Good afternoon Mr. Chair and Members. I am Dr. Sonia Angell, State Public Health Officer and Director of the California Department of Public Health. I appreciate the opportunity to present to the committee today. I'm going to share with you what we know about youth vaping in our state, and information about the recent outbreak of EVALI, otherwise known as E-cigarette Vaping Associated Lung Injury. Then I'll provide information on Governor Newsom's initiatives to address youth vaping.

In California, one in ten high school students report using e-cigarettes or vaping. That's based upon 2018 data and represents a 27% increase from just two years earlier, rising from 8.6 percent to 10.9 percent. In our young adults, 18 to 24 years of age, over one in seven-report e-cigarette use and use is increasing faster amongst this demographic. 15.5 percent reported using e-cigarettes in 2018, a 53 percent increase from 10.1 percent in 2017. Despite rapid uptake in youth and young adults, only 3.5 percent of adults age 30 or older reported e-cigarette use in 2018. This is largely an epidemic of the young.

Flavored tobacco products are particularly favored amongst youth. According to the 2018 California Student Tobacco Survey, 86.4% of California High School students who use e-cigarettes report using a flavored product.

Compared with the country at large, e-cigarette use among California high school students is substantially lower; however I think we would all agree that 10 percent of California's youth reporting using e-cigarettes is alarming and unacceptable. When speaking of young adults, ages 18 to 24 years of age, California is doing worse than national estimates. Nationally, 7.6 percent reported using in 2018 (National Health Interview Survey, 2019) compared with our rate of 15.5 % in young adults.

The vaping epidemic among teens and young adults is particularly concerning because nicotine is highly addictive and it affects the developing brain, a process which continues through young adulthood. Many people are not aware that nicotine is a neurotoxin, or brain poison. Research shows that nicotine can affect brain development and can worsen anxiety, increase learning difficulties, mood swings and impulsivity. Nicotine's effect on the developing brain can be permanent. (U.S. Department of Health and Human Services, 2016)

Information on the more general adverse health effects of e-cigarette and vaping nicotine products continues to emerge. One recent study showed long-term health risks associated with vaping nicotine include increased risk of lung related illnesses such as chronic obstructive pulmonary disease (COPD), chronic bronchitis, emphysema and asthma, by a third compared with those who never smoked or vaped. (Bhatta and Glantz, 2020) E-cigarette use has also been associated with an increased risk for heart disease, gum disease and tooth decay.(Bhatta and Glantz 2019; Atuegwu, et al, 2019)

Now turning to EVALI. Vitamin E acetate has been identified as the most likely culprit or "chemical of concern" for this specific outbreak by the CDC and FDA. It was thought to have been introduced into the unregulated marketplace as a diluent in THC vaping products. That said, we cannot rule out possible contribution of other chemicals, including because some of those affected report having only used non-THC vaping products.

First, let me share a bit about the scope of the outbreak itself. It was first reported in August of 2019. By February of 2020, the Centers for Disease Control and Prevention reports 2,758 cases and 64 deaths nationwide. In California, as of February 11 this year, 31 California counties have reported cases, totaling 208 with four deaths in our state.

The median age of those affected in California is 25, with an age range from 14 to 70 years. 62% of those reported were male, 38% female. All EVALI cases were hospitalized. Of those, 45 percent required intensive care and 28 percent required mechanical ventilation. A vast majority of patients, 83 percent, reported recently vaping THC products, most of which were reported to be acquired from nonregulated sources. The Department's Public Health Laboratory, located in Richmond, has been testing liquid from vaping samples voluntarily recovered from patients with EVALI. 49 of the 87 products tested, representing 24 patients, contained THC. 41 of these 49 contained

vitamin E or vitamin E acetate. The peak of the outbreak was between August and October. As of February, the overall number of cases has slowed to 3-5 cases per week.

When news broke of this newly described cluster of cases, our Department was quick to respond. We activated our Departments Emergency response and launched a system of methodically collecting information on potential new cases. On August 9th, August 27th, and October 1st, we released information and guidance to health care providers alerting them to the vaping-related lung injury outbreak. The advisories focused on the identification, reporting and treatment of EVALI.

We also started communicating with the public early in this outbreak. The Department issued an informational health advisory on September 24th and established EVALI websites, focused on sharing information about the symptoms of EVALI and urging everyone to refrain from vaping, no matter the substance or source, until current investigations could be completed.

In the nationwide effort to determine the cause, many states have provided recovered patient vaping products to the Food and Drug Administration for testing of residual liquid. We have also shared products and patient de-identified case data with the Food and Drug Administration to contribute to the national investigation.

The Department's EVALI team has coordinated with the CDC, an essential partner in determining the cause. Since California cases were first identified, each week, the Department shares updated case counts and patient information with the CDC. The Department, and in particular the Richmond Laboratory science team, also serves in a leadership role on a national vaping taskforce of the Council of State and Territorial Epidemiologists.

The CDC will be winding down its nationally led outbreak investigation by the end of February, and our department is moving towards standardized surveillance of this newly described condition ongoing. It is essential that we remain vigilant in case of future outbreaks.

The convergence of an epidemic of vaping nicotine in teens and the EVALI outbreak received a swift response by Governor Newsom. As you are aware, he issued an Executive Order on September 16, 2019.

Pursuant to this order, on October 21, 2019, the Department developed and released a rapid-response advertising campaign called *Outbreak*. Now nationally recognized, the *Outbreak* advertising campaign sought to reach young adults ages 18-29 and parents of middle and high school teens. The objective of the young adult campaign was to dissuade young people from vaping and to decrease the incidence of the lung illness outbreak caused by vaping. For parents, the objective was to raise their awareness

about the health harms of vaping and for them to initiate conversations with their children. The parent targeted media campaign aired in seven languages including Spanish, Mandarin, Cantonese, Korean, Vietnamese, and Tagalog. Preliminary evaluation of media showed that it was effective at driving viewers to the campaign websites.

Another key approach to addressing youth vaping is by the increasing price of these products, because youth are very price sensitive. Governor Newsom, in the 20-21 Budget proposes a new nicotine content-based e-cigarette tax to begin on January 1, 2021. This tax would be in addition to the current tax and would be at a rate of $2.00 per 40 milligrams of nicotine in the product. In addition to the tax, Governor Newsom indicated support for a statewide ban on the sale of all flavored tobacco. We believe these to be key steps to combat the rise in youth vaping.

I appreciate the opportunity to provide this information to the Committee. I look forward to working with you on these important issues. I would urge the committee to view the Department as a resource as you consider policy in this area.