UTAH DEPARTMENT OF HEALTH

Utah Health Status Update:
Investigation of a Multi-state Seoul Virus Outbreak

June 2017

In January 2017, the Utah Department of Health (UDOH) and the Utah County Health Department (UCHD) were notified by the Centers for Disease Control and Prevention (CDC) of a rattery—or rat breeding facility—possibly linked to a multi-state investigation of Seoul virus infections in pet rats and persons exposed to rats, in facilities in Wisconsin and Illinois.

Seoul virus is a member of the hantavirus family of rodent-borne viruses. Seoul virus is carried in the wild by Norway rats. The virus does not make the rats sick, but people can become infected through exposure to infectious body fluids (blood, saliva, urine) or bites from infected rats. There is no evidence of human-to-human transmission of Seoul virus. The virus is found in rats throughout the world, but most human infections are recorded in Asia. Seoul virus is not commonly found in the U.S., though there have been several reported outbreaks in wild rats. This is the first known outbreak associated with pet rats in the U.S.

Though Seoul virus is in the hantavirus family, it produces a milder illness than some other hantaviruses. Symptoms may include fever, severe headache, back and abdominal pain, chills, blurred vision, redness of the eyes, or rash. In rare cases, infection can also lead to acute hemorrhagic fever with renal syndrome. Patients can exhibit bleeding and kidney failure, and death occurs in approximately 1–2% of cases (or 1–2 of every 100 symptomatic individuals). However, not all people infected with the virus experience symptoms, and most people infected with Seoul virus recover completely.

Follow-up investigations by CDC and partnering state and local health departments indicate that potentially infected rats may have been distributed in Alabama, Arkansas, Colorado, Illinois, Indiana, Michigan,

KEY FINDINGS

- **In January 2017, the Utah Department of Health (UDOH) was notified by the Centers for Disease Control and Prevention (CDC) of a rat breeding facility possibly linked to a multi-state investigation of Seoul virus infections in pet rats and persons exposed to rats.**
- **11 states (including Utah) have been found to have facilities with laboratory confirmed cases of Seoul virus among rats.**
- **There have been 17 confirmed human cases of Seoul virus in the U.S.**
- **Ongoing investigation efforts in Utah include collecting samples from rattery owners who may have obtained infected rats for testing, and coordinating additional follow-up and investigation with the CDC.**
- **Healthcare providers in Utah who suspect Seoul virus infection in a patient should report it to their local health department or the UDOH.**

States with Rat Facilities Under Investigation

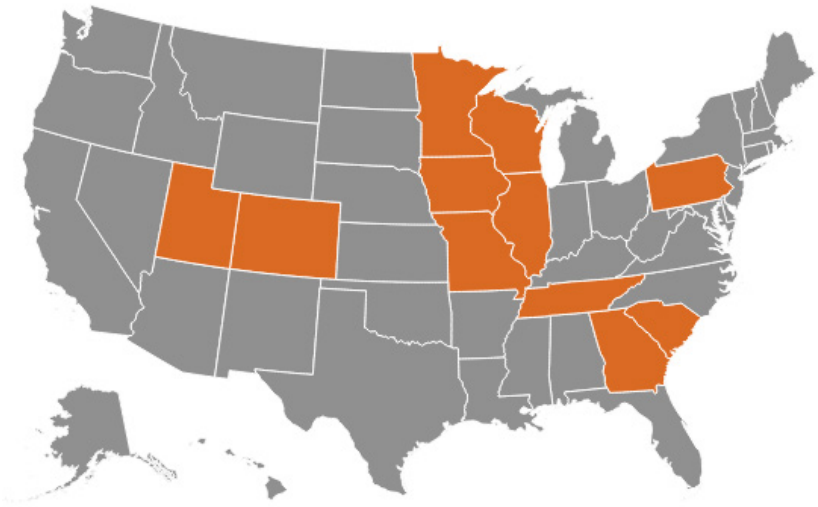
Figure 1. Number of U.S. states with rat facilities under investigation

21 States with Facilities Under Investigation

Source: CDC. Multi-state Outbreak of Seoul Virus. Atlanta, GA: US Department of Health and Human Services, CDC; 2017. https://www.cdc.gov/hantavirus/outbreaks/seoul-virus/

U.S. States Reporting Seoul Virus in Rats

Figure 2. Number of U.S. states reporting Seoul virus cases in rats



11 States Reporting Seoul Virus Cases in Rats

Source: CDC. Multi-state Outbreak of Seoul Virus. Atlanta, GA: US Department of Health and Human Services, CDC; 2017. https://www.cdc.gov/hantavirus/outbreaks/seoul-virus/

Minnesota, Missouri, Iowa, South Carolina, Tennessee, Utah, and Wisconsin. CDC is working with state health authorities to locate the rats and any people who may have been exposed to them in these states and provide Seoul virus testing for both people and rats. The CDC is working to investigate facilities in 21 states that may have recently acquired rats from a facility with confirmed Seoul virus cases (Figure 1). Of the facilities under investigation, 11 states (including Utah) have been found to have facilities with laboratory confirmed cases of Seoul virus among rats (Figure 2). Furthermore, there have been 17 confirmed human cases of Seoul virus in the U.S. (Figure 3).

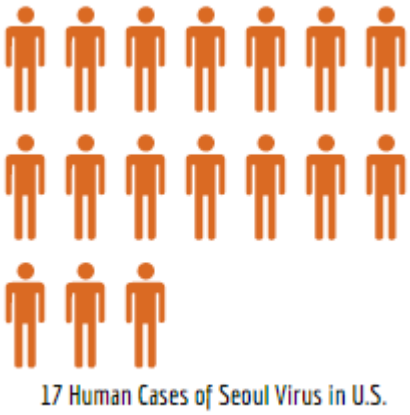
Ongoing investigation efforts in Utah include collecting samples from rattery owners who may have obtained rats from other affected facilities for testing and coordinating additional follow-up and investigation with the CDC.

CDC currently recommends laboratory testing for all symptomatic persons who report recent or current illness after (1) handling rats from a facility with Seoul virus infection that was confirmed by laboratory testing (either rat or human), or (2) handling rats from a facility that sold rats to a facility with Seoul virus infection. All testing should be coordinated with the healthcare provider, and local or state health departments.

As with all human hantavirus infections, Seoul virus infection is a notifiable disease in Utah. Healthcare providers in Utah who suspect Seoul virus infection in a patient should report it to their local health department or the Utah Department of Health.

Human Cases of Seoul Virus in the U.S.

Figure 3. Number of human cases of Seoul virus in the U.S.



Source: CDC. Multi-state Outbreak of Seoul Virus. Atlanta, GA: US Department of Health and Human Services, CDC; 2017. https://www.cdc.gov/hantavirus/outbreaks/seoul-virus/

For additional information about this topic, contact Bree Barbeau, 801-538-6300, bbarbeau@utah.gov; or the Office of Public Health Assessment, Utah Department of Health, (801) 538-9191, email: chdata@utah.gov.

UDOH ANNOUNCEMENT:

There is a growing need for improving data integration and interoperability between disparate data sources present within public health organizations. In an effort to streamline and automate this data sharing process, the Utah Environmental Epidemiology Program (EEP) and the Office of Public Health Assessment (OPHA) have established a method to automatically share blood lead test results. For more information, visit http://epht.health.utah.gov/epht-view/query/builder/bll/BLLMain_Test/Count.html.

Breaking News, June 2017

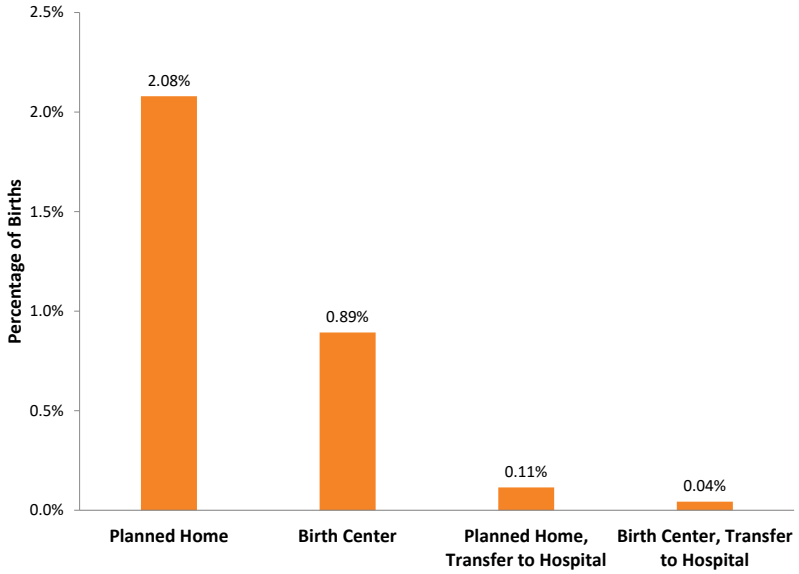
Out of Hospital Birth Transfers

Planned Out-of-Hospital (OOH) birth, a birth that is planned to occur at home or in a birth center, accounted for three percent of Utah deliveries in 2014–2015. The majority of studies evaluating the safety of OOH birth are criticized for their inability to account for births that begin in a planned OOH setting, but are transferred to a hospital for delivery. Estimates of intended OOH birth that are transferred to the hospital for delivery range from 10–40%. The State of Oregon, publishing the first U.S. study examining transfer from OOH to in hospital delivery, reported their transfer rate at 15.8%, based on maternal self-report.

To increase understanding of the outcomes of births to women in an OOH setting, the Utah Department of Health added a question to the birth certificate in 2014: "Was mother transferred to a hospital from an attempted home birth." For birth center settings, an existing transfer variable, "Mother transferred from another birthing facility during labor/delivery," was used.

In 2014–2015, 3,031 Utah deliveries occurred in a planned OOH setting; 70% in a private home and 30% in a single room birthing suite. There were an additional 165 intrapartum (during labor and/or delivery) transfers from an OOH setting to a hospital, resulting in a transfer rate of 5.2%. As this rate is lower than expected based on the published literature, work is underway to improve the data quality on OOH to hospital transfers. Analysis of the transfer data collected to date is underway and will be published in summer 2017.

Planned Out-of-Hospital Births, Utah, 2014–2015



Source: Utah Birth Certificate Database

Community Health Spotlight, June 2017

Medically Complex Children's Waiver

The Medically Complex Children's Waiver (MCCW) serves children with disabilities and complex medical conditions, between the ages of 0 through 18. The program provides respite services and traditional Medicaid benefits for enrollees. It was designed to provide relief to families struggling to care for their medically complex disabled child. Since implementation on October 1, 2015, 341 children have been served statewide.

Families caring for medically complex children frequently experience financial hardships, job loss or reduction of income to care for their child, pervasive emotional stressors, as well as strained relationships with family members.

To evaluate program effectiveness in addressing these issues, the Utah Department of Health conducted a baseline survey with each family at enrollment and a follow-up survey six months later. Survey results after six months of participation were positive and showed improvement in several key areas.

Improved Outcomes for Families after Six Months in MCCW

Financial Stressors	Caregiver Emotional Stressors
• Reduced medical debt • Increased ability to pay for basic household necessities • Improved employment—increase in number of hours or ability to get work • Reduced need to forego or delay child's needed treatment	• Decreased feelings of isolation • Reduced feeling of neglecting other important family relationships (such as spouse or other children) • Increased ability to cope with caring for a medically complex child • Decreased feeling of being completely overwhelmed

The program was authorized as a pilot program and will run through June 30, 2018. For more information, visit http://ow.ly/PM3I30ckTqG.

Monthly Health Indicators Report

(Data Through April 2017)

Monthly Report of Notifiable Diseases, April 2017	Current Month # Cases	Current Month # Expected Cases (5-yr average)	# Cases YTD	# Expected YTD (5-yr average)	YTD Standard Morbidity Ratio (obs/exp)
Campylobacteriosis (*Campylobacter*)	36	29	144	112	1.3
Shiga toxin-producing *Escherichia coli* (*E. coli*)	5	4	12	13	0.9
Hepatitis A (infectious hepatitis)	2	1	4	3	1.5
Hepatitis B, acute infections (serum hepatitis)	1	0	4	2	1.8
Influenza*	Weekly updates at http://health.utah.gov/epi/diseases/influenza				
Meningococcal Disease	0	1	1	1	0.7
Pertussis (Whooping Cough)	21	96	91	306	0.3
Salmonellosis (*Salmonella*)	24	32	97	100	1.0
Shigellosis (*Shigella*)	3	3	12	12	1.0
Varicella (Chickenpox)	13	25	58	111	0.5

Quarterly Report of Notifiable Diseases, 1st Qtr 2017	Current Quarter # Cases	Current Quarter # Expected Cases (5-yr average)	# Cases YTD	# Expected YTD (5-yr average)	YTD Standard Morbidity Ratio (obs/exp)
HIV/AIDS†	44	41	44	41	1.1
Chlamydia	2,623	2,124	2,623	2,124	1.2
Gonorrhea	556	290	556	290	1.9
Syphilis	25	16	25	16	1.6
Tuberculosis	12	6	12	6	2.0

Medicaid Expenditures (in Millions) for the Month of April 2017	Current Month	Expected/ Budgeted for Month	Fiscal YTD	Budgeted Fiscal YTD	Variance - over (under) budget
Capitated Mental Health	$ 17.8	$ 17.9	$ 124.3	$ 126.5	$ (2.2)
Inpatient Hospital	$ 14.0	$ 12.2	$ 91.1	$ 91.3	$ (0.2)
Outpatient Hospital	$ 7.1	$ 6.4	$ 39.4	$ 41.1	$ (1.6)
Long Term Care	$ 27.0	$ 28.5	$ 197.7	$ 200.3	$ (2.6)
Pharmacy	$ 4.5	$ 4.9	$ 76.1	$ 78.6	$ (2.5)
Physician/Osteo Services	$ 4.6	$ 5.0	$ 35.0	$ 38.8	$ (3.8)
TOTAL MEDICAID	$ 305.9	$ 303.4	$ 2,096.4	$ 2,097.7	$ (1.3)

Program Enrollment for the Month of April 2017	Current Month	Previous Month	% Change‡ From Previous Month	1 Year Ago	% Change‡ From 1 Year Ago
Medicaid	286,350	288,812	-0.9%	294,796	-2.9%
PCN (Primary Care Network)	13,803	14,050	-1.8%	18,036	-23.5%
CHIP (Children's Health Ins. Plan)	19,375	19,327	+0.2%	17,886	+8.3%

	Annual Visits			Annual Charges	
Health Care System Measures	Number of Events	Rate per 100 Population	% Change‡ From Previous Year	Total Charges in Millions	% Change‡ From Previous Year
Overall Hospitalizations (2014)	281,302	8.9%	-0.8%	$ 7,281.6	+11.8%
Non-maternity Hospitalizations (2014)	177,881	5.5%	-1.1%	$ 6,200.8	+11.6%
Emergency Department Encounters (2014)	710,266	22.9%	+2.6%	$ 1,760.5	+13.2%
Outpatient Surgery (2013)	404,303	13.1%	+7.3%	$ 2,167.9	+11.5%

Annual Community Health Measures	Current Data Year	Number Affected	Percent/ Rate	% Change‡ From Previous Year	State Rank§ (1 is best)
Obesity (Adults 18+)	2015	510,400	24.5%	-4.7%	8 (2015)
Cigarette Smoking (Adults 18+)	2015	189,600	9.1%	-6.2%	1 (2015)
Influenza Immunization (Adults 65+)	2015	181,600	59.0%	+1.9%	36 (2015)
Health Insurance Coverage (Uninsured)	2015	263,600	8.8%	-14.6%	n/a
Motor Vehicle Traffic Crash Injury Deaths	2015	247	8.2 / 100,000	+3.7%	19 (2015)
Poisoning Deaths	2015	697	23.3 / 100,000	+6.8%	43 (2015)
Suicide Deaths	2015	609	20.3 / 100,000	+7.8%	47 (2015)
Diabetes Prevalence (Adults 18+)	2015	145,800	7.0%	-1.4%	10 (2015)
Poor Mental Health (Adults 18+)	2015	333,300	16.0%	+0.6%	18 (2015)
Coronary Heart Disease Deaths	2015	1,619	54.0 / 100,000	+1.0%	2 (2015)
All Cancer Deaths	2015	3,091	103.2 / 100,000	+0.1%	1 (2015)
Stroke Deaths	2015	887	29.6 / 100,000	+2.0%	18 (2015)
Births to Adolescents (Ages 15-17)	2015	489	6.9 / 1,000	-11.7%	13 (2015)
Early Prenatal Care	2015	38,803	76.4%	+0.2%	n/a
Infant Mortality	2015	257	5.1 / 1,000	+3.2%	13 (2014)
Childhood Immunization (4:3:1:3:3:1)	2015	37,400	73.6%	-1.3%	35 (2015)

* Influenza-like illness activity is minimal in Utah. As of May 6, 2017, 1,372 influenza-associated hospitalizations have been reported to UDOH since the start of the influenza season on October 2, 2016. More information can be found at http://health.utah.gov/epi/diseases/influenza/surveillance/index.html.

† Diagnosed HIV infections, regardless of AIDS diagnosis.

‡ Relative percent change. Percent change could be due to random variation.

§ State rank based on age-adjusted rates where applicable.

Notes: Data for notifiable diseases are preliminary and subject to change upon the completion of ongoing disease investigations. Active surveillance for West Nile Virus will start in June for the 2017 season.