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COUNTY of SAN LUIS OBISPO

HEALTH OFFICER NOTES

Penny Borenstein, MD, MPH

RESPIRATORY DISEASE DIFFERENTIATION IN SLO COUNTY

From our profession's earliest days, astute clinicians have faced the challenge of rapidly differentiating infectious respiratory diseases so as to not only provide the most direct path to treatment for each patient but also to protect members of the community from infectious disease. For patients of all ages and backgrounds, respiratory disease is a major driver to seek health care.

Today, we have the benefit of more detailed data and more specific laboratory testing than ever before. However, these diseases can be confounding, even for the most insightful and experienced clinicians. Respiratory diseases often present in a way that defies ready differentiation.

The advent of increased data and testing, however, has shed light on the power of geography in supporting the diagnosis of respiratory disease. The regional epidemiology of these illnesses—plus the unique natural and social features of our communities—can help inform diagnosis. With this in mind, I'm pleased that the Public Health Department is able to present new resources to support Central

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Coast clinicians in discerning the respiratory diseases our communities face. In particular, I urge us all to make use of local information that can help differentiate among influenza, community-acquired pneumonia, coccidioidomycosis (Valley fever), and tuberculosis (TB).

In SLO County, we see distinct trends and challenges in accurately diagnosing these illnesses.

TB, for example, is quite uncommon in SLO County, with an incidence rate of 2.2 per 100,000 (well below the state average of 5.2). Yet we frequently see TB on the differential diagnosis for patients who present with respiratory symptoms. This creates the need for isolation, thereby adding a burden to the patient and to our health care system—a burden we should ask them to carry only when truly needed.

Valley fever, on the other hand, is relatively common in SLO County with an incidence rate of 150.4 per 100,000. (This compares to a state average of 18.8). Our county sees the third-highest rate and third-highest number of cases in California, after only Kern and Kings counties. Yet Valley fever is often not suspected until other possibilities have been eliminated. For patients, that can mean unnecessary antibiotics, uncomfortable tests, and weeks or months of anxiety as symptoms worsen.

While we also see strong and predictable patterns in the seasonality of disease—we're all familiar with "flu season" and may look for more Valley fever after the dry, windy summer months—I'm also struck by the exceptions to these seasonal patterns. This year, we saw influenza well into April. In 2018, SLO County saw 216 cases of Valley fever diagnosed in the rainy first quarter (January-March) and 88 cases diagnosed in the dry, windy third quarter (July-September).

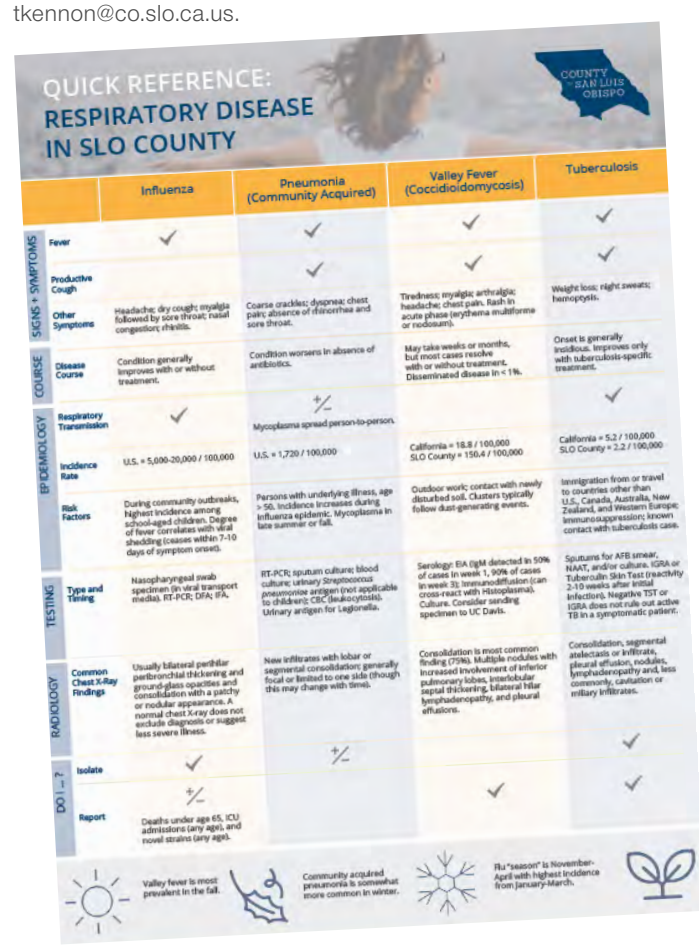
We are fortunate in SLO County to have many excellent clinicians in the community and wonderful infectious disease colleagues who provide valuable guidance.

I'd also like to offer the Public Health Department as an additional resource. We are available (805-781-5500, M-F 8-5; 805-781-4553 after hours) to consult on infectious respiratory disease cases and other communicable diseases.

Our Public Health Laboratory is a strong local resource. The lab carries out early seasonal influenza surveillance at no charge and can expedite testing in many cases. We can obtain answers quickly in cases of suspected TB and, in rare cases where TB is confirmed, we can facilitate assessing antibiotic resistance through the state laboratory. Our lab's respiratory disease panel screens for 17 agents with same-day turnaround.

GET THE QUICK REFERENCE

Download the new respiratory infections quick reference for SLO County at Slocounty.ca.gov/Respiratory-Infections-Reference. To request a printed copy, please call 805-781-4210 or email tkennon@co.slo.ca.us.



We have published a new at-a-glance poster, developed with insight from the California Department of Public Health Center for Infectious Diseases, to support local clinicians in respiratory disease differentiation.

If you would like to receive copies of this new tool or would like us to meet with your team to discuss new data to support respiratory disease differentiation in more detail, please let me know. I would also be eager and interested to hear about your clinical experiences, observations and insights in navigating this challenge.

Thank you for your attention,

PREDICTING THE NEXT PANDEMIC: A RETROSPECTIVE

James L. Beebe, PhD, Director, Public Health Laboratory

In 2008, an article titled "Predicting the next pandemic" was published in The Lancet (vol 372: 1025-1026). The author, Eliza Barclay, surveyed public health and information experts, taking inventory of modern assets such as surveillance systems, advanced laboratories and internet data-mining technology. More than a decade has passed since this publication. How have we done? The following examples help indicate where we are and what we might expect in the future.

Influenza A H1N1 2009 Pandemic. Emerging unexpectedly from Mexico, this relatively non-severe infection was detected early. The Centers for Disease Control and Prevention (CDC) sequenced the virus, developed molecular amplification diagnostic tests and provided protocols and reagents to the Laboratory Response Network (LRN) within a few weeks to allow for specific testing. The vaccine came in the following few months as the virus encircled the planet, infecting millions but killing only a small fraction of those infected. The time required for production of an embryonated egg-based vaccine was regarded as a vulnerability, especially if the strain had been a killer like the 1918-19 H1N1 strain.

MERS Coronavirus. A SARS-like coronavirus began causing severe respiratory illness in Saudi Arabia in September 2012, spreading most often by direct contact. The CDC again developed and equipped LRN laboratories with a reliable assay and public health authorities in the U.S. and Europe responded to a small number of cases spread by travel. MERS coronavirus is now endemic in the Middle East, with a mortality of 30-40 percent.

Chikungunya Virus. An old world mosquito-borne alpha virus (spread primarily by *Aedes aegypti*) suddenly appeared in the Caribbean in 2013 and rapidly spread throughout the Gulf of Mexico and South America, causing cases wherever the vector thrived—including U.S. gulf-coast state residents and travelers. Again, the CDC responded with diagnostics for the LRN. Affected nations mounted a response focusing on prevention of mosquito bites—similar the effort to deal with West Nile virus that arrived in the U.S. in 1999. The virus is now endemic in the new world.

Ebola Virus, 2014-2016. An epidemic that threatened to evade control by civil and medical authorities began when Ebola virus cases appeared in West African countries in a heretofore uncharted poor urban environment. Numerous countries provided trained personnel, supplies and equipment to bring the epidemic under control. The toll: 28,610 cases and 11,308 deaths (39 percent mortality). A vaccine is now available and was employed successfully in a 2018 outbreak in the Democratic Republic of the Congo.

Influenza A H7N9. Since a new avian influenza strain was reported in China in March 2013, annual epidemics of influenza A (H7N9) have been documented. Most cases are linked to exposure to poultry, with rare instances of person-to-person transmission. A total of 1,565 cases have been reported, with a mortality rate of 39 percent. The pandemic potential of this strain, should it mutate sufficiently to allow for efficient person-to-person spread, is a concern. Public health authorities in China have developed a vaccine for this stain, but as yet have not had to deploy it. The CDC has equipped LRN laboratories with the capability to detect influenza A H7 viruses, a continuing concern for returning travelers.

Zika Virus. An obscure virus, first detected in Africa in 1947 and known primarily to scientists who study the yellow fever virus group, began to catch the attention of the CDC with an epidemic on the Micronesian island of Yap in 2007. While this seemingly unusual event provided an opportunity for CDC scientists to study the virus, the outbreak escaped the attention of the world. But in 2013 and 2014, the virus caused major outbreaks in French Polynesia and Pacific islands. Cases were discovered in Brazil in early 2015 and thousands of babies were born with microcephaly. Intense study continues to tease out the pathogenic potential of this virus.

So, where do we stand in the effort to predict pandemics? The development of surveillance networks and the rapid implementation of reliable molecular diagnostics to national, state and local public health laboratories are important assets that have served us well. Communication networks continue to provide valuable data, yet challenge analysts to convert big data into a pandemic prediction that will galvanize focused action. Effective vaccines can be developed but the lead time required to use a vaccine in response to a particularly lethal agent is still a concern. Finally, worldwide travel and commerce make resource-poor and politically volatile countries where a pandemic might begin especially vulnerable. Will we see a pandemic this year? Perhaps. If we do, it will likely be a virus that is known by virus experts. ■

PUBLIC HEALTH AND HOMELESSNESS

Rick Rosen, MD, MPH, Deputy Health Officer

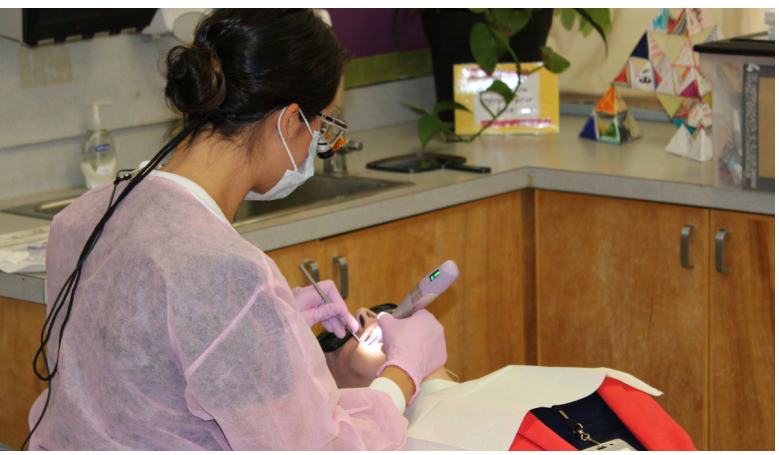
Every two years, communities across the U.S. conduct a comprehensive count of the local population experiencing homelessness and provide this information to the U.S. Dept. of Housing and Urban Development. The most recent report for San Luis Obispo County was released on August 1, 2019.

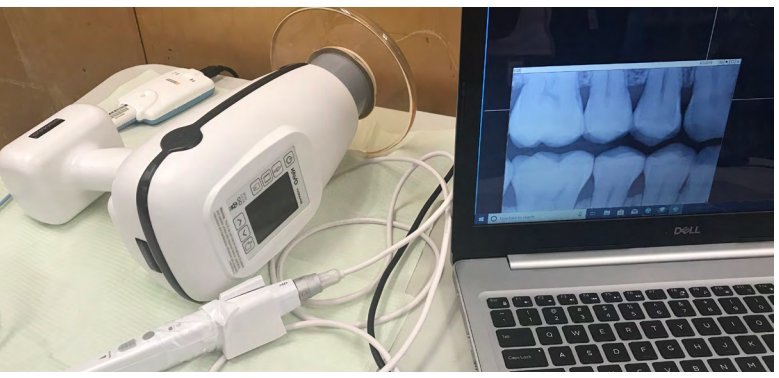
In SLO County, 1,483 homeless individuals were noted when the count was conducted in January. This represents a 32% increase over the 2017 count of 1,125. The homelessness rate of 39.7 per 10,000 people in 2017 was well above the state's overall rate of 33 per 10,000 people.

The health impacts from homelessness are dire. The average life expectancy for individuals experiencing homelessness is 25 years less than those in stable housing. Without safe and stable housing, individuals experience preventable illness and longer hospitalizations. Homelessness increases the risk for exposure to communicable diseases including influenza, strep throat, sexually transmitted diseases, HIV, tuberculosis, hepatitis C, and hepatitis A. In the 2017 survey, 57% reported receiving health care in an emergency room and one-fourth had been hospitalized overnight in the past six months.

California recently passed legislation related to the hospital discharge process for homeless patients which went into effect on January 1, 2019. This law, SB 1152, directs local public health departments to make recommendations regarding disease screening for hospitalized homeless patients. Our recommendations are to screen for hepatitis C, HIV, and syphilis. In addition, we recommend that hospitals offer to immunize homeless patients against hepatitis A, influenza (during the flu season), and *Streptococcus pneumoniae*. Given that many homeless individuals' only contact with the health system might occur through hospitalization or a visit to the ER, this is an important opportunity to provide protection against preventable disease.

Since 2016, outbreaks of hepatitis A have affected homeless individuals across the country, accounting for 15,000 cases and 140 deaths. While a complete series for hepatitis A vaccination involves two doses at least six months apart, a single dose of hepatitis A vaccine is highly effective in preventing hepatitis A infection for up to 11 years. The hepatitis A vaccine was instrumental in halting San Diego County's 2017-2018 outbreak among its homeless population. The vaccine is recommended for people experiencing homelessness, and not knowing an individual's vaccination status should not delay providing the vaccine. ■





BRINGING DENTAL CARE TO SCHOOL

With the start of the new school year, six schools in San Luis Coastal Unified school district will join six Lucia Mar schools as part of our "virtual dental home" program. Through this state-funded program, a dental hygienist visits schools to provide cleanings, X-rays, fluoride treatment and sealants. A dentist can then provide more complex treatment as needed. As a result, students get more regular dental care—meaning fewer complex problems in the long run. ■

BEHIND THE NUMBERS: WHY DO NUMBERS CHANGE OVER TIME?

Readers may note that disease case counts sometimes change over time and local numbers sometimes differ from state reports for the same time period. The reasons involve state and local systems used to report, track and de-duplicate data.

State review. Case counts most often change over time for chronic reportable diseases, those that stay with a patient for years or even a lifetime. In these cases, health care providers or labs in different counties may report the same patient's illness to different local health departments. This commonly happens when a patient travels to see a specialist or lives near the border of two counties, such as in Santa Maria, and gets health care in both. While each local health department only has access to their own data and cannot see this duplication, the state department of public health reviews cases from all counties and de-duplicates cases reported in multiple jurisdictions. This review leads to revised local numbers, often a year or more after initial reporting.

Local review. In other cases, numbers may change after local review. For example, state reports on opioid deaths are based on ICD-10 codes. Locally, our epidemiologist also closely reviews death certificates and specific information sources (such as coroner's toxicology reports) and may identify additional cases through this review. In a common example, a death may be coded as a cardiac arrest, when in fact the cardiac arrest was caused by opioid overdose. This review is important in understanding the local epidemiology of an illness or injury and is particularly relevant given SLO County's relatively small population.

For more, visit slocounty.ca.gov/epidemiology. ■

REPORTED CASES OF SELECTED COMMUNICABLE DISEASES

DISEASE	YEAR 2018					YEAR 2019				
	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Total Cases	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Year to Date
Campylobacteriosis	6	12	18	9	45	13	12			25
Chlamydial Infections	341	268	270	308	1187	314	293			607
Coccidioidomycosis	216	70	88	86	460	72	52			124
Cryptosporidiosis	3	1	2	3	9	1	3			4
E. Coli	1	2	5	5	13	4	1			5
Giardiasis	1	0	3	4	8	3	4			7
Gonorrhea	45	43	59	40	187	66	38			104
Hepatitis A	1	0	0	0	1	0	5			5
Hepatitis B (Chronic)	6	4	4	7	21	6	8			14
Hepatitis C (Community)	87	55	54	53	249	56	52			108
Hepatitis C (Correctional)	28	32	32	47	139	38	33			71
HIV	1	5	7	4	17	2	6			8
Lyme Disease	0	2	1	0	3	0	1			1
Measles (Rubeola)	0	1	0	0	1	0	0			0
Meningitis (Bacterial)	1	1	2	1	5	0	0			0
Meningitis (Viral)	1	3	7	1	12	1	4			5
MRSA	1	0	0	0	1	0	0			0
Pertussis	1	2	5	13	21	7	7			14
Rubella	0	0	0	0	0	0	0			0
Salmonellosis	3	9	6	3	21	5	7			12
Shigellosis	3	1	1	8	13	2	0			2
Syphilis (Primary/Secondary)	5	6	6	1	18	5	7			12
Tuberculosis	1	0	1	0	2	1	4			5

For more information, please visit slocounty.ca.gov/epidemiology. Case counts reflect those reported diseases that meet case definitions as established by the California Department of Public Health. Reported cases that do no meet the case definitions are not included in case counts. All cases are for San Luis Obispo County residents only. Persons who do not list San Luis Obispo County as their primary residence and are reported as having a communicable disease are reported in their primary county of residence. Case counts may change over time; as cases currently under investigation are resolved, they are added to the totals.

COUNTY OF SAN LUIS OBISPO
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Email us at SLOpublichealth@co.slo.ca.us to subscribe, unsubscribe, or send us your feedback.

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WHAT'S NEW AT PUBLIC HEALTH?

SurfSafeSLO.org is now powered by a new, faster map tool and a new mobile-friendly option. This interactive beach water quality map, developed by the Public Health Department's Environmental Health team, provides an easy way for residents and visitors to get the latest information on beach water quality, including any health advisories or beach closures along SLO County's coastline. Beach water quality information is also available by calling the Beach Water Quality Status Hotline at 805-788-3411.

Free breast cancer and cervical cancer screenings are available to uninsured and underinsured women in SLO County through Every Woman Counts. As Breast Cancer Awareness month approaches, the Public Health Department reminds clinicians and residents that this state-funded program covers clinical breast exams, mammograms, pelvic exams, and pap tests as needed. After screening, patients can be connected with no-cost treatment if needed. Screening is provided at Public Health clinics in Paso Robles and San Luis Obispo. To learn more, call 805-237-3050 or visit www.slocounty.ca.gov/EWC.

Help us improve the Bulletin! Tell us what you want more of, what you would change, and how we can better keep you in the loop about local public health news. Go to **bit.ly/PH-Bulletin-Survey** to take our two-minute survey and help shape the future of this publication.

Six farmers' markets in SLO County now match CalFresh spending up to $15, boosting access to local produce. Photo credit: Downtown SLO.

Six SLO County farmers' markets that accept CalFresh/EBT are now matching CalFresh dollars up to $15. That means CalFresh shoppers can swipe their benefit card for $15 and receive an additional $15 in tokens ($30 total) to spend on fresh produce. Local farmers receive the full $30. Market Match is funded primarily by the California Department of Food and Agriculture. The Public Health Department works as part of the SLO County CalFresh Alliance to raise awareness of Market Match and other programs that connect residents with healthy food. Participating local markets include Los Osos (Monday), Paso Robles (Tuesday), Atascadero (Wednesday), Morro Bay (Thursday), San Luis Obispo (Thursday) and Templeton (Saturday). To participate, shoppers can visit the info booth or market manager to get matching tokens. Learn more at marketmatch.org.