Epi-Log & VacScene

The Communicable Disease Prevention Quarterly

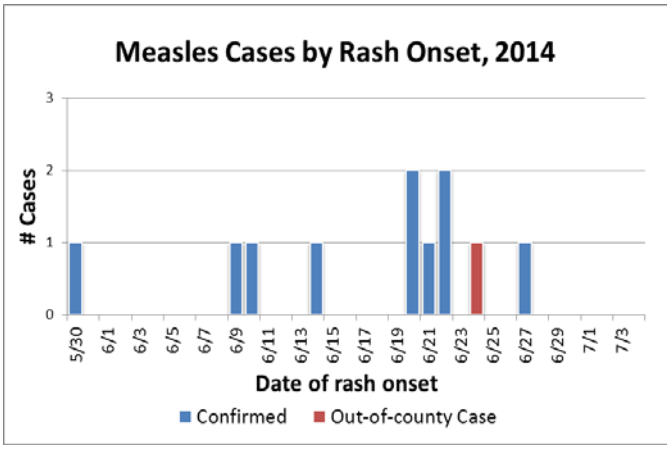
Happening Now: Measles Gone Viral

In late May, a child who had recently returned from travel to the Federated States of Micronesia (FSM) developed symptoms of measles. Public Health facilitated testing, and measles was diagnosed on May 31. During the case investigation, no other ill contacts were identified, and MMR vaccine was recommended for all identified susceptible persons eligible to be vaccinated, including those exposed at a health care facility where the initial case was evaluated.

For nearly three weeks (the outer range of the incubation period), no new cases were reported. Then, on June 21, measles went viral when three new cases were reported among members of the index case's extended family that were not previously identified as contacts. Over the next few days, five additional cases were identified among extended family members, totaling nine cases among King County residents. On June 26th, an additional case was reported in Pierce County in an unrelated infant that visited an emergency department at the same time as one of the King County cases. One more King County case was confirmed at the end of June.

This outbreak illustrates the potential for measles to spread rapidly in unvaccinated populations and in the healthcare setting and highlights the importance of triaging patients to identify potential measles cases at presentation to the healthcare facility or clinic. Recommended infection control measures should be implemented promptly to prevent transmission to other patients and staff at healthcare facilities. (See next page for recommendations for **Measles Infection Control**.)

Healthcare providers should be vigilant for *(cont'd)*



In This Issue…

Public Health
Seattle & King County

Q2/14

Welcome to the new combined edition of Epi-Log & VacScene . With a new format and quarterly schedule, our goal is to better serve those who share Public Health's goals of preventing – and better understanding – communicable diseases. **We invite your feedback and participation!**

Visit: kingcounty.gov/communicable

potential measles infections among persons from the local Micronesian community, persons in contact with travelers to Federated States of Micronesia and other international locations where measles outbreaks are occurring, and in other community members who may have been exposed to measles locally. Report suspected cases of measles to Public Health at (206) 296.4774 immediately before discharging or transferring patients.

Measles Infection Control

- Instruct reception/triage staff to identify patients who present with symptoms of possible measles
- Ensure that patients with symptoms of measles wear a mask covering the nose and mouth and are kept away from other patients.
- Room patient immediately (in a negative pressure room, if possible) and close the door.
- Only staff with documented immunity to measles should be allowed to enter patient's room. Staff should wear respiratory protection (N-95 respirator or PAPR) when caring for measles patients. (http://www.cdc.gov/mmwr/pdf/rr/rr6007.pdf)
- After the patient is discharged, do not use room for 2 hours.

Epi-Log: Update on Middle Eastern Respiratory Syndrome (MERS)

In May, 2014, the first two U.S. cases of MERS were confirmed in patients who had traveled from Saudi Arabia to the United States (Indiana and Florida, respectively). Both patients were healthcare workers who worked in Saudi Arabia, were hospitalized during their illnesses, and have fully recovered. The two cases are not linked.

For both U.S. MERS cases, contact investigations were initiated including voluntary testing of close contacts. Initial serology testing of an asymptomatic Illinois resident who had had extended face-to-face contact with the Indiana patient was suggestive of potential transmission of the virus from the Indiana patient to the Illinois resident. However, several days later, the more definitive neutralizing antibody test results became available and were negative, as was PCR testing. At this time, there has been no sustained person-to-person transmission.

Since MERS was first reported in Saudi Arabia in 2012 there have been 699 laboratory-confirmed cases in 21 countries worldwide through June 11, 2014 . Most cases have developed severe acute respiratory illness, with fever, cough, and shortness of breath; 209 persons have died. Currently, there is no specific treatment or vaccine available for MERS.

MERS is caused by a coronavirus (MERS-CoV) that is related to but distinct from the SARS coronavirus. The animal reservoirs of MERS-CoV and how the virus is transmitted to humans remain under investigation. MERS-CoV has been found in camels in Qatar, Oman, Egypt and Saudi Arabia. Camels in several other countries have also tested positive for antibodies to MERS. Several human cases have had close contact with ill camels that tested positive for MERS. Preliminary data also suggest that bats may be a reservoir for the virus.

CDC's MERS Interim Guidance for Health Professionals was updated on May 9, 2014, to include new information on evaluation of patients and close contacts. Health-care professionals in the United States should evaluate patients who meet **either** of the following two criteria for potential MERS infection:

(A) fever AND **pneumonia or acute respiratory distress syndrome**, AND either:

- a **history of travel** from countries in or near the Arabian Peninsula within 14 days before symptom onset, **OR**
- have had **close contact with a symptomatic traveler** who developed fever and acute respiratory illness (not necessarily pneumonia) within 14 days after traveling from countries in or near the Arabian Peninsula, **OR**

- are part of a **cluster of patients** with severe acute respiratory illness of unknown etiology in which MERS is being evaluated;

OR

(B) fever AND symptoms of respiratory illness (not necessarily pneumonia; e.g., cough, shortness of breath) AND being in a healthcare facility (as a patient, worker, or visitor) within 14 days before symptom onset in a country or territory in or near the Arabian Peninsula in which recent healthcare-associated cases of MERS have been identified.

Healthcare providers should immediately report to Public Health any person being evaluated for MERS infection and who meets the above criteria, by calling: (206) 296.4774. Providers caring for patients with suspected MERS should wear gloves, gowns, eye protection, and respiratory protection that is at least as protective as a fit-tested NIOSH-certified disposable N95 filtering facepiece respirator, and patients should be placed in airborne isolation.

CDC: Additional Guidance For Health-Care Providers.

Epi-Log: Sproutbreak '14

A Multistate Outbreak of *E. coli* O121 Linked to Raw Clover Sprouts

If you think you've heard this one before, you have. Another outbreak of Shiga-toxin producing *E. coli* (STEC) has recently been tied to consumption of contaminated raw sprouts – in this instance, clover sprouts. As of June 27, 18 patients infected with a strain of E. coli O121 with the same PFGE pattern have been reported from five states. Over 75% of the cases are women, and the median age is 27 years (range 11 – 45); nearly half of the cases have required hospitalization. Of 14 cases for whom exposure information was available, 12 reported eating raw clover sprouts in the week before they became sick; this is a statistically significant increase over expected sprout consumption rates reported from a survey conducted by CDC FoodNet[1] sites where 8% of the general population reported consuming clover sprouts during the week prior to interview.

Outbreak-associated cases reported eating sprouts at multiple locations of the Jimmy John's sandwich chain, as well as Pita Pit and local venues in eastern Washington and Idaho. Traceback of implicated clover sprouts led to Evergreen Fresh Sprouts, LLC, located in Idaho. Evergreen was the source of a previous sprout-related outbreak of *Salmonella* Enteritidis in 2011[2] that sickened at least 25 people from five states, and for which a recall of implicated product was announced. The investigation of Evergreen by the U.S. FDA as a result of the current outbreak is ongoing. Jimmy John's, the source for a number of sprout-laden sandwiches in this outbreak, has a lengthy history with sprout-related illness as well, having been involved in at least five outbreaks of salmonellosis and *E. coli* since 2008. They have periodically taken sprouts off of their menu entirely, only to bring them back with a different supplier or different sprout type (e.g. clover sprouts instead of alfalfa).

During 1998–2012, 43 outbreaks appear in the CDC's FOOD (Foodborne Outbreak Online Database) database listing some type of sprouts as the vehicle, representing 1,552 ill persons, 152 hospitalizations, and 2 deaths[3]. A median of 20 ills were reported per outbreak (range 2 to 256). *Salmonella* was the most common etiology identified, followed by STEC, and *Listeria monocytogenes* (Table 1). Twenty-two (51%) of the reported outbreaks involved multiple states; the remainder were reported by ten individual states (Table 2). Nearly three-quarters of sprout-associated outbreaks occurred during winter or spring (Figure 1).

King County residents have been impacted by at least three other 'sproutbreaks' over the last 10 years. In

Table 1 Nationally Reported Outbreaks with Sprouts Listed as Food Vehicle 1998-2012, by Etiology

Pathogen	# of Outbreaks
E. coli O157: H7	2
E. coli O157:non-motile	4
E. coli O26	1
Listeria monocytogenes	2
Salmonella Agona	1
Salmonella Bovismorbificans	1
Salmonella Braenderup	2
Salmonella Chester	1
Salmonella Cubana	3
Salmonella Cubana; *Salmonella* Havana	1
Salmonella Enteritidis	5
Salmonella I 4,[5],12:i:-	1
Salmonella Kottbus	1
Salmonella Mbandaka	3
Salmonella Montevideo	1
Salmonella Muenchen	2
Salmonella Newport	2
Salmonella Oranienburg	1
Salmonella Saintpaul	3
Salmonella Typhimurium	3
Salmonella spp. unspecified	1

Table 2 Nationally Reported Outbreaks with Sprouts Listed as Food Vehicle 1998-2012, by State

State	# of Outbreaks
California	6
Colorado	4
Florida	3
Georgia	1
Hawaii	1
Kansas	1
Massachusetts	1
Michigan	2
Minnesota	1
Multistate	22
Oregon	1

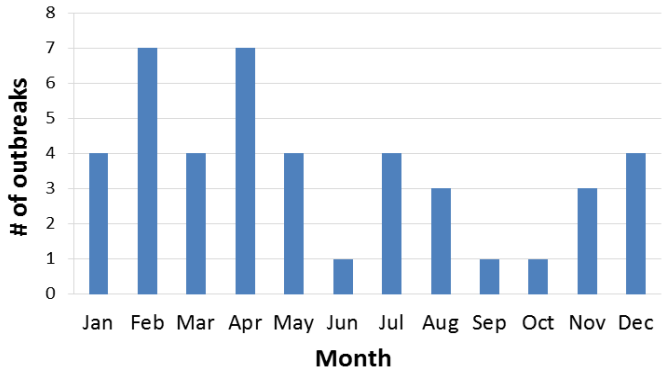


Figure 1 Nationally Reported Outbreaks with Sprouts Listed as Food Vehicle 1998-2012, by Month

2004, five King County residents were included among at least 35 people who were sickened in a multistate outbreak of *Salmonella* Bovismorbificans tied to alfala sprouts produced by a King County company. In 2008, the same local sprouter was implicated in an outbreak of *Salmonella* Typhimurium affecting at least 24 people from several states, including three King County residents. In 2010, at least six cases of *Salmonella* Newport from Washington and Oregon, including one from King County, were once again tied to this sprouter and a recall was issued for contaminated clover sprouts.

The web site FoodSafety.gov is a good place to turn for information about why sprouts are inherently risky, and what advice should be given to people interested in eating them[4]. Conditions that favor seed sprouting – namely, warmth and humidity – are the same ones that allow bacteria such as *E. coli* and *Salmonella* to thrive. For this reason, contamination with even small amounts of these bacteria can be enough to make people sick, and because they're often present inside the sprout seeds, can be impossible to remove by washing alone. **Those with weakened immune systems, including children, the elderly, and pregnant women, are advised to avoid eating raw sprouts altogether.** Others wishing to minimize their risk of becoming sick can cook the sprouts thoroughly to kill any bacteria that may be present. The FDA has been working with industry for many years to reduce the threat of foodborne illness associated with sprouts. To read more about best recommend practices, see the link to guidance for industry below[5]. Those who *really* love the topic of sprouts can order their own DVD of the California Department of Public Health's video, "Safer Processing of Sprouts", produced in collaboration with the FDA, CDC, researchers and industry representatives, or find the modules for free on YouTube[6].

In the meantime, healthcare providers seeing patients with unexplained gastroenteritis should take a thorough food history, including a recent history of raw sprout consumption. When possible, collect stool samples for bacterial culture as well as Shiga toxin testing (since culture alone will NOT detect non-O157 strains of *E. coli*, which are increasingly prevalent). Report any suspected sprout-associated cases to the Public Health 24/7 at (206) 296.4774.

Sproutbreak 2014 References:

1. CDC: FoodNet Population Survey
2. CDC: Multistate Outbreak of Human *Salmonella* Enteritidis Infections Linked to Alfalfa Sprouts and Spicy Sprouts
3. CDC: Foodborne Outbreak Online Database
4. FoodSafety.gov: Sprouts: What You Should Know
5. FDA Guidance for Industry: Reducing Microbial Food Safety Hazards For Sprouted Seeds
6. California Department of Public Health: Safer Processing of Sprouts

Related Multimedia:

CDC Outbreak Update

FDA Advice to Consumers

Washington Department of Health Press Release

King County Health Alert

Note: Readers of our print edition will find all references conveniently linked directly from kingcounty.gov/communicable

VacScene

Public Health Immunization News

New CDC Polio Vaccination Guidance for Travelers to Countries with Active Polio Transmission

The CDC routinely recommends that unvaccinated travelers to countries with endemic or epidemic poliomyelitis complete an age-appropriate primary polio vaccine series and that fully vaccinated adults receive a one-time polio booster dose. In response to the emergent international spread of polio, in early May the World Health Organization (WHO) implemented travel vaccination requirements for long-term visitors to, and residents of, countries with active polio transmission. On June 2, the CDC issued a health advisory to alert U.S. clinicians of a new polio booster dose recommendation in alignment with the WHO's new polio vaccination requirements.

Countries with active polio transmission include Afghanistan, Cameroon, Equatorial Guinea, Ethiopia, Iraq, Israel, Nigeria, Pakistan, Somalia and Syria. In addition, wild poliovirus has spread from Cameroon, Pakistan and Syria to other countries within the past six months. For unvaccinated patients planning travel to any country with active polio transmission, the CDC recommends an age-appropriate primary vaccine series; fully vaccinated adults (those who received three or more valid doses of OPV or IPV) should receive a polio booster dose prior to travel.

Travelers planning to stay four or more weeks in Cameroon, Pakistan or Syria should be advised that they may be required to have or show proof of a polio dose within four weeks to twelve months prior to departure from that country, or on short travel notice, a dose prior to departure. Travelers planning to stay four or more weeks in Afghanistan, Equatorial Guinea, Ethiopia, Iraq, Israel, Nigeria or Somalia should be advised that they may be encouraged to have or show proof of a polio dose within four weeks to twelve months prior to departure from that country, or on short travel notice, a dose prior to departure. Without dose documentation, travelers may experience delays in transit or possible forced in-country vaccination. Currently, the U.S. government is not expected to mandate polio vaccination requirements for entry into the U.S.

All travelers to or from these polio-affected countries should be given a yellow International Certificate of Vaccination card to record doses and serve as proof of polio vaccination.

For additional health advisory details, visit the CDC or contact Steven Wassilak, MD, at axj3@cdc.gov or 404-488-7100 (available 24 hours.

Immunization Questions & Answers

Q: Should infants born prematurely be vaccinated according to chronological age or their adjusted age?

A: Premature infants (born at < 37 weeks gestation) and low birth weight infants (< 2500g) are at higher risk for complications from vaccine-preventable diseases. Research has shown that most infants in these groups produce sufficient vaccine-induced immunity to prevent disease. ACIP recommends that in the majority of cases, preterm and low birth weight infants be vaccinated at the same chronological age and per the same schedule as full term infants (hepatitis B is an exception, see link, below)*. Vaccine doses for these infants should not be divided or reduced. Depending on available muscle mass, a 5/8" needle is usually sufficient for IM injections if the skin is flattened between the thumb and forefinger and if it is inserted at a 90-degree angle to the skin. To protect vulnerable infants too young to receive vaccines, ACIP recommends that adults, caregivers and other close contacts receive one dose of Tdap and annual flu vaccines. For additional information on vaccination of premature and low birth weight infants, visit the CDC.

* For clinical guidance on hepatitis B vaccination for infants born weighing less than 2000g, please visit the CDC guidelines site.

Q: What is the minimum interval between MMRV (ProQuad) # 1 and MMRV # 2?

A: MMRV is licensed for use in children ages 12 months through 12 years. **For all combination vaccines containing live viruses, the greatest minimum age and greatest minimum interval for each individual antigen must be met.** This is different from inactivated vaccines where any inactivated vaccine can be administered either simultaneously or at any time before or after a different inactivated vaccine or live vaccine.

For children recommended to receive MMR, the minimum interval between MMR # 1 and MMR # 2 is four weeks. For children ages 12 months through 12 years recommended to receive VAR (Varicella), the minimum interval between VAR # 1 and VAR # 2 is 12 weeks. The minimum interval between MMRV # 1 and MMRV # 2 is 12 weeks. If MMRV # 2 was inadvertently given 4 weeks after MMRV # 1, ACIP does not recommend repeating the dose.

2014-15 Flu Vaccine Strains and Formulations

Each year, the World Health Organization's (WHO) Vaccine Composition Meeting is held to review influenza surveillance and laboratory data from more than 100 influenza centers in over 100 countries, and in consult with many partners, makes recommendations for seasonal influenza vaccine virus strains. In the United States, the Food and Drug Administration (FDA) reviews and approves the WHO's recommendations, giving manufacturers the go ahead to produce influenza vaccine. The FDA approved the Meeting's February 2014 recommendations that the 2014-15 vaccine virus strains be the same as the 2013-14 strains.

Trivalent vaccines will include:

- an A/California/7/2009 (H1N1)-like virus;
- an (H3N2) virus antigenically like the cell-propagated prototype virus A/Victoria/361/2011;
- a B/Massachusetts/2/2012-like virus.

Quadrivalent vaccines will include the three strains listed above, plus:

- a B/Brisbane/60/2008-like virus

All state-supplied pediatric flu vaccine formulations for the 2014-15 season are expected to be quadrivalent and will include:

- Fluzone pediatric 0.25mL single-dose syringe (6-35 months)
- FluMist 0.2mL single-dose nasal spray (2-18 years)
- Fluarix 0.5mL single-dose syringe (3-18 years, prioritized for pregnant teens)
- FluLaval 5.0 mL multi-dose vial (3-18 years)

ACIP's influenza vaccination recommendations, Vaccine Information Statements for inactivated influenza vaccine and live-attenuated influenza vaccine, and additional seasonal flu resources are expected to be published this summer. To learn more, visit: http://www.cdc.gov/flu/index.htm

Influenza Surveillance Season Summary, 2013–14

Influenza activity during the 2013–14 season peaked, locally, during the first half of January, similar to last season. Unlike 2012–13, the predominant strain this season was influenza A (H1N1), which first appeared in the 2009 pandemic (whereas in 2012–13, H3 was predominant). H1N1 tends to more heavily affect younger age groups than H3N2, which was evident in the lower number of reports of influenza outbreaks at long-term care facilities (LTCFs) and reported influenza-related deaths this season.

A summary of key 2013–14 influenza season surveillance indicators for King County follows.

- **Syndromic surveillance**: The percent of emergency department (ED) visits for influenza-like illness (ILI) peaked in mid- to late January and returned to baseline in mid-March. The peak in the proportion of ED visits for ILI (approximately 4.0%) was similar to levels observed last year. Levels were highest among pediatric age groups, peaking at approximately 14% among children under 5 years and 7.5% among children aged 5–17 years.
- **Lab-confirmed flu deaths**: Twenty-one laboratory-confirmed influenza deaths were reported in King County residents compared to 24 deaths last season. Of these, 20 were typed as influenza A (7 H1N1, 13 untyped), and one was influenza B. Fifteen (71%) occurred in persons aged 65 and over; median age was 79, and no pediatric deaths occurred. Sixty-two percent of persons who died were unvaccinated. Reported influenza deaths do not accurately reflect the mortality burden of influenza; many additional flu deaths occur in King County residents each year that go undiagnosed and/or unreported.

Extrapolating from national estimates for deaths with underlying circulatory and respiratory causes (average annual rate of 9.0 influenza-associated deaths per 100,000; range: 1.4 –16.7) approximately 180 (range 28–334) influenza-associated deaths are expected annually in King County.[1]

- **LTCF outbreaks**: PHSKC investigated thirteen reports of ILI outbreaks in LTCFs during the 2013–2014 season; of these, ten were laboratory-confirmed. Of the outbreaks which were laboratory-confirmed, eight were influenza A (1 H1N1, 1 H3N2, 6 untyped), one was influenza B, and in one facility both A and B were detected. This is a much lower count than the previous flu season, in which 60 ILI outbreaks in 57 LTCFs were reported.

National influenza activity: Flu activity peaked during week 1 (week ending 01/04/2014), though there was some regional variation. Among all isolates submitted to the national laboratories as of 5/9/2014, 86% were identified as influenza A and 14% were influenza B; of influenza A specimens, 82% were H1N1, 65% were H3N2, and 32% were not subtyped.

Vaccine effectiveness (VE): CDC's interim adjusted season VE estimated overall VE against influenza infection associated with medically attended acute respiratory illness to be 61% (adjusted for age, site, race/ethnicity, self-rated health, and days from illness onset to enrollment).[2] At the time of writing there were insufficient influenza B cases to disaggregate VE by influenza A *vs*. influenza B. VE was highest among younger age groups and decreased with age.

Influenza is reportable in Washington State if it falls in one of the following categories: (1) influenza-related death, (2) case of novel or unsubtypable strain, or (3) case who resides in a LTCF.

[1] CDC. Estimates of Deaths Associated with Seasonal Influenza – United States, 1976-2007. MMWR 59(33);1057-1062. www.cdc.gov/mmwr/preview/mmwrhtml/mm5933a1.htm

[2] CDC. Interim Estimates of 2013–14 Seasonal Influenza Vaccine Effectiveness — United States, February 2014. MMWR 63(07);137-142. www.cdc.gov/mmwr/preview/mmwrhtml/mm6307a1.htm

Welcome: Our New Public Health Veterinarian Dr. Beth Lipton

We are very happy to announce that Public Health - Seattle & King County has a new Public Health Veterinarian, Dr. Beth Lipton. Dr. Lipton works in the Environmental Health Division and is a wonderful addition to the health department.

Dr. Lipton comes to us from Kitsap Public Health District where she has been serving jointly as an epidemiologist and as the Veterinary Health Officer. She has been responsible for Public Health responses to zoonotic disease cases/outbreaks, responding to communicable disease cases/outbreaks, conducting disease surveillance, providing expertise in community health assessment, co-leading community health improvement processes, and planning with Emergency Preparedness and Response. Prior to working in Kitsap, Dr. Lipton worked as a mixed animal and small animal veterinarian for six years.

Write Dr. Lipton at beth.lipton@kingcounty.gov or call (206) 263.9566.

Readers of our print edition:
Direct URL links to all citations and references are readily available at **kingcounty.gov/communicable**.

Reported Cases of Selected Diseases, Seattle & King County 2014				
	Cases Reported in May		Cases Reported Through May	
	2014	**2013**	**2014**	**2013**
Campylobacteriosis	48	33	184	170
Chlamydial infections	478	573	2822	2898
Cryptosporidiosis	1	1	9	4
Giardiasis	18	16	81	98
Gonorrhea	126	125	729	173
Hepatitis A	0	1	3	3
Hepatitis B (acute)	1	0	2	5
Hepatitis C (acute)	2	2	6	10
Herpes, genital (primary)	33	73	212	270
HIV and AIDS (includes only AIDS cases not previously reported as HIV)	32	20	138	148
Legionellosis	9	0	9	0
Listeriosis	0	0	0	1
Measles	0	0	0	0
Meningococcal Disease	10	12	38	52
Mumps	0	0	0	0
Pertussis	23	17	78	87
Rubella (including congenital rubella)	16	4	33	28
Salmonellosis	5	3	34	24
Shiga toxin producing *E. coli (STEC), incl. E. coli O157:H7 and non-O157)*	1	1	2	3
Shigellosis	4	0	11	10
Syphilis, early	17	25	117	122
Syphilis, congenital	0	0	1	0
Syphilis, late	8	5	43	42
Tuberculosis	5	5	35	46
Vibriosis	1	1	2	3
Yersiniosis	4	0	11	10

Note: As Epi-Log & VacScene goes quarterly, our monthly Reported Cases of Selected Diseases will continue to be reported monthly on our website: kingcounty.gov/health/cd

Public Health Resources:

Communicable Disease Epidemiology & Immunization Section: kingcounty.gov/health/cd

Our monthly **reportable cases table** has moved online. Visit: kingcounty.gov/communicable

Program related questions.....(206) 296.4774

Communicable Disease Reporting:

AIDS/HIV.....(206) 263.2000
STDs.....(206) 744.3954
TB .....(206) 744.4579

All Other Notifiable Communicable Diseases.....(206) 296.4774

Automated reporting for conditions not immediately notifiable (24/7)...(206) 296.4782

Communicable Disease Hotline .....(206) 296.4949

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We welcome your feedback.

What do you think of our new quarterly? Have ideas or suggestions for future issues?

Write us: **communicable@kingcounty.gov**