Public Health
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IN THIS ISSUE

HEALTH OFFICER NOTES

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PARTICLE POLLUTION AND HEALTH: MAKING THE CONNECTION

We know that health—for better or worse—is shaped by more than meets the eye. Environmental and social factors can damage well-being over time or trigger a health emergency. I'd like to remind us all to consider one of those invisible factors that can have a profound effect on health: particle pollution.

While our region generally enjoys a reputation for clean air and we are fortunate to avoid the heavy daily pollution our colleagues in other cities face, we do experience real and occasionally prolonged episodes of pollution from particulate matter, also called PM or particle pollution. PM can range in size and contain different chemicals; it can be emitted directly from sources such as construction sites, unpaved roads or smokestacks, can take the form of a plume of windblown dust, or can be created in the atmosphere through chemical reactions of other pollutants, such as sulfur or nitrogen dioxide.

National and state PM standards are set for particles less than 10 micrometers in size (called PM10 or respirable particulate matter) and particles less than 2.5

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micrometers in size (called PM2.5 or fine particulate matter). Breathing particles of this size can trigger a variety of health problems, including asthma exacerbation, heart attack, arrhythmia or stroke, particularly in the elderly and those with existing lung or heart disease. Its effects on lung function range from coughing or difficulty breathing to permanent damage to the cells that line the lungs. Very small airborne particles (PM2.5) found in haze, smoke and dust are especially harmful because they can become trapped in the smallest airways, alveoli, or enter the blood stream.

Like our County's microclimates, our pockets of pollution can vary from mile to mile and hour to hour. As the wind picks up in the spring, parts of the Nipomo Mesa have registered particulate pollution levels that are among the highest in the nation for some hours. On cold winter days in North County, particulates from wood-burning stoves can trigger advisories from the Air Pollution Control District (APCD). Any commuter from San Luis Obispo to South County on the 101 during rush hour knows we do in fact experience pollution from idling vehicles. When smoke is in the air during wildfire season, we continually discuss the severity of the air quality risk.

Air pollution is exceptionally difficult to address in a medical or public health setting because it's often invisible. The numerous scientific studies that quantify the effects of particle pollution on human health were done with very large populations in order to reveal causal effects. These assessments determine increasing likelihood of effect with increasing "dose." Such results do not mean everyone will be affected in the same way, or at all: the same episode of pollution in a community may trigger an asthma attack in one person and a heart attack in another, for example, while many do not experience any noticeable harm. Despite studies clearly showing particulate pollution as a cause of heart and lung damage, it is impossible to definitively ascribe a specific heart attack to an episode of pollution exposure, as many factors could cause the same problem. No human lab test is available to quantify PM exposure in individuals (unlike, say, lead or carbon monoxide).

It is perhaps human nature to underestimate risks that do not pose a visible and universal threat. That makes it all the more critical for us to educate ourselves and our patients about this connection and advise them on ways to minimize their risk.

This conversation poses a dilemma in that air pollution is both "unsafe at any level" and ubiquitous in modern life.

For me, it helps to keep three goals in mind:

Present guidance that protects the majority of people the majority of the time. This means being aware of air quality ourselves, and reminding patients of common-sense measures to reduce exposure to air pollution. For example, it is wise for everyone to avoid exercising outdoors when haze or wildfire smoke is visible in the air. We can receive mobile alerts when local air quality is affected by blowing dust, wildfires and more: see the following page for details.

Provide special recommendations for vulnerable populations. The potential health impacts of particle pollution are especially significant for very young children and pregnant women and their fetuses (for whom development of lungs and other systems can be inhibited), as well as for the elderly and those with underlying cardiopulmonary conditions. These patients can benefit from avoiding polluted air as much as possible by staying indoors, setting their vent to recirculate and even temporarily leaving town if their area is heavily affected. I'd encourage vulnerable patients to follow daily air quality reports. It is also important for these patients to be aware of warning signs of health emergencies that can be triggered by particle pollution–such as heart attack and stroke—so they can seek medical attention if needed.

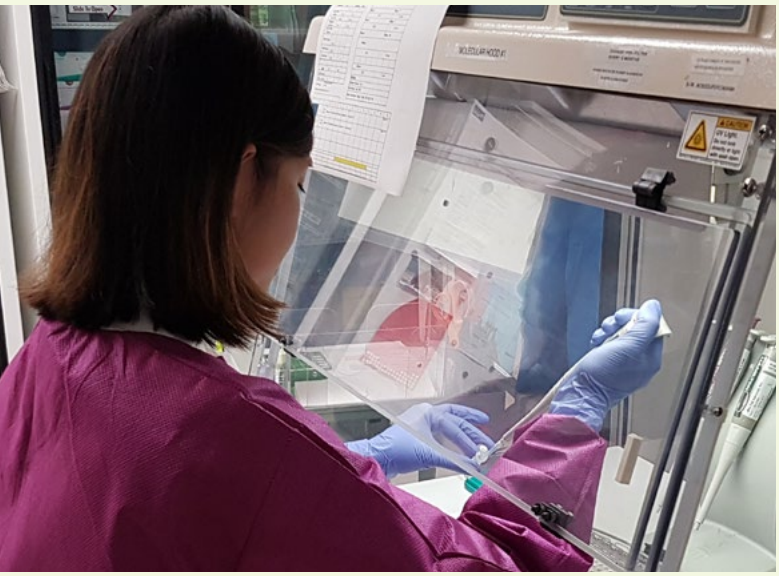
Do our part to keep SLO County's air healthy. I encourage us all to be part of the effort to keep our community's air healthy. That may mean using energy-efficient technology, offering bike parking at your practice, shopping locally at farmers' markets, or setting up incentives for colleagues and staff to do the same. We are uniquely positioned to see the connection between our environment and our community's health; I hope this provides us with motivation to protect both.

In 2012, the Public Health Department and the APCD first launched an educational campaign highlighting the connection between air quality and health, with a special emphasis on cardiac health, asthma, and outdoor exercise. This year, we're re-launching this campaign. If you would like to offer these brochures in your office or use them to support your conversations with patients about air quality and health, please let me know. As always, I welcome your input and additional discussion of this issue.

Thank you for your attention,

RAPID CONFIRMATION OF MEASLES VIRUS AT THE PUBLIC HEALTH LAB

In May 2018, the Public Health Department responded to a case of measles in San Luis Obispo County. The investigation included more than 30 personal interviews, lab testing for those who may have been exposed and weren't sure if they had received the vaccine, and delivery of the vaccine for those who requested this protection. The patient cooperated with the investigation and isolation period, and fully recovered without infecting others. The incubation period ended with no new cases.



RT-PCR testing at the Public Health Laboratory

This speedy response started with rapid confirmation of the measles virus at the SLO Public Health Laboratory. Because measles is not commonly seen in the U.S., confirmation can take five to six days at many commercial laboratories. The Public Health Lab is specifically equipped and skilled to identify illnesses like measles that are less common but pose a threat to community health. As a result, the lab was able to provide confirmation in less than a day. Lab scientists used a molecular amplification test (real-time reverse transcription polymerase chain reaction, RT-PCR) developed at the CDC and the California State Public Health Laboratory.

The laboratory performs rapid molecular amplification testing for the agents of measles, mumps, chickenpox (varicella), other pox virus infections, and enterovirus. Test results are typically available five to six hours after receipt of the specimen at the lab.

NOTE FOR HEALTH CARE PROVIDERS:

If a patient presents with a rash illness and may be infected with one these agents (listed above), call the Public Health Department at 805-781-5500 (Monday-Friday, 8 a.m.– 5 p.m.) or 805-781-4553 (weekends and after hours) for instructions and authorization for testing at no charge. You will be given instructions for collecting and transporting the specimen. ■

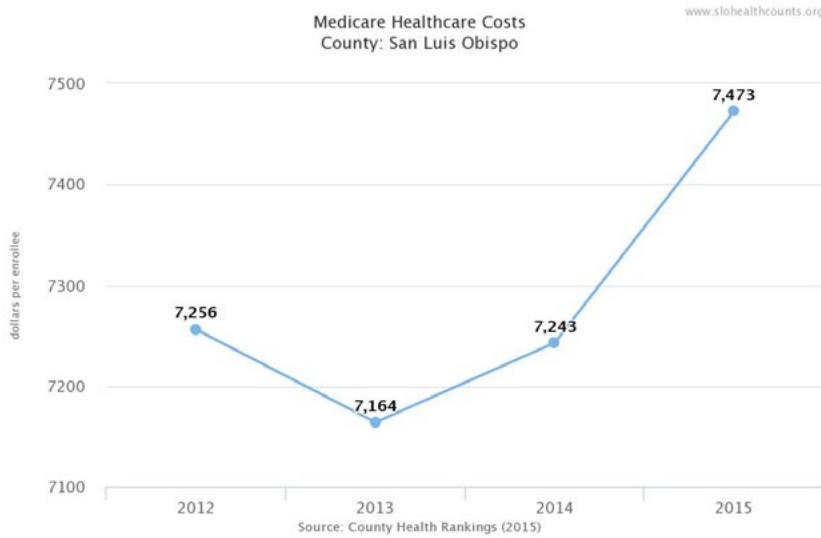
SIGN UP FOR LOCAL AIR QUALITY UPDATES AND FORECASTS

We have several convenient options for staying up-to-date on air quality in SLO County, including updates from our local Air Pollution Control District (APCD):

- Visit SLOCleanAir.org and click "Today's Air Quality"
- Sign up for mobile text alerts when our local air quality is affected by blowing dust, wildfires, and more. Visit SLOCleanAir.org and click on "AirAware Alerts"
- Subscribe to receive email alerts from EnviroFlash.info
- Follow the APCD on Twitter, Facebook or Instagram (@SLOCleanAir)

For materials on air quality and health to share with patients, contact the Public Health Department at 805-781-5500. ■

NEW INDICATOR: MEDICARE HEALTH CARE COSTS



SLO Health Counts is our local health data hub that makes health information easy to find and easy to understand. It includes 120+ health and quality of life data indicators, each updated as new data becomes available. It also includes a library of 2,000+ evidence-based practices and programs related to specific health indicators.

This spotlight shows a recently-added indicator on health care spending, one factor in understanding a system's efficiency and affordability. It shows that annual spending per patient enrolled in Medicare in San Luis Obispo County is approximately $7,473 per enrollee. While this number has been increasing, it is less than the state and national averages.

Learn more and explore other indicators at **SLOHealthCounts.org**.

PUBLIC HEALTH NIGHT AT THE DOWNTOWN SLO FARMERS' MARKET

We celebrated National Public Health Week with an interactive showcase at the downtown SLO Farmers' Market, where guests took on a fitness challenge, experimented at our lab station, got blood pressure checks and more. Check out photos and video at **Instagram.com/slopublichealth**.

BEHIND THE NUMBERS: COCCIDIOIDOMYCOSIS, OR VALLEY FEVER

In the first two quarters of this year, 283 cases of coccidioidomycosis (also known as cocci or Valley Fever) were reported in San Luis Obispo County—compared to 91 cases in the first two quarters of 2017. This is especially concerning because 2017 saw the highest number of cases on record in California. Case counts generally increase in the third and fourth quarters, as more people are diagnosed after being exposed to the fungal spore *Coccidioides* in airborne dust during the summer. If this year follows typical patterns, these 283 cases indicate many more ahead. This increase is similar to patterns seen across California.

Why is this happening? Officials believe California's extended drought followed by several rainy winters have created conditions for the fungus that causes coccidioidomycosis to rapidly grow in the soil.

What is the Public Health Department doing? We carry out surveillance, investigate every case of coccidioidomycosis in the County, and work to raise awareness about the local risk. This includes a recent collaboration with the County Agriculture Department to educate workers, supervisors and land owners about how to reduce the risk.

What can you do? If you are a health care provider: think Valley Fever, and promptly report cases to the Public Health Department. If you are a resident: try to avoid breathing dust and dirt. If you experience flu-like symptoms for more than a few weeks, tell your doctor you are concerned about Valley Fever. For more information, visit www.slocounty.ca.gov/valley-fever. ■

REPORTED CASES OF SELECTED COMMUNICABLE DISEASES

DISEASE	YEAR 2017					YEAR 2018				
	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Total Cases	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Year to Date
AIDS/HIV	10	07	01	11	28	01	15			16
Campylobacteriosis	9	20	31	12	72	6	12			18
Chlamydial Infections	333	317	316	283	1249	337	274			611
Coccidioidomycosis	38	53	85	192	368	215	68			283
Cryptosporidiosis	0	2	3	3	8	3	1			4
E. Coli	4	4	6	2	16	1	2			3
Giardiasis	2	3	4	0	9	1	0			1
Gonorrhea	57	35	33	51	176	45	44			89
Hepatitis A	0	1	0	0	1	1	0			1
Hepatitis B (Chronic)	14	8	9	7	38	6	3			9
Hepatitis C (Community)	67	69	67	57	260	85	59			144
Hepatitis C (Correctional)	21	30	23	24	98	25	27			52
Lyme Disease	1	0	1	1	3	0	2			2
Measles (Rubeola)	2	0	0	0	2	0	1			1
Meningitis (Bacterial)	3	3	2	0	8	1	1			2
Meningitis (Viral)	0	4	6	2	12	1	3			4
MRSA	0	0	0	0	0	1	0			1
Pertussis	4	4	3	5	16	1	2			3
Rubella	0	0	0	0	0	0	0			0
Salmonellosis	6	9	10	4	29	3	9			12
Shigellosis	1	1	1	5	8	3	1			4
Syphilis (Primary/Secondary)	4	6	3	1	14	5	6			11
Tuberculosis	1	0	2	3	6	1	0			1

For more information, please visit the SLO County Epidemiology Data and Publications website. 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 and added to the totals.

COUNTY OF SAN LUIS OBISPO
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WHAT'S NEW AT PUBLIC HEALTH?

Richard Michael Hill began work as Health Agency Director in May, following a nationwide search by the County to fill the role. Hill brings more than 20 years of experience in the public and nonprofit health care sectors, most recently serving as Executive Director and Public Health Administrator for the McHenry County Department of Health in northern Illinois.

Collaboration with the County Department of Agriculture means educational information about Valley Fever will reach more agricultural workers across San Luis Obispo County. The Department of Agriculture is sharing information and materials—available in English and Spanish, and shaped with input from agricultural workers—in the agriculture community.

Fifty children in need of dental care received treatment at Give Kids a Smile day, and many more were treated—at no cost to their families—in the surrounding weeks. Give Kids a Smile is a collaboration led by the Central Coast Dental Society, with support from Tolosa Children's Dental Center, the Public Health Department's Children's Medical Services team, community organizations and many individual volunteers. It provided 50 exams, 50 X-rays, 48 cleanings, 48 fluoride varnishes, 34 restorations with fillings, 27 sealants, 27 extractions of primary teeth and 6 restorations with crowns. If you know a child with urgent unmet dental needs, contact the Public Health Department's Oral Health Program at 805-781-5503 to help connect the child with care.

World No Tobacco Day education station, May 31, 2018

20+ community partners joined the Tobacco Control Coalition on World No Tobacco Day for a day of action starting with a cigarette butt clean-up and concluding with an education station at the San Luis Obispo Farmers' Market. It was part of a World Health Organization initiative focused on the impact of tobacco on heart health. "We want people to understand the damage smoking causes to the heart, and what that means for our ability to be active and enjoy life," said Health Education Specialist Jenelle Merzon. The education station—complete with heart and cigarette mascots—engaged children, while the clean-up brought together community leaders. Check out upcoming coalition events at www.slocounty.ca.gov/tcc. ■