and undergoing storage and cryopreservation which alters fungal biome. *C. auris* strain from Surface of Apples (CasSA) strains demonstrated reduced sensitivity to Demethylation Inhibitors (DMIs) and demonstrated similar genetic determinants of antifungal resistance as previously reported clinical *C. auris* strains. The calculated time to the most recent common ancestor (TMRCA) of the fruit isolated suggested a timeframe of 2002 to 2005, which overlapped the rise of health care antibiotic consumption in India starting around 2004-2006.

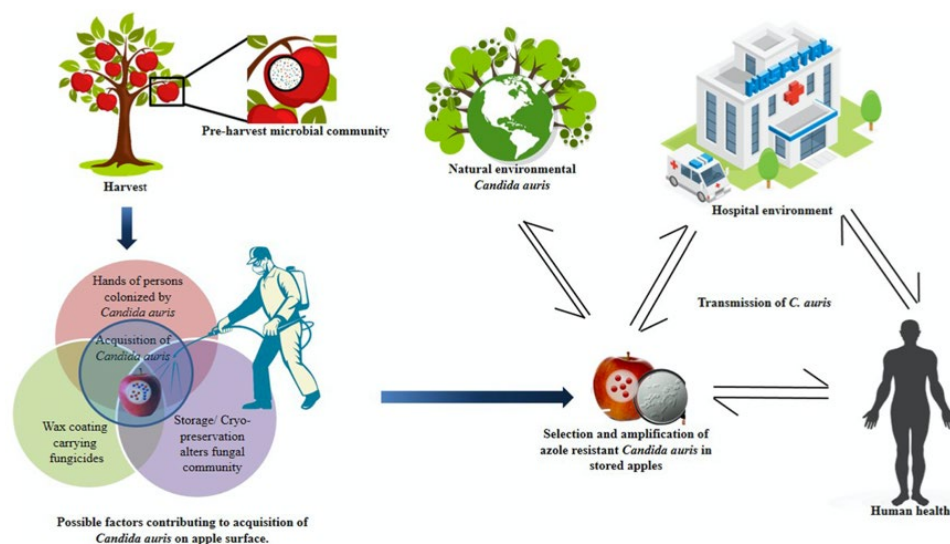


FIG 5 from Yadav (2022)² : Schematic representation of stored apples as a possible reservoir of selection and transmission of azole resistant *C. auris*

Animal-Human interface: MRSA and Dogs

A meta-analysis evaluating pet husbandry as a risk factor for colonization or infection with MDR organisms identified dog ownership as a significant risk factor for MRSA colonization in healthy humans.³ The data also suggested that transmission occurs primarily from humans to dogs and that dogs may play a role as a reservoir for reinfection and transmission to other household members. The strongest data was derived from a study (Denis 2009) that identified the apparent role of dogs as a vector for transmission of Livestock Associated MRSA ST 398 on livestock farms.

References

1. Bernatchez S., et al. Infection prevention practices and the use of medical tapes. American Journal of Infection Control 49 (2021): 1177-1182
2. Yadav A., et al. Candida auris on Apples: Diversity and Clinical Significance. mBio. 2022 Apr 26;13(2): e0051822
3. Hackmann C., et al. Pet husbandry as a risk factor for colonization or infection with MDR organisms: a systematic meta-analysis. Journal of Antimicrobial Chemotherapy. 2021 May 12; 76(6):1392-1405

final thoughts...

Kansas Reimbursement Program for Infection Prevention Certification

The KDHE HAI/AR Program and partners have a reimbursement program for candidates who successfully complete the Certification in Infection Prevention and Control (CIC) from CBIC. Renewal of certification is not eligible for reimbursement.

Applications are due before December 1, 2022

For more information and to apply:

<https://www.khconline.org/files/HAIAR/KDHE-CIC-reimbursement-application-2021-22-fillable.pdf>

We want to help with HAI/AR and AS! Contact us at:

HAI/AR Program
785-296-4167
kdhe.HAIARProgram@ks.gov

24/7 Epidemiology Hotline
877-427-7317
kdhe.epihotline@ks.gov

Do you have topic suggestions for future issues?
Send them to us!

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coming soon >>>

In The November Issue

Breakpoint in Small Animals

KS collegiate flu challenge

*Antibiotic tracking amongst KS
clinicians*

KS Antibiotic Resistance Trends

Legionella in healthcare facilities

Parechovirus in infants

Healthcare-Associated Infections & Antimicrobial Resistance Program

