

**DON'T VAPE: EXAMINING THE OUTBREAK OF  
LUNG DISEASE AND CDC'S URGENT  
WARNING NOT TO USE E-CIGARETTES**

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**HEARING**

BEFORE THE  
SUBCOMMITTEE ON ECONOMIC AND CONSUMER  
POLICY  
OF THE

**COMMITTEE ON OVERSIGHT  
AND REFORM**

**HOUSE OF REPRESENTATIVES**

**ONE HUNDRED SIXTEENTH CONGRESS**

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- \* Questions for the Record: from Chairman Krishnamoorthi to Vicki Porter, minority witness.
- \* Unanimous Consent: Associated Press articles, “How the Associated Press collected information on CBD vapes”, Sept. 16, 2019, and “Vapes spiked with illegal drugs show dark side of CBD craze,” Sept. 16, 2019; submitted by Rep. Comer.



## **DON'T VAPE: EXAMINING THE OUTBREAK OF LUNG DISEASE AND CDC'S URGENT WARNING NOT TO USE E-CIGARETTES**

**Tuesday, September 24, 2019**

HOUSE OF REPRESENTATIVES,  
SUBCOMMITTEE ON ECONOMIC AND CONSUMER POLICY,  
COMMITTEE ON OVERSIGHT AND REFORM,  
*Washington, D.C.*

The subcommittee met, pursuant to notice, at 10:25 a.m., in room 2154, Rayburn House Office Building, Hon. Raja Krishnamoorthi (chairman of the subcommittee) presiding.

Present: Representatives Krishnamoorthi, DeSaulnier, Hill, Khanna, Pressley, Tlaib, Cloud, Grothman, Comer, and Miller.

Also present: Representatives Wasserman Schultz, Cox, Meadows, and Jordan.

Mr. KRISHNAMOORTHI. Good morning. Sorry for the delay. The subcommittee will come to order.

Without objection, the chair is authorized to declare a recess of the committee at any time.

Without objection, I'd like to have a few Members waived on to the committee, Congressman Jordan, Congressman Meadows, Congressman Cox, shall be permitted to join the subcommittee on the dais and be recognized for questioning the witness.

Without objection, so ordered.

I now recognize myself for five minutes to give an opening statement. We are here to amplify the recent health warnings issued by the Centers for Disease Control related to 530 e-cigarette incidents of lung disease in 38 states and the U.S. Virgin Islands.

First, I want to make clear that we did not plan to have this emergency hearing at the beginning of this Congress, let alone this time last month. But on August 23, officials from my home state of Illinois reported the first death due to a mysterious vaping-related lung illness. And since then, a total of eight individuals have tragically died in this outbreak.

In response to this crisis, CDC is warning the American public to consider not using e-cigarettes of any kind. Because this subcommittee has investigated the youth vaping epidemic and the companies behind it, we feel that it is our duty to draw attention to recent government health warnings about the dangers of e-cigarette use. The long-term health effects of continued vaping is unknown, but what we do know should give us pause.

State health departments continue to conduct retroactive analyses of patient records to better understand exactly when this out-

break began. As they do, the number of affected people will grow. Unfortunately, illness related to e-cigarettes is not new. The FDA has received 127 reports of seizures and other neurological conditions caused by e-cigarettes. When a product is released onto the market without safety testing or clinical trials, this is what we fear.

This is a problem exacerbated by e-cigarette companies that make what appear to be unfounded and illegal claims that their products are safer and healthier than combustible cigarettes. People trust and rely on those claims even when there is no evidence to back them up. That is why this subcommittee wrote a detailed letter to the FDA outlining our findings about JUUL illegally marketing its product as safe, healthy, and a smoking cessation device. FDA agreed with us and days after our letter responded with its own letter to JUUL declaring that JUUL had broken the law. JUUL's response is due next week on September 30. After that, the FDA will have the opportunity to act.

I encourage all of you to follow that development closely. We certainly will. Just days after the FDA responded to our letter, the administration, in part citing our investigation, announced that it would move to ban all e-cigarette flavors, including mint and menthol. The fact that flavors hook kids is a point this subcommittee hammered home over our two days of hearings in July. The administration cited our hearings in rolling out its proposal.

We should all be encouraged that Democrats and Republicans are coming together when the health of our Nation's youth comes under attack. Today, as we focus on the tragic outcomes of this lung disease outbreak, we must view it as another chance to come together to protect public health. At the heart of the recent vaping-related outbreak, our families are being blindsided.

With us today is Ruby Johnson, a mother of seven from near Chicago. This August, as she prepared to drop her oldest daughter off to start college, already a stressful time, the Johnson family faced a terrifying health scare. Instead of moving into a dorm room, her daughter moved into a hospital bed far from home, where she stayed for what would have been her first week of classes. Ruby's daughter could have died. Thankfully, she recovered enough from her bout of lung disease to be released, but she still has trouble breathing, and doctors cannot tell her how much longer that may last.

Mrs. Johnson, thank you for coming to share your family's harrowing experience.

We are also joined by leaders from the public health community to provide a neutral assessment of the outbreak and provide their advice to the public they serve. We have Dr. Anne Schuchat from the CDC, Dr. Ngozi Ezike of the Illinois Department of Public Health, and Dr. Albert Rizzo of the American Lung Association. Thank you all for joining us today. We look forward to learning more about how we can avoid more preventable deaths.

With that, I recognize the ranking member, Mr. Cloud of Texas, for five minutes for an opening statement.

Mr. CLOUD. Thank you, Mr. Chairman.

Over the last several weeks, it's been clear that certain—that users of certain vaping products have become very ill, some tragically and to the point of death.

Mr. Chairman, I do greatly appreciate your desire to utilize this committee's authority to get to the bottom of what's causing these mysterious illnesses. In the Center for Disease Control's prevention September 19 update, the number of those sick reached 530, and eight deaths had been confirmed. This is very concerning, and it is clear that we need to examine the cause and what can be done to prevent it.

To the best information available, many of these cases seem linked to the use of products that present themselves to be something they are not. Based on the limited data available about those impacted by this mysterious lung illness, approximately 16 percent are under 18 years of age. And while each life affected is important, these recent incidents also serve to further bring attention to what has become an epidemic increase in teen vaping with currently 20 percent of high school students vaping. Add to that the decades-long epidemic of addiction to traditional tobacco smoking that will leave five people dead by the end of these opening statements. As a father of three, this is very concerning.

I wish we had a quick fix to ensure that each child is protected, that no American finds themselves bound by a substance, and that all of us are able to find complete personal fulfillment in experiencing the purpose for which we were created.

Today we're here to discuss what should be the appropriate response to the lung illnesses associated with certain vaping products. Complicating this discussion is the lack of scientific data and studies available, counterfeit products, untraceable supply lines, a lack of enforcement that allows players to pass the buck of accountability.

For example, data available leads us to believe that many of the recently reported 530 cases involved vaping cannabinoid products. I hope today we're able to do the good work for which this investigating committee exists. I believe there's a lot of bipartisan support for addressing this situation. I appreciate the chairman's heart in this. To the point of examining this to find the solution and our desire to end teen vaping, there is unity.

Please know my heart goes out to those impacted and my condolences to those who lost loved ones. Again, I appreciate the chairman's work on this issue and look forward to a productive discussion today.

Mr. KRISHNAMOORTHY. Thank you, Mr. Cloud.

I should say we recently just started a bipartisan, bicameral, anti-youth vaping caucus.

And thank you, Mr. Cloud, for joining that caucus.

Today happens to be National Recovery Day, a bipartisan endeavor to recognize the folks in our lives who may be affected by substance-use disorders and our attempts to try to wean them off their addictions. I just hope that vaping is not that next substance use disorder.

Today, we are joined on panel one by Dr. Anne Schuchat, Principal Deputy Director of the CDC. If you would please rise and raise your right hand, I will begin by swearing you in.

Do you swear or affirm that the testimony you are about to give is the truth, the whole truth, and nothing but the truth, so help you God?

Dr. SCHUCHAT. I do.

Mr. KRISHNAMOORTHY. Let the record show that the witness answered in the affirmative.

Thank you very much, and please be seated. The microphones are sensitive, so please speak directly into them. Without objection, your written statement will be made part of the record.

With that, Dr. Schuchat, you are now recognized for five minutes. Thank you.

**STATEMENT OF ANNE SCHUCHAT, M.D., PRINCIPAL DEPUTY SECRETARY, CENTERS FOR DISEASE CONTROL AND PREVENTION**

Dr. SCHUCHAT. Good morning, Chairman Krishnamoorthi, Ranking Member Cloud, and members of the subcommittee. Thank you for the opportunity to testify today about CDC's investigation into lung injury associated with using e-cigarettes or vaping products.

Today, I'll discuss with you what we know and don't know and what we're doing to address this outbreak of lung injury. I'll also discuss our efforts to address the epidemic of youth e-cigarette use or vaping. I want to make four key points.

First, as soon as we learned about the initial cases of lung injury, CDC has been working 24/7, hand-in-hand with the FDA, and our state and local public health partners to find the cause. Second, our ability to do this type of investigation relies on a critical underlying public health infrastructure, including data systems that need modernization and a trained public health work force. Third, the CDC has made important recommendations to the public, including the following: While this investigation is ongoing, people who are concerned about lung disease associated with e-cigarette use or vaping should consider refraining from using e-cigarette products or vaping. People should not buy these products off the street and should not modify them further. Adults who use e-cigarettes or vaping products because they have quit cigarette smoking should not return to smoking cigarettes.

We have a need to address the epidemic of youth use of e-cigarettes, and this current outbreak reinforces the need to address the broader youth e-cigarette epidemic. So what do we know so far? As you've heard, several hundred cases have been reported from nearly all states. We've had a number of deaths. The cases are occurring in young people. One-half of all cases are less than 25 years old.

People present with cough, shortness of breath, chest pain, and sometimes with symptoms like nausea and vomiting, fatigue or fever. Most of the cases, with information so far, have reported use of either THC or THC and nicotine-containing products. Some have reported nicotine only. There may be some challenges with the histories of exposure in some subset of the patients.

Well, what do we not know so far? Probably, the most important thing: We don't know the cause. No single product, brand, substance or additive has been linked to all cases. This investigation is ongoing, and it's very dynamic.



What are we doing to respond? CDC is working closely with state and local public health, with the FDA and clinical community to get to the bottom of this. We've deployed staff through what we call Epi-Aid assistance to help states with their investigations. We provided technical assistance, developed a case definition, standardized clinical guidance and a reporting system, and working every day on coordinating the parts of the investigation and response. We set up an incident management system and activated our emergency operations center, as we do in other public health urgent situations. We have convened the public health, clinical, and media numerous times to share what we know and don't know and how they can be part of the solution.

One such example is a clinical outreach and communication activity call that we held in the past few days that had 2,500 lines active and clinicians around the country listening to the latest information. We're working very closely the FDA on the laboratory aspects of trying to trace back and study the products from affected patients. There are challenges with this response, including the nature of the outbreak itself.

Many states—some of the cases report using illicit products and may not be fully forthcoming. The marketplace for e-cigarettes is wide and diverse, with a multitude of products, and it may be very complicated to tease out the problematic exposures. Our public health data collection systems are in need of an upgrade.

In terms of the youth e-cigarette use, we are seeing an epidemic, and in the questions, I'd be happy to go into many more details about that, but our most recent data for 2019 is continuing to be concerning.

I'll just leave you with this. CDC is dedicated to working around the clock together with FDA and the state and local health officials to identify the cause or causes of the outbreak and will continue to update you during the course of the investigation.

Mr. KRISHNAMOORTHY. Thank you very much, Dr. Schuchat.

I now recognize myself for five minutes of questioning. Dr. Schuchat, thank you for the work that you are doing. The CDC has been very clear that it is not yet possible to determine the cause of the vaping-related lung disease outbreak. CDC has recommended that people consider not using any e-cigarettes. From that, we gather that nothing is off the table as a possible cause.

Let's first describe the general types of e-cigarettes out there. From what I understand, there are two major categories. First, there are nicotine e-cigarettes, which have been the focus of this subcommittee's hearings up to this point. Then, second, there are THC e-cigarettes that replicate the effects of marijuana.

Dr. Schuchat, you are examining both of those types of products as factors in the current outbreak of lung illness, and is it correct to say that you cannot rule out either as contributing to the outbreak?

Dr. SCHUCHAT. Yes, that is correct at this point. We are getting new information in every day, but we think it's very important until we know more that our recommendations be broad. Separate from this outbreak, we are quite concerned about the rise in nicotine-containing e-cigarette use among youth, which is really epidemic. But for this particular outbreak, we don't know yet what the

product or products are, or whether they are components of the products that might be contained in both nicotine-and THC-containing devices.

Mr. KRISHNAMOORTHY. I want to focus on the nicotine e-cigarettes for a second. In the Illinois and Wisconsin published analysis, almost 20 percent of the victims there were using only nicotine e-cigarettes, and overall, 61 percent of the victims were using, among other e-cigarettes, nicotine e-cigarettes as well.

So, Dr. Schuchat, there may be people out there who would like for this to be a THC-only problem so that they can go back to vaping nicotine e-cigarettes. If almost 20 percent of victims are using only nicotine e-cigarettes, do we still need to be concerned about all e-cigarettes at this point?

Dr. SCHUCHAT. At this point, I think caution regarding all containing—all products is recommended. It may not even be the THC or nicotine part; it may be additives or substances that may be common. It may material that is not labeled appropriately, and so we really do think consumers need to be quite cautious right now.

Mr. KRISHNAMOORTHY. Got it. And you can't rule out any brand of e-cigarettes at this point, Right?

Dr. SCHUCHAT. No single brand, product, substance, or additive has been ruled out as of today.

Mr. KRISHNAMOORTHY. I'd also like to better understand some of the possible contributing factors to the outbreak that you are considering. First of all, on August 22, CDC said, quote: Even though the cases seem similar, it is not clear if these cases have a common cause or if they are different diseases with similar presentations.

Does that mean that it could be multiple separate problems with e-cigarettes that are causing similar results?

Dr. SCHUCHAT. Yes, that's right. The respiratory symptoms are very nonspecific and the X-ray findings are diverse. So we also have cases in nearly all states at this point. Whether the products in one state are the same as the problematic products in another or the manipulation of the products is what's going on, we don't know. So I think we have to have a very open mind.

Mr. KRISHNAMOORTHY. We don't know the full impacts of vaping. If so many different vaping products are causing the same result, could the common link possibly be the process of vaping itself, inhaling aerosolized liquid particles into our lungs?

Dr. SCHUCHAT. We don't know enough about the aerosol that vaping produces or that e-cigarette produces in terms of the shorter term or longer term health impacts and products—it may be that the process itself is risky.

Mr. KRISHNAMOORTHY. All e-cigarettes include solvents like propylene glycol and vegetable glycerin, while they are considered safe in food, a recent Baylor study found those solvents, when inhaled, reduced the lung's ability to fight infection, increased the chances of getting the flu and of dying from it.

Dr. Schuchat, these solvents are in all e-cigarettes. Can the CDC rule them out as a factor in the current outbreak?

Dr. SCHUCHAT. We have not ruled out any substance within the e-cigarettes or vaping products yet.

Mr. KRISHNAMOORTHY. Many of the victims were using flavored products. To add flavor to an e-cigarette requires additional chemi-

cals on top of the various solvents that we just talked about. Can CDC rule out the chemicals in flavors as a factor in the current outbreak?

Dr. SCHUCHAT. No, we can't.

Mr. KRISHNAMOORTHY. Dr. Schuchat, I just want to remind everybody that you took a far-reaching warning or admonition to the public; that is, the CDC advises the public to consider not using any e-cigarettes at this point. The CDC also advised that those who do not vape, not to start; that children and pregnant women never use e-cigarettes; and, for those trying to quit smoking, to use an FDA-approved cessation device. E-cigarettes are not approved by FDA for smoking cessation.

With that, thank you. And now I recognize Mr. Cloud for five minutes of questioning.

Mr. CLOUD. Thank you.

Dr. Schuchat, previously, the CDC has said that the illnesses that we're seeing aren't necessarily a result of infections but rather chemical exposure. Do you maintain that distinction, or is it possible that the chemical exposure is leading to reduced immune system, therefore, leading to infection?

Dr. SCHUCHAT. Part of the case definition is to rule out infections as a cause. Certainly people presenting with cough, shortness of breath, and abnormal X-rays often have an infection, but in these episodes, we don't believe infection is what's causing the problem, and we do think it's one or more chemical exposure.

Mr. CLOUD. Okay. Do the patients generally have symptoms immediately after vaping, or is it after—do they appear later?

Dr. SCHUCHAT. We understand from the early reports that there's a progression between days and weeks of worsening symptoms until the difficulties are severe enough to present for hospitalization. Nearly all the cases have required hospitalization. Many of them have required intensive care unit and mechanical ventilation, and, as you know, sadly, several cases of have passed away.

Mr. CLOUD. Have you been able to investigate supply lines? What I've read it seems like it's been very difficult to backtrack where a number of these products are coming from?

Dr. SCHUCHAT. This is a very active investigation. The FDA is leading the product tracebacks, and they are also working with the DEA in that effort. We're certainly trying to gather information on the products that individuals have used. Many people have used more than one product, and they have acquired them from a variety of retail, online, social sources, or sort of on the street.

Mr. CLOUD. Right. When it comes to teen vaping, do you have a sense of where teens are acquiring products.

Dr. SCHUCHAT. I don't have that data right now, but we do see a significant rise in the use of e-cigarettes among teenagers, both middle school and high school students. One of the things that we see in common there is the role of flavors, that flavors are a big attractor for teenagers, and usually the first product people are using is flavored.

But in terms of where they're getting them, I don't have the data. Sometimes it's really just a friend or a peer who's providing something to them.

Mr. CLOUD. To followup on that, I guess my question is, in most states, it's already illegal for teens to acquire the vaping products, right?

Dr. SCHUCHAT. That's right. In terms of e-cigarette use is not supposed to be for anyone under 18, and that is since the 2016 legislation.

Mr. CLOUD. Is there any effort underway really in the realm of enforcement and prosecution for those who are getting products to teens?

Dr. SCHUCHAT. That would be the realm of the FDA in terms of the Federal legislation for the e-cigarettes, and so the issue of access to products is a key barrier to use of e-cigarettes among youth, and the stricter it is, the better. So we are very much in support of making it extremely difficult for young people to get products that they're not supposed to have.

Mr. CLOUD. What are some of the recommendations you would have when it comes to that?

Dr. SCHUCHAT. There are a variety of population-based strategies that are shown to be effective to limit access for youth to cigarettes or e-cigarettes at this point. One of the issues is the advertising that is particularly appealing to youth. That is a problem that we saw with cigarettes decades ago, and we have been seeing again with e-cigarettes more recently. Another is the retail sites requiring proof of age.

There are a number of other efforts we're doing in terms of raising—that we don't do, but the states select strategies like raising the price, as well as using efforts to educate in the schools, you know, toolkits for schools and so forth.

Mr. CLOUD. Right. Do you have—we talk about product lines and supply chain. Do you have any sense of how much is coming from counterfeiting places or China, or, I mean, there's a lot of loopholes when it comes to freight and air freight, products that aren't shipped coming in? Do we have any sense of where the illicit product is coming from?

Dr. SCHUCHAT. What I would say is that this is an extremely dynamic market. The legal market and perhaps the illicit market are very dynamic. We've seen huge changes in market share for e-cigarettes in the past couple years, and I believe there's likely to be an illicit market that is mirroring the rise that we're seeing in the legal market.

Mr. KRISHNAMOORTHY. Thank you, Mr. Cloud.

I now recognize Congressman DeSaulnier for five minutes of questioning.

Mr. DESAULNIER. Thank you, Mr. Chairman. Thank you and the ranking member for having this hearing.

And, Doctor, thank you for the work you do and being here.

On September 6, the CDC issued the following statement during a press conference announcing this investigation, and I quote: While the investigation is ongoing, CDC advises that individuals consider not using e-cigarettes because, as of now, this is the primary means of preventing this type of severe lung disease, and that e-cigarette use is never safe for youth, young adults, or pregnant women.

During the same press conference, you announced that you were setting up your emergency operation center. Doctor, could you describe to the committee what factors led CDC to that decision and what kind of expertise will result from that. And given the life-threatening emergency that we're faced in, how do we make sure that we don't lose anyone else?

Dr. SCHUCHAT. You know, this is a fast-moving and very serious outbreak of a new condition in primarily young people. CDC established an incident management system to respond to the outbreak and then took the additional step of activating our emergency operations center. We have more than a hundred people responding to the outbreak right now in Atlanta as well as deployed to assist its states. We took the step of activation to better support the state and local public health who are on the front line of this.

We have hundreds of cases getting reported to us from all across the Nation in order to work efficiently and effectively with the states as well as the FDA and others. The EOC activation facilitates that.

Mr. DESAULNIER. Doctor, I'm from the San Francisco Bay area. When I go home, JUUL is now spending up to \$40 million, probably more, in overturning a local ordinance by the San Francisco municipal government that merely says that e-cigarettes are banned until the FDA comes up with the end of their investigation of whether they're safe or not.

Recently, we had an executive and a founder of JUUL sit here and, from my perspective, try to say that e-cigarettes, their product, actually is helpful to keeping people away from tobacco, particularly young people. In Richmond, California, in my district, they just passed a similar ordinance.

So those ordinances—and we'll talk about this more in the second panel—seems to me to be a preventative cautious approach to this. You've got something—a product out there—that's leading to deaths.

What could we do further as a Congress to make sure this doesn't happen? We have a company, in my view, that has no ethical boundaries, is in the business of addicting people, particularly young people, and is willing to spend \$40 million. And the FDA has announced that their criminal division is investigating them, and I hope they investigate their political consultants as well. They are shameless when it comes to the information they give.

So, given you're getting the public health officials involved, given that this committee is actively involved, this is a daunting task to try to make sure that the public actually understands, particularly young people, who are vulnerable, as you alluded to in your opening statement, to advertising like this.

Dr. SCHUCHAT. You know, I appreciate the committee's interest in the topic and the attention that you have given to this. We know that youth should not use e-cigarettes, that nicotine is one of the most addictive substances that there is, and that nicotine is dangerous for the developing brain that adolescents and young adults have.

We also know that flavors are a major attraction for young people and that they often are the first e-cigarette type that children

use and that the latest generation of e-cigarettes has a higher available nicotine level that is particularly additive.

So the last few years of data raise our concerns substantially in terms of the epidemic of youth e-cigarette use, and I appreciate all that the committee is doing to address that.

Mr. DESAULNIER. Do you need more statutory authority? In this instance, when young people, in particular, and life and death are on the line, would it be helpful for the CDC to, if they had the statutory authority to not just encourage people not to use it, but prohibit it people from using this until your investigation is done?

Dr. SCHUCHAT. Well, the CDC doesn't typically have regulatory authority over this type of matter; the FDA does. And, as you know, the FDA is taking many measures now to intensify their work in light of this epidemic, both the epidemic of youth vaping and the outbreak of lung injury.

I think one of the key things that could help in this investigation, though, in terms of the outbreak, is modernization of our data systems that are really outdated, slow, that the epidemic is moving faster than our data gathering, and we're really losing people in the meantime.

Mr. DESAULNIER. I appreciate that. The reason I asked the question is to suggest that the FDA is moving too slowly, and it might be, in my perspective, more efficient if the CDC actually had the authority to say that this product should be removed from being legally sold.

Thank you, Mr. Chairman.

Mr. KRISHNAMOORTHY. Thank you, Mr. DeSaulnier.

I now recognize Congressman Grothman for five minutes of questioning.

Mr. GROTHMAN. Okay. How long have these e-cigarettes been on the market?

Dr. SCHUCHAT. There are a number of different products, and there's really—we're on the fourth generation now, so—

Mr. GROTHMAN. Yes, but how many years?

Dr. SCHUCHAT. Well, in 2011, we are were seeing the first of the products, and, by 2012, there was a doubling in their use.

Mr. GROTHMAN. The first e-cigarettes were on the market in just 2011?

Dr. SCHUCHAT. We started measuring. Oh, excuse me, excuse me, this just in: 2007.

Mr. GROTHMAN. Yes, I thought it was before that. Okay. You said maybe 80 percent of the people who got sick, got sick on—they admitted to putting THC in their e-cigarettes. How do you determine whether or not they had an illegal substance in their e-cigarettes or not?

Dr. SCHUCHAT. The information that you're citing is based on history. Individuals said what they thought they were using. There has been some testing of products that are still available.

Mr. GROTHMAN. Okay. I'll tell you what I'm trying to get at here. You're the one who testified that 80 percent of the people that got sick may have had THC in the product. Because THC is, I believe, illegal in most states in the countries, and I assume that some people don't like to volunteer that they've been doing something illegally. I wondered whether that is a hard number or maybe it's clos-

er to 100 percent because some people, when asked, don't admit that they are breaking the law.

Dr. SCHUCHAT. The number that you're citing comes from an Illinois-Wisconsin report in the New England Journal of Medicine about what a small number of patients described using. We acknowledge that individuals may be reluctant to describe use.

Mr. GROTHMAN. Self-reporting. Yes. Self-reporting. Okay.

Next question. You guys report that about 72 percent of the people who got sick were male. Could you tell me, e-cigarettes overall, what percentage of people who buy legal e-cigarettes are female and what percent are male?

Dr. SCHUCHAT. More males buy e-cigarettes than females.

Mr. GROTHMAN. Okay. Seventy-two percent, though, hits me has a high number.

Dr. SCHUCHAT. The statistics on the proportion of these lung injury cases that are male has been decreasing as we get more cases reported to us. So we'll be updating those numbers. But you're right that, so far, nearly three in four of the reported cases are in boys or men.

Mr. GROTHMAN. Well, how about people who buy e-cigarettes to prevent smoking, which is what, you know—10 years ago, I thought that was the whole deal. We had this new way to prevent people from smoking. We have over 400,000 people a year dying of smoking-related illnesses. I mean, 10 years ago, this was perceived to be a good thing.

Of people who buy e-cigarettes to stop smoking, do you have a breakdown male by female—male versus female?

Dr. SCHUCHAT. We know that e-cigarette use is much more frequent in young people than adults.

Mr. GROTHMAN. Yes, I know, but you haven't answered my question.

Dr. SCHUCHAT. I don't have the breakdown of those who are using e-cigarettes for cessation.

Mr. GROTHMAN. Okay. I think, in most states, THC is illegal. But, over time, more and more states are legalizing marijuana. I don't know who to blame for that, but—including my neighbor to the south in Illinois. Are these cartridges or these new things legal in states which legalized marijuana or not?

Dr. SCHUCHAT. The legal provinces in states are quite different right now. It's a very diverse landscape, and I don't have the specifics on individual states.

Mr. GROTHMAN. I wish you'd look into that. I'm concerned because, right now, right to the south of Wisconsin, Illinois has decided to go all in on making marijuana legal. You do not know, though, whether the Illinois statute will make these things legal or not?

Dr. SCHUCHAT. You know, the key thing about the investigation is that there is no—

Mr. GROTHMAN. But just say yes or no.

Dr. SCHUCHAT [continuing]. is that there's no single product, cartridge, substance, or additive—

Mr. GROTHMAN. If you don't know, just say you don't know.

Dr. SCHUCHAT [continuing]. that's been linked to the cases in this outbreak.

Mr. GROTHMAN. Okay. But you don't know; it's possible that Illinois just made this stuff legal?

Dr. SCHUCHAT. Which stuff?

Mr. GROTHMAN. THC in cartridges.

Dr. SCHUCHAT. I don't know.

Mr. GROTHMAN. Okay. I'd like you to look into it because it's something we should know. It sounds like it's big trouble if Illinois just made these things legal. Could you explain why—we dealt with these a little bit when I was in the state legislature, maybe eight years ago, and at the time, you never heard about this.

Why is this a new thing happening now, and you never heard about it eight years ago?

Dr. SCHUCHAT. Do you mean the youth vaping or do you mean the outbreak of lung injury?

Mr. GROTHMAN. People dying.

Dr. SCHUCHAT. Thank you. We don't know, but we know that the products out there have changed a lot, and the use has probably increased. But we don't yet know if there's a new particularly risky product out there or a substance that's in the products or a manipulation that's dangerous.

There's a fourth generation of e-cigarette products that are out there that may perhaps be related in some way to this, but we don't know yet why this condition is occurring in this particular epidemic.

Mr. GROTHMAN. Thank you.

Mr. KRISHNAMOORTHY. Thank you, Mr. Grothman.

I now recognize Congresswoman Hill for five minutes of questioning.

Ms. HILL. Thank you so much, Mr. Chairman.

Dr. Schuchat, on September 6th, LA County had its first reported vaping death. The week before, an LA County teenager began an anti-vaping campaign from her hospital bed where her lungs had failed from using e-cigarettes and where she had to be put on a ventilator.

LA County public health officer, Dr. Muntu Davis, has compared the revelations about e-cigarettes to the slow discovery of the danger of cigarettes several decades ago. Across California, there have been 57 cases of acute lung disease among people with a recent history of vaping since late June, according to state health officials. Parents, kids, and adult vapers are understandably scared by the outbreak of lung disease sweeping the country and claiming lives.

The CDC and state health departments, with Illinois at the forefront, have been working together to investigate the outbreak.

Dr. Schuchat, as of a couple days ago, CDC has reported 530 confirmed and probable cases of lung disease in 38 states. Are those numbers expected to grow as states examine older cases against the current case definition?

Dr. SCHUCHAT. We are seeing more and more cases each day, and I expect the next weekly numbers will be much higher.

Ms. HILL. Thank you. How does the disease typically present itself in patients' symptoms?



Dr. SCHUCHAT. People have days or even weeks of worsening breathing problems, cough, shortness of breath, sometimes with fever or nausea and vomiting.

Ms. HILL. And what do we know about the time range for symptoms to set in after the last use of e-cigarettes?

Dr. SCHUCHAT. We don't have lots of details. It may be days or weeks.

Ms. HILL. For those affected by the lung disease, how long are they being hospitalized, and are they typically in intensive care?

Dr. SCHUCHAT. The average hospitalization length so far is about six days. Many are in intensive care. Many require mechanical ventilation.

Ms. HILL. That's what I was going to say. How many of the patients require medical intervention to breathe?

Dr. SCHUCHAT. A large proportion.

Ms. HILL. And what has been successful in treating them?

Dr. SCHUCHAT. As of now, we know that antibiotics don't have an effect, and that's consistent with the idea it's not an infection. But some are seeing improvement after use of corticosteroids or steroids. We don't have evidence yet about the benefits and risks, but we do think that individuals should—clinicians should consider use of corticosteroids in treating patients on an individual basis.

Ms. HILL. So potentially some kind of inflammation, like an acute inflammation?

Dr. SCHUCHAT. That's right.

Ms. HILL. So the joint study by Illinois and Wisconsin found a median age of 19 years old in those two states and that 32 percent of those affected are under 18. Why is this affecting young, otherwise healthy, kids?

Dr. SCHUCHAT. We don't have all of the answers, and as we gather more data, we're finding more individuals who are older also at risk. But we do see in our national data half of the cases are under 25.

Ms. HILL. We're deeply alarmed by the nine deaths, including one reported last night, that are linked to this disease and the short span of its outbreak. Is there anything that we've learned about how this lung disease results in death and what we can do to avoid it?

Dr. SCHUCHAT. We're really looking into that closely right now. Sadly, we are hearing about more deaths, as you just mentioned, and we do expect more. That's one of the reasons we've been trying to get our health recommendations out there, so that, until we know more, people who are concerned about their health risks refrain from using e-cigarettes or vaping products, or at least consider that.

Ms. HILL. Is it possible that this disease has been going on longer than we thought, and it's just now being linked to e-cigarette use?

Dr. SCHUCHAT. I think it's less likely that large scale we've been seeing this and missed it. We're using something called syndromic surveillance now to look back in time at emergency department visits, and we have evidence that things really started to pick up in the spring or summer for this condition. Of course, there probably have been individual instances that we missed.

Ms. HILL. So, when I think about families in my district whose kids are vaping and who are deeply concerned, to me, this is one of the most important questions: When specifically should someone go to the doctor, and what information should they convey?

Dr. SCHUCHAT. You know, if you you've been using e-cigarettes or vaping and you're having difficulty breathing or cough and the kinds of symptoms that we've described, you should talk to your doctor about that. We don't know exactly how rapidly people progress, but we are concerned about the very severe cases we've been seeing in young people.

Ms. HILL. We've heard from some patients that doctors have not uniformly asked about vaping or JUULing. Vaporers say no if doctors ask if they smoke. Do you think doctors need to change the questions they ask their patients, and how can we make that happen?

Dr. SCHUCHAT. Yes. We recommend that doctors not only ask, do you smoke cigarettes, but ask if you use e-cigarettes or vaping products. We think it's really important at this time for clinicians and parents to educate themselves about the types of products that are out there and to ask the right questions.

Ms. HILL. Patients are being—who have recovered and released—are being told they'll need periodic lung scans. Do we know whether this outbreak will result in long-term or permanent lung damage?

Dr. SCHUCHAT. I fear that it may, but we do not know that yet, and we do recommend clinicians do regular followup of individuals. The clinical community, the pulmonologists and so forth are studying patients, and of course, it's so new that we don't have long-term followup yet.

Ms. HILL. Thank you so much. I'm out of time, and I yield back.

Mr. KRISHNAMOORTHY. Thank you, Congresswoman Hill.

I now recognize Congressman Comer for five minutes of questioning.

Mr. COMER. Thank you.

Mr. Chairman, I want to spend my five minutes talking about CBD because I believe there's a lot of misinformation and confusion about exactly what CBD is and what THC is.

So CBD is cannabidiol. And it is something that a lot of people take, a lot of people in Congress take CBD. Millions of Americans take CBD. I take CBD. These are two of the CBD products that I take, and I'll talk about that in just a minute. There are two sources of CBD. There's hemp and marijuana. And hemp and marijuana are two different plants in the same plant family, kind of like broccoli and cauliflower. If you could image what broccoli and cauliflower look like, they have some similarities, but they're also very different. That's the way it is with hemp and marijuana.

Then there's THC. And THC is an acronym that measures the level of psychoactive material in CBD. So, if you look at CBD, a lot of—the majority of the CBD that most Americans are taking— and they're having really positive effects from CBD— is coming from hemp, not marijuana. The hemp CBD has little to no THC, and that's something that there's a lot of confusion about when I hear people talk about CBD and THC.

Prior to coming to Congress, I was Commissioner of Agriculture in Kentucky, and we were the first state—this was something that was a platform of mine when I was elected to Commissioner of Agriculture, to make industrial hemp a reality in America. We weren't growing hemp in America. America was the only industrialized Nation that didn't grow industrial hemp.

So, in Kentucky, we became the first state to grow hemp. Today, Kentucky is the leading hemp-producing state in the Nation. There are at least 15 hemp processors in Kentucky that are making CBD oil. I have been in the—these two products here that I take, I've been in those companies. I've seen their labs. Those companies are, in my opinion, producing a good legitimate product. But those companies want the industry to be regulated.

Currently, there are no FDA regulations on CBD oil. And the legitimate credible companies want regulation. I have worked with Congresswoman Pingree in Maine. We have submitted a bipartisan letter with 24 other Members of Congress, both parties, asking the FDA to hurry up and issue FDA regulations with respect to CBD.

Let me note, JUUL does not sell any CBD pods. All their pods are nicotine pods. So the sickness that happened and the deaths that came from CBD, from people JUULing or using e-cigarettes with CBD, these were counterfeit pods. And the people that were producing these pods, not only were they counterfeit, they don't know what levels of THC they were putting in the pods because there's really no regulations on it.

This CBD industry is like the Wild West. It's a good industry. It's a good product, but there needs to be regulations. I'm very conservative, very pro-business. Normally, I'm against regulations, but sometimes we need regulations.

A young man in my district was recently hospitalized from vaping CBD with excessive amounts of THC. He bought the pods from a friend. They released him from the hospital, and he got sick again and was hospitalized again with a collapsed lung, and he had to be put on life support—in my district.

Mr. Chairman, I ask unanimous consent that this article detailing my constituent's story be inserted into the record.

Mr. KRISHNAMOORTHY. Without objection, so ordered.

Mr. COMER. I also want to note: The Associated Press has tested 30 vapor products that were marketed containing CBD and found that 10 of the 30 contained synthetic marijuana; 22 of the 30 contained very little or no CBD. The CBD—this CBD produced in my congressional district, processed in my congressional district, has no THC, zero THC. So there's a lot of misinformation and confusion about CBD that I wanted to make sure that everyone understood.

The Associated Press also reported on testing that the DEA had done and found that 128 of the 350 CBD products they had tested contained synthetic marijuana. Three of these tested products contain fentanyl.

So, Mr. Chairman, I ask unanimous consent that the two articles from the Associated Press be inserted into the record.

Mr. KRISHNAMOORTHY. Without objection, so ordered.

Mr. COMER. And, Mr. Chairman, if I may, I'll conclude by saying that I think that there's a lot of positive benefits from cannabidiol oil, but this industry needs to be regulated. This industry is very

prevalent in my congressional district, and they want regulations to make sure there are no bad actors, to make sure there are no fly by-night companies that are coming in producing cannabidiol oil with excessive amounts of THC. So that's something that I'm working on.

I had Chairman Collin Peterson in my congressional district Sunday visiting with some of these hemp processors. Our office is working with USDA and FDA to try to see that we have good regulations that protect the consumers while helping the industry grow.

Thank you, Mr. Chairman, I yield back.

Mr. KRISHNAMOORTHY. Thank you, Mr. Comer.

I now recognize Congressman Khanna for five minutes of questions.

Mr. KHANNA. Thank you, Mr. Chairman, and thank you for your leadership on this issue.

Dr. Schuchat, is it true that 28 percent of the Nation's 12th graders reported vaping nicotine at least once in the past 30 days?

Dr. SCHUCHAT. Those data are from the preliminary results of the 2019 National Youth Tobacco Survey. The final results aren't quite available, but that's right.

Mr. KHANNA. And is there a statistical analysis that found that for one smoker that successfully quits, thanks to e-cigarettes, 81 young e-cigarette users will become traditional cigarette smokers. Are you familiar with that?

Dr. SCHUCHAT. I don't have that statistic, but what I can say is that e-cigarette use is much more frequent among young people, youth, than it is among adults.

Mr. KHANNA. And are you familiar that people who use e-cigarettes then end up going and using regular cigarettes?

Dr. SCHUCHAT. That's right. The National Academy of Medicine looked at that, and whether e-cigarette use may lead to tobacco—lead to smoking cigarettes, and there's moderate evidence about that. The newest generation of e-cigarettes isn't really covered under that study, and the newest generation seems to have a number of factors that make it even more addictive or even more popular among youth. So we don't really have the long-term followup on that.

Mr. KHANNA. On September 11, 2019, President Trump announced a ban on flavored e-cigarettes. He finally did something I agree with. And it hasn't been implemented yet at the FDA. My understanding is the CDC came out in strong support of the flavor ban, with the Director stating that it's needed to reduce the epidemic. But Washington is a very political place, and so now you have the President's advisers telling him that this is going to hurt his reelection in battleground states because there are hundreds of thousands of people in battleground states who vape.

What would you tell the President about that argument that his advisers are making and whether he should stick to his original ban?

Dr. SCHUCHAT. Let me just say that the regulation of tobacco products is under the FDA, not the CDC. As a public health expert and as a leader at the CDC, I can say that we're extremely concerned about flavors and the role that they play in hooking young

people to a life of nicotine and that we really want to avoid another generation being addicted to nicotine.

So addressing flavors directly is a good idea in terms of the role that they play in young people, particularly middle school and high school students beginning to use e-cigarettes.

Mr. KHANNA. At a substantive level, how would you answer the tradeoff where people say, we agree with you on children not having these flavors, and that's why I support a ban; that's why people support a ban. But what do you say adults should do who want to transition off cigarettes? Are there ways that they can still use e-cigarettes without the flavor, with only the tobacco flavor? Is there evidence to suggest that it would diminish their ability to reduce their addiction to cigarettes.

Dr. SCHUCHAT. We don't think that flavors are the critical factor in e-cigarettes for adults who are trying to get off of smoking cigarettes. We think the nicotine level is the principal issue there. We certainly encourage adults to quit smoking and use FDA-approved devices or approaches to do that. Behavioral counseling is also recommended, and there's emerging data that is being looked at about the role of e-cigarettes. None of the e-cigarette companies have applied to FDA to be approved as a cessation device as of yet.

Mr. KHANNA. So would it be fair to say then that you do not think banning flavors in e-cigarettes would in any way harm adults who seek to quit regular cigarettes by using e-cigarette products?

Dr. SCHUCHAT. I think the way you characterized that, I would agree with.

Mr. KHANNA. I have no further questions.

Mr. KRISHNAMOORTHY. Would the gentleman yield your 30 seconds?

Mr. KHANNA. I do.

Mr. KRISHNAMOORTHY. Dr. Schuchat, fourth generation devices, you keep referring to this. What are those?

Dr. SCHUCHAT. What I'm trying to imply is that JUUL and related products use nicotine salts, which can lead to much more available nicotine. We believe they can cross—the product can cross the blood-brain barrier and lead to potentially more effect on the developing brain in adolescents.

Mr. KRISHNAMOORTHY. When was this fourth generation introduced to them?

Dr. SCHUCHAT. Well, the JUUL itself was 2015, but the market share really ratcheted up more recently. So the 2018 data was 78 percent higher than 2017 for high school students, and the preliminary data is even higher for 2019.

Mr. KRISHNAMOORTHY. That's based on the fourth generation device really taking off?

Dr. SCHUCHAT. Right. We know that JUUL went up to over 70 percent market share more recently than 2015. In 2015, it had a tiny market share.

Mr. KRISHNAMOORTHY. Okay. Thank you so much.

I now recognize Congresswoman Miller for five minutes of questioning.

Mrs. MILLER. Thank you, Chairman Krishnamoorthi and Ranking Member Cloud.

Thank you for being here today. There are two key issues that we must keep in mind surrounding e-cigarette usage. First, we must do everything we can to keep e-cigarettes out of the hands of those who are underage. Second, we must also recognize e-cigarettes' critical role in harm reduction. For that reason, we must not throw the baby out with the bath water.

We can both prevent children from using e-cigarettes while also ensuring that they remain available for those adults who are choosing to quit smoking and trying to do it through such a mechanism. We have to work together with our Federal agencies to curb the on-line procurement of e-cigarettes, pods, and vape fluid by underaged individuals.

This unregulated black market does not have any of the protections for those to use their products and to pose a safety risk for the public. I understand that there are companies who sell in the United States that have taken proactive and positive steps to prevent underaged individuals from procuring their products both on-line and in stores.

Dr. Schuchat, can you first discuss the dangers of buying illegal or counterfeit vape products online?

Dr. SCHUCHAT. We think it's really critical to know what you are using, and it's very difficult right now, in terms of online purchases or off-the-street purchases or getting products from a friend, to know what you have. We also know that labels may be misleading and counterfeited. So, right now, the products are very diverse and vastly changing, and it's really one of those eras where consumers have to beware.

We do think that retail stores really need to be enforcing the rules about not selling to underaged individuals and that we need to ensure that companies are not marketing to youth directly or indirectly through influencers or social media. There's just a lot of evidence that—ads that are attractive to youth, help them begin, and that the type of products we have on the market right now are extremely addictive.

Mrs. MILLER. Testing performed by a lab in California found that some black-marketed THC cartridges contained more than 35 percent vitamin E acetate, and some tested positive for pesticides. What would substances like this do to the lung of an unsuspecting user?

Dr. SCHUCHAT. You point out a couple different substances that no one would really want to have in the middle of their lungs. And I think right now what we're working very vigorously on is trying to understand what are the products that individuals who have come down with this lung injury use and what was in them—and what was in them in a lot of other products. So FDA laboratories are working very hard on that issue right now.

Mrs. MILLER. So is that present in the cases that the CDC is monitoring right now?

Dr. SCHUCHAT. There's a variety of different substances that we're hearing about. We don't have full data yet. It's important to know that there may not be much remaining product from an individual. They might have used up the pod, for instance. And there may be differences in what you measure in a pod and what is—

what the lungs are exposed to when that substance is heated to a very high temperature.

So there are kind of sophisticated studies going on to try to analyze both the product and then potentially the vapor or aerosol as well. So we can't say any particular substance has been linked to all cases or the majority of cases as of yet.

Mrs. MILLER. Is there a name of this disease that people are getting?

Dr. SCHUCHAT. We're calling it "lung injury associated with e-cigarettes or vaping." It's not particularly catchy. So we don't have a name that's shorter yet.

Mrs. MILLER. Just lung disease.

Dr. SCHUCHAT. We're saying "lung injury," because it really looks like an injury, not like a long-term disease like emphysema. Of course, long-term, there may be consequences of the injury that we're seeing.

Mrs. MILLER. Isn't it true that counterfeit products sometimes design their packaging to look like legitimate manufacturers? And is the CDC seeing cases of pulmonary illness coming from these counterfeit products?

Dr. SCHUCHAT. I don't have information about counterfeit products, but that's exactly why counterfeit products make labels to deceive the consumer.

Mrs. MILLER. Okay. I yield back my time. Thank you.

Mr. KRISHNAMOORTHY. Thank you.

I now recognize Congresswoman Pressley for five minutes of questioning.

Ms. PRESSLEY. I thank you, Mr. Chairman, for your leadership on this committee to hold JUUL and other e-cigarette manufacturers accountable for what is an urgent public health crisis.

I am heartened to see the bipartisan interest and commitment to address what is a fast-moving outbreak and am hopeful that we will show similar and equitable outrage when it comes to gun violence, which is also a public health crisis.

Dr. Schuchat, thank you for being here and thank you for your efforts in addressing this outbreak.

I wanted to just revisit the line of questioning from Representative Khanna in talking about the Trump administration's intent to ban all flavored e-cigarettes from the market. The administration's ban clearly states that mint and menthol will be included. And I just wanted to get this answer on the record: Mint and menthol are, of course, flavors, correct?

Dr. SCHUCHAT. Correct.

Ms. PRESSLEY. Yes or no, to be effective, do you agree that the flavor ban needs to include mint and menthol?

Dr. SCHUCHAT. Yes.

Ms. PRESSLEY. Thank you.

I'm encouraged by Federal and state efforts to ban flavors in e-cigarettes, especially as flavors continue to be a main driver of why youth are using these products.

I want to do a special bit of acknowledgement in my home state, the Commonwealth of Massachusetts, our attorney general, Maura Healey, and the leadership of cities like Somerville and Cambridge.

Even worse, 63 percent of JUUL users ages 15 to 25 have no idea that the product contains nicotine; they think it just has flavors—a dangerous misconception, considering that all JUUL products deliver nicotine and, according to the company’s website, a single JUUL pod is equivalent to smoking one pack of cigarettes.

Dr. Schuchat, are you familiar with the term “nic sick”?

Dr. SCHUCHAT. No, actually.

Ms. PRESSLEY. What about “nicotine poisoning”?

Dr. SCHUCHAT. Yes.

Ms. PRESSLEY. Can you describe how these syndromes might present themselves in children with high intake of nicotine?

Dr. SCHUCHAT. You know, the variety of symptoms that can occur from extremely high levels of nicotine is scary. The specifics I’ll probably need to get to you. But I think that we are aware of a number of Poison Control calls related to e-cigarette use and, sort of, overdosing, if you will, and then in terms of seizures having been reported—

Ms. PRESSLEY. Okay.

Dr. SCHUCHAT [continuing]. as adverse events. But the specifics of that I’d have to get back to you.

Ms. PRESSLEY. And do you know what impacts are the harms of high-dose nicotine when it comes to adolescent development? We’ve talked about how it might more acutely present, but what’s the impact on adolescent development?

Dr. SCHUCHAT. Yes, the concerns about the developing brain in adolescents are that nicotine can lead to difficulty with memory, learning, and attention. It can also prime the brain and prime the body for addiction to other substances, and that’s of particular concern.

Ms. PRESSLEY. All right.

Then I’m just curious, have any states that the CDC coordinates with observed improvements in any of the 530 confirmed cases since they fell ill? In other words, are you noting any improvements for those that have been diagnosed with a lung injury? And what best practices would you recommend to states and hospitals as they begin to track long-term impacts?

Dr. SCHUCHAT. Yes, we know that in small numbers the use of steroids during treatment may improve outcome, but we don’t have scientific data or large-scale numbers yet on that.

We’re recommending right now that clinicians individualize care but they consider the use of steroids in terms of its benefit and its potential harm, since sometimes steroids can be risky if you do think there’s infection going on.

We also recommend that clinicians follow patients after discharge, including with pulmonary function tests, to see whether the lungs really come back fully to what you’d expect in an otherwise healthy young person.

And then clinical communities are gathering the data to come out with more official recommendations.

Ms. PRESSLEY. Thank you.

You know, no matter what you call it—JUULing, vaping, smoking—it’s all the same. A new generation of young people are becoming addicted to nicotine through these kid-friendly flavors, and we



have no idea, truly, the long-term impacts this will have. As a mother and lawmaker, I find this frightening.

I yield back.

Mr. KRISHNAMOORTHY. Thank you. Will the gentlewoman yield her time for questioning?

Fourth-generation e-cigarettes and the nicotine salts, what is the importance of that? You said it penetrates the blood-brain barrier. What's the import of that?

Dr. SCHUCHAT. You know, the issue is, easier access of nicotine to the brain may have a higher risk of leading to those issues that I mentioned—the learning difficulty, the attention problems, the memory issues—as well as priming for addiction. So I think that the brain is pretty central in the issue of addiction as well as in cognitive functioning, and we're concerned that higher doses of nicotine getting into the brain may lead to larger problems.

That fourth generation is not just JUUL but it's the other pod-mod combos. And the other factor I haven't mentioned yet is just, the devices are ones that are very easy to conceal. You can have them in the classroom; the teacher doesn't even know that you're using the e-cigarette. So, between the very high levels of accessible nicotine and the discreet use of the product, we think that the rise in teen use is particularly dangerous.

Mr. KRISHNAMOORTHY. Thank you.

I now recognize Ranking Member Jordan for five minutes of questioning.

Mr. JORDAN. Thank you, Mr. Chairman.

Doctor, 530 cases. And then is it accurate, eight deaths as well, that there have been eight deaths associated with the lung illness and vaping?

Dr. SCHUCHAT. Yes. It's even more than that now, but we'll be updating the official numbers on Thursday. So we believe that probably hundreds more have come in since the numbers we released last week.

Mr. JORDAN. What about—but no additional people passed away, right?

Dr. SCHUCHAT. There may—when a death occurs, the state investigates to identify whether they do believe it's related to this condition, and then they report to us. And so we let the states report publicly before we report on the mass number. I think we're above eight at this point.

Mr. JORDAN. Okay.

Let's stick with the numbers 530 and eight. You said this about the 530 cases: Most patients have reported a history of using e-cigarette products containing THC; many patients have reported using THC and nicotine; some have reported the use of e-cigarette products containing only nicotine.

So “most,” “many,” and “some,” if I get the distinctions right. Can you give me percentages on each of those? So most of the 530 have used e-cigarette products with THC. What percentage is that?

Dr. SCHUCHAT. Actually, those terms are related to the very small number that had been described in the Illinois-Wisconsin series. The most was—this is really about less than 50 cases. And “most” was about 80 percent; “many” was about 60 percent; and “some” was less than 20 percent.

But we'll be updating the numbers—

Mr. JORDAN. You don't have the percentages on the 530 number, just on—

Dr. SCHUCHAT. No, not yet.

Mr. JORDAN [continuing]. the smaller population sample of Illinois-Wisconsin.

Dr. SCHUCHAT. That's right.

Mr. JORDAN. Okay. Any guess at the 530? Do you think it would be similar, 80 percent have used—do you think it would be similar and it'd be 80 percent of the 530 cases were using the THC?

Dr. SCHUCHAT. The trend continues in the preliminary look at larger numbers, but I don't have the precise final numbers yet. So I do believe that the majority report use of THC or THC and nicotine products.

Mr. JORDAN. Then, of course, there is the issue that the gentleman from Wisconsin raised, that the people who say they only used e-cigarette products containing only nicotine may not be totally forthcoming, they may be fudging a little bit on that.

Dr. SCHUCHAT. Absolutely.

Mr. JORDAN. Okay. So it could be, potentially, that THC is linked to all the cases of a health concern.

Now, do you have the data on the eight people who have passed away? Do you know if it was—do you have any data on those? Were they using THC or not?

Dr. SCHUCHAT. I don't have that data. But a really important point is, it may not be the THC or the nicotine but it may be something associated with those products that people are using.

Mr. JORDAN. You just don't know yet.

Dr. SCHUCHAT. Right.

Mr. JORDAN. Okay.

Now, you also said—you talked about the epidemic at the youth level, particularly high school level. What were the numbers—and I agree, you know, this is—I don't want any kids using this product, a bunch of other things either. But what was the number for high school students who were using the product?

Dr. SCHUCHAT. Yes, the preliminary data that was reported from the FDA—preliminary look at 2019 data was about 28 percent of high school students reported using e-cigarettes, which was a big jump from about 20 percent the year before.

Mr. JORDAN. Yes, that is.

Do you know the numbers for high school students who have used marijuana?

Dr. SCHUCHAT. It's less common, but I don't have the numbers right in front of me.

Mr. JORDAN. My understanding is it's over 20 percent as well. Is that right?

Dr. SCHUCHAT. I think you need to differentiate numbers that are used in the past year versus used in the past month. And the numbers I was giving you for e-cigarettes was used in the past month.

Mr. JORDAN. Okay.

Dr. SCHUCHAT. But I don't have those numbers for marijuana.

Mr. JORDAN. Is it over 20 percent as well?

Dr. SCHUCHAT. I don't know. I'm sorry.

Mr. JORDAN. Okay. Okay. I mean, I figured it was.

Okay. I just was curious on some of these numbers. It seems to me we've got an epidemic with marijuana use, with vaping, with all kinds of things, and we should be talking about all of those issues that are of concern for young people.

With that, I yield back, Mr. Chairman. Thank you.

Mr. KRISHNAMOORTHY. Thank you.

Dr. SCHUCHAT. Actually, I'm sorry, I—

Mr. KRISHNAMOORTHY. Go ahead, Dr. Schuchat.

Dr. SCHUCHAT [continuing]. did find the number for you. Sorry. I knew I'd seen it. But the number that I have for adolescents' use of marijuana is 12-1/2 percent in the past year.

Mr. JORDAN. Okay.

Dr. SCHUCHAT. So not the past month, but the past year. So a bit less than the 28 percent in the past month for e-cigarettes.

Mr. JORDAN. Okay. Thank you.

Mr. KRISHNAMOORTHY. Mr. Jordan, would you yield your remaining 14 seconds for a question?

Mr. JORDAN. Yes.

Mr. KRISHNAMOORTHY. Dr. Schuchat, of the 530 cases, how many of them were related to fourth-generation devices?

Dr. SCHUCHAT. I don't have that data yet.

Mr. KRISHNAMOORTHY. Okay. Thank you.

I now recognize Congresswoman Tlaib for five minutes of questioning.

Ms. TLAIB. Thank you, Mr. Chairman.

Earlier this month, my home state of Michigan became the first to ban flavored e-cigarettes. This came after news of e-cigarette smokers showing up in emergency rooms with shortness of breath, chest pain, coughing, vomiting.

Nationally, we have seen, as we've repeated in this committee, at least 530 cases of lung disease in e-cigarette users in 38 states. It exposes just how little we know about these products.

Nicotine e-cigarettes were allowed onto the market with little regulation and advertised as safer alternatives to cigarettes. In practice, I truly believe that we've become testing ground, the American public, most disturbingly our American youth. And right now there is so much that we do not know about the long-term impact of e-cigarettes, but what we do know now, currently, is pretty alarming.

So, Dr. Schuchat, why do you believe e-cigarettes have not been approved as cessation methods? Because they're advertised that way.

Dr. SCHUCHAT. Right. To my knowledge, the companies haven't submitted the data in support of getting them approved as cessation methods.

Ms. TLAIB. But why?

Dr. SCHUCHAT. The companies would need to answer that, but it can be a costly process, and it may be that they would also need to describe the public health standard being met, and that may be difficult at this time.

Ms. TLAIB. That's right.

And, Ms. Schuchat, yes or no, is it ever safe for kids or young adults to use e-cigarettes?

Dr. SCHUCHAT. No.

Ms. TLAIB. What about traditional cigarettes?

Dr. SCHUCHAT. No.

Ms. TLAIB. CDC has stated that e-cigarettes harm the parts of the brain that control attention, learning, mood, impulses. Could that account for why we've heard so many teen JUULers complain about mood swings, you know, bouts like anger, depression, and trouble concentrating?

Dr. SCHUCHAT. Well, there's a lot going on in adolescents, but it may be part of that.

Ms. TLAIB. We have also heard from many people who believed e-cigarettes were safe, and it's easy to see why, as we continue to see the misleading and the lies to the American public.

But earlier this month, we wrote a letter to the FDA outlining our findings of instances of JUUL telling the public that its products were safe. Those included testimony at our July hearing that JUUL went into schools and told ninth-graders that its products were, quote, "totally safe." They used the words "totally safe."

We were pleased to see the FDA answered our call by declaring that JUUL broke the law and issuing a warning letter. FDA gave JUUL until September 30th to respond.

To those listening, please pay attention to that response and what we hope will be prompt action by FDA to hold JUUL accountable.

So, Dr. Schuchat, the CDC has asked the public to consider not using any e-cigarettes. Has the industry's false safety narrative made it more difficult to get your message out?

Dr. SCHUCHAT. We know that there's a lot of noise out there, and we've been repeating our messages. We do hope that the seriousness of disease, and including death, is getting attention, but there's a lot of competing messages.

Ms. TLAIB. As much as e-cigarette companies imply that they are smoking-cessation products, none are approved by the FDA for that purpose, as we talked about. CDC has recommended that adult smokers who are using e-cigarettes to quit smoking traditional cigarettes should instead use, quote, "evidence-based treatments, including counseling and FDA-approved medications."

So, Dr. Schuchat, to your knowledge, has there ever been any outbreak of lung disease associated with FDA-approved cigarette-smoking-cessation devices, like patches and gum?

Dr. SCHUCHAT. Not to my knowledge.

Ms. TLAIB. Thank you so much.

I yield the rest of my time, Chairman.

Mr. KRISHNAMOORTHY. Thank you, Congresswoman Tlaib.

Without objection, Ms. Wasserman Schultz, the gentlewoman from Florida, shall be permitted to join the subcommittee on the dais and be recognized for questioning the witness.

Ms. Wasserman Schultz, you have five minutes.

Ms. WASSERMAN SCHULTZ. Thank you, Mr. Chairman. I thank the committee's indulgence for including me.

Dr. Schuchat, welcome, and thank you so much. I've had the honor of working with CDC on a number of different important initiatives, and the work of you and your colleagues is really remarkable.

I want to ask you a couple of basic questions and then a few illustrative ones.

Is there any evidence at all that nicotine addiction is harmful to an individual's health?

Dr. SCHUCHAT. Yes.

Ms. WASSERMAN SCHULTZ. Could you elaborate?

Dr. SCHUCHAT. You know, we're particularly concerned about nicotine use in youth, in pregnant women—or women who are pregnant, and in adults who are not already using cigarettes. The issue is the developing brain, the developing fetus, and the risk of going on to cigarette smoking.

In the developing brain, I think it's key, most people don't realize the brain continues to develop until age 25 in most people. And nicotine can cause many problems, including difficulties with attention, memory, learning problems. It can also prime the individual for addiction to other substances.

Ms. WASSERMAN SCHULTZ. I asked you that because sometimes you ask a question that you already basically know the answer to, but as a parent of twin 20-year-olds and a 16-year-old, having children and young adults in the target audience for these vaping products, that's important information to note, particularly in light of the fact that we had JUUL executives testify here in what I found to be a very deceptive way, including a direct answer to a question of mine in which the JUUL executive that sat where you are sitting actually had the audacity to say that they didn't market their product as a smoking-cessation product, splitting hairs between the idea that they are an alternative, a safer alternative, to smoking versus marketing it specifically as a smoking-cessation product.

That, to me, is a distinction without a difference. And so, having an expert, a public health expert, actually say, "No health benefits to nicotine; in fact, nicotine addiction is harmful, particularly to the developing brain," is critical, particularly because we do have a very real human impact of this outbreak, and I think it's important that it not be lost.

There is a story that I want to share of a mother of three in Abilene, Texas, Sherie, who nearly died from vaping. She had never smoked cigarettes before. She tried e-cigarettes because she liked the taste of the flavors, and she became addicted.

Sherie initially thought she had the flu, but within days she had to be rushed to the emergency room and put in a medically induced coma. There are now countless people who have had to be put into medically induced comas due to the impacts of vaping. She spent nearly a month in the hospital.

Dr. Schuchat, Sherie was a nonsmoker drawn to e-cigarettes by their flavors. Is there evidence that you've found that other nonsmokers are being drawn in by the attraction to flavors?

Dr. SCHUCHAT. Yes, that's right. Among youth right now, we're seeing that e-cigarettes are more common than cigarettes and that flavors are pretty much always what brings the youth into starting use of e-cigarettes.

Ms. WASSERMAN SCHULTZ. And do you think a ban on flavors of any type would bring a dramatic reduction to people who either

might be attracted to the flavors to begin vaping or if they were no longer available have people cease to vape?

Dr. SCHUCHAT. We know that flavors are a big attractant, and so I hope that if flavors were not there, fewer people would take the product up in their teen years.

Ms. WASSERMAN SCHULTZ. Okay.

And e-cigarette use is still relatively new. I support harm reduction, public health activities. Advocates often describe e-cigarettes as a harm reduction for smokers, but I'm concerned that we don't actually know enough to say with confidence that e-cigarettes reduce harm. In fact, there have—I mean, JUUL is actually being federally prosecuted in a criminal proceeding because of their deceptive practices, much less that these e-cigarettes don't produce harm.

Can you talk to us about the challenges of being able to accurately assess the safety of e-cigarettes?

Dr. SCHUCHAT. The products have been changing quite a bit over the past several years, so short-term effects might have been looked at but the long-term effects we don't know yet. And the aerosol that e-cigarettes can produce has a lot of substances in it. Their long-term effect we just don't know. Ultrafine particles, heavy metals—

Ms. WASSERMAN SCHULTZ. So it's not just nicotine—

Dr. SCHUCHAT. Exactly.

Ms. WASSERMAN SCHULTZ.—that is the public health problem and the threat. So, I mean, hyper-focusing on nicotine or any other substance that is found to have been mixed in with all of the other chemicals that could be harmful and likely are harmful is misleading at best.

Dr. SCHUCHAT. Uh-huh.

Ms. WASSERMAN SCHULTZ. Thank you.

Thank you for your indulgence, Mr. Chairman. I yield back.

Mr. KRISHNAMOORTHY. Thank you.

Now I recognize Congressman Cox for five minutes of questioning.

Mr. COX. I want to thank Chairman Krishnamoorthi and Ranking Member Cloud for allowing me to waive on to this very important hearing.

As you've pointed out, the recent CDC outbreak figures show that at least 500 people have experienced e-cigarette vaping-related lung injuries and at least eight people have died. I represent the Central Valley of California, and one of those most recent deaths was from one of my communities. I'm troubled to hear that we have yet another major health crisis on our hands, and this one is a special threat to our children and certainly our families.

We need to know why this has happened. We need to understand what your agency is doing to combat this epidemic. And, certainly, we need solutions to prevent this from happening again so not one more American dies needlessly.

I understand coordination efforts are underway, but last week we called over to the Public Health Department in Tulare County to find out more about what happened to this individual. Unfortunately, they didn't have much information to share with us, but

they did say they sent the vaping device to the state's Public Health Department for further analysis.

Naturally, I'm concerned about the data collection processes, the coordination efforts that we're employing to stop this outbreak from worsening.

Earlier, you pointed out one of the actions that your office or the CDC is doing is to consider refraining—quote, I think you said “consider refraining”—from using the product. No disrespect, but to me that sounds like pretty weak tea.

Would it be more accurate to state simply that use of the product could cause death?

Dr. SCHUCHAT. We are trying to be careful when we don't know what the substance that's at risk is, and we're trying to sustain credibility against those who may think we're exaggerating. We know that people are dying right now in this outbreak of lung injury and we really want people to protect themselves and not take risks unnecessarily.

Mr. COX. I'm sorry, Dr. Schuchat, but I'm really looking for a “yes” or “no” answer. Would it be accurate to state that use of this product could cause death?

Dr. SCHUCHAT. The “this product” part is hard to say.

Mr. COX. One of these vaping products.

Dr. SCHUCHAT. Right. So our recommendations are very broad because something that is in either e-cigarettes or other vaping products is leading to death, and so use of whatever that substance or brand or product or additive is can cause death. So, yes, I think your comment is right.

It's just that when we don't have a specific product, consumers may not take action. So we're trying to make them take this seriously in a way that they'll believe us.

Mr. COX. Yes. I think the admonition that it could cause death would be a warning they should take seriously.

Really, more in the broader sense that regulations, in my mind, are really protections. So when this administration boasts of deregulating things, what's really happening is that protections are being eliminated. And these deaths could be prevented if we enforce preventative public health measures of evaluating new products before they hit the market, especially products with known harm, like nicotine.

So the question is really, why is the default procedure letting products onto the market first and then evaluating whether or not they present a public safety or health risk?

Dr. SCHUCHAT. I don't know.

Mr. COX. That's true, right?

I can tell you is that—do you think that any product delivered through inhalation should be rigorously evaluated before marketing?

Dr. SCHUCHAT. Yes.

Mr. COX. Thanks. I can tell you that the CDC in this regard, in my opinion, needs to find its voice again, and we in Congress are committed to helping you do just that.

Further, you know, some of the specifics about what the CDC is currently doing. I'd like to know a little bit more about the individuals that have got the confirmed lung illnesses from e-cigarettes.

And although very little is known about the long-term health consequences of using these products, what is the CDC going to do about tracking the consequences and so on?

Dr. SCHUCHAT. You know, we—the individuals who have the condition right now, a majority are male, half are under 25, many were previously healthy. We're just gathering data now in more detail, but we're working with the clinical communities, including lung specialists, to try to understand what long-term followup should look like and how that information should be collected.

We're also working with the NIH, in terms of some of the research questions. But the pulmonary community may help us come up with guidance for systematic evaluation and followup.

Mr. COX. Thanks so much, Dr. Schuchat. We really appreciate what you and the CDC are doing for our benefit.

Mr. KRISHNAMOORTHY. Thank you, Dr. Schuchat.

I think that concludes panel one, and we will now commence panel two.

Thank you again for your testimony.

I'd also like to remind everybody, the witnesses are reminded that there may be additional questions for the record, and the committee requests that you answer them properly.

Mr. KRISHNAMOORTHY. If the second panel could please come forward.

We are pleased to have you here. Thank you so much.

We begin our second panel here. We have Dr. Ngozi Ezike, director of the Illinois Department of Public Health—thank you—Dr. Albert Rizzo, chief medical officer of the American Lung Association; Ruby Johnson, the parent of a teenager affected by the e-cigarette-related lung disease outbreak.

I will yield to my colleague Mr. Grothman to introduce his constituent.

Mr. GROTHMAN. I'd like to thank the chair.

I'd like to take this opportunity to introduce a good friend from Wisconsin, a passionate advocate for tobacco harm reduction. She's helped countless people quit smoking by sharing her story. Vicki Porter.

Mr. KRISHNAMOORTHY. Thank you so much.

If you would all please rise and raise your right hands, I will begin by swearing you in.

Do you swear or affirm that the testimony you are about to give is the truth, the whole truth, and nothing but the truth, so help you God?

Let the record show that the witnesses answered in the affirmative.

Thank you, and please be seated.

The microphones are sensitive, so please speak directly into them. Without objection, your written statements will be made part of the record.

With that, Dr. Ezike, you are now recognized for five minutes.

**STATEMENT OF DR. NGOZI O. EZIKE, DIRECTOR, ILLINOIS  
DEPARTMENT OF PUBLIC HEALTH**

Dr. EZIKE. Chairman Krishnamoorthi, Ranking Member Cloud, and distinguished members of the subcommittee, thank you for in-



viting me to discuss this very concerning situation where hundreds of people across the country, including 69 in Illinois, have experienced severe respiratory illness after vaping or using e-cigarettes. And, tragically, there has been one death in Illinois, and additional suspected cases are being reported to the department every day.

Our patients in Illinois have ranged in age from 15 to 42, with a median age of 22. The majority of the patients have been male, representing many counties throughout the state, both rural and urban areas. Over 95 percent of our cases have required hospitalization, three-fourths have needed placement in the intensive care unit, and over a third have required mechanical ventilation.

While we have yet to clearly define the causative agent, what is clear is that there is nothing healthy about vaping, and there are heightened consequences for youth.

Dr. Schuchat has amply covered the details of the current outbreak, and it's imperative that the investigation continue so as to definitively identify the etiology of acute illnesses.

But there is another matter that needs to be addressed. We need to address that in parallel to the illness investigation. That matter is the youth vaping epidemic.

Perhaps public health should have rung the alarm even louder as the epidemiology showed the rising rates of vaping. Even so, the current investigation has highlighted the creation of the next generation of nicotine-addicted Americans.

E-cigarette use increased 900 percent amongst middle and high school students from 2011 to 2015, according to Dr. Wang's June 2018 MMWR report. The 2019 National Youth Tobacco Survey showed 68 percent of youth vapers used flavored e-cigarette products. In December 2018, the U.S. Surgeon General did discuss these alarming trends, noting research that found that more than 3.6 million youth were using e-cigarettes.

Action is required now to protect our youth.

I have led youth focus groups in the state and have heard recurring reports of symptoms that depict nicotine withdrawal in middle and high school students, many that have been vaping for as little as three to six months.

We must permanently change the narrative around vaping and e-cigarettes. E-cigarettes are harmful. They are highly addictive. They are highly addictive because they are so efficient at delivering nicotine directly to the brain. And nicotine has no redeeming qualities for youth and young, developing brains.

In 2018, traditional cigarette smoking among Illinois high school seniors was down to five percent, but also in 2018 e-cigarette use was already at 27 percent among high school students. Our top priority has to be keeping these harmful products out of the grasp of our Nation's youth. Most youth that are currently vaping never smoked traditional cigarettes before they took their first hit on the e-cigarette.

Contemporary product designs, attractive technology—these devices actually sync up with their iPhones—the vapewear merchandise, all of this is targeted to youth. There are ads on Snapchat. There are hoodies that allow the wearer to take a hit from their e-cigarette using the drawstring of the hood—clearly a tool to conceal the vaping.

We cannot stand idly by and watch the high-tech e-cigarette erase the progress against youth smoking with enticements to vape through the marketing of trendy devices, cool accessories, and e-juice flavors like strawberry, watermelon, and mango.

In the state of Illinois, Governor J.B. Pritzker supports moving forward with strong and effective legislation to ban flavored vaping products, which are exceedingly popular amongst young people. We need revised health curriculums in elementary and middle school to discuss the dangers of vaping.

I urge Congress to take up similar initiatives to protect our youth and to support our message urging all people not to vape, especially while this national investigation is ongoing.

Thank you.

Mr. KRISHNAMOORTHY. Thank you, Dr. Ezike.

Next is Dr. Rizzo.

You are now recognized for five minutes.

**STATEMENT OF ALBERT RIZZO, M.D., CHIEF MEDICAL  
OFFICER, AMERICAN LUNG ASSOCIATION**

Dr. RIZZO. Mr. Chairman, Ranking Member Cloud, and members of the committee, thank you for the opportunity to testify today.

I am Dr. Albert Rizzo. I'm the chief medical officer of the American Lung Association. I still see patients in my pulmonary practice in Delaware. I am privileged to be here to speak about the dangers of e-cigarette use.

For more than a decade, the American Lung Association has been raising the alarm about e-cigarettes. We will continue to reiterate our recommendation that the public not use any tobacco product, including e-cigarettes. We believe that all tobacco products can harm health and believe that there is no proven public health benefit to e-cigarettes.

Our Nation is currently in the midst of two different e-cigarette crises. First, according to the 2019 National Tobacco Youth Survey, 27.5 percent of youth are now using e-cigarettes, which is a 135-percent increase from just two years ago. According to a CDC study, one of the primary reasons teenagers use these products are because the candy and fruit flavors are so appealing.

This high use of flavored e-cigarettes among youth is alarming and requires urgent and immediate action. The American Lung Association commends President Trump and his administration for the announcement that the FDA will remove all non-tobacco-flavored e-cigarettes from the marketplace. We believe this is a vital and positive step to address the youth e-cigarette epidemic, and we urge FDA and Congress to act.

The second health crisis is the current cluster of pulmonary illnesses related to vaping. As we've heard today, CDC and state and local health departments are conducting an ongoing investigation of these pulmonary-related illnesses due to vaping.

Both crises are caused by the failure of two different administrations to fully implement the Tobacco Control Act of 2009 and protect the public health. The delay in FDA implementing the Tobacco Control Act has left unregulated products with unknown chemicals on the market.

Some of the chemicals found in e-cigarettes are carcinogenic. Will the use of e-cigarettes cause cancer? Will the inhalation of chemicals in e-cigarettes cause lung diseases such as COPD? How do e-cigarettes impact people with asthma? And the latest question is, what will be the long-term health consequences of those who've been hospitalized as a result of the pulmonary vaping illness outbreak?

In 1964, the Surgeon General released the first report on health hazards of smoking, concluding that smoking cigarettes caused lung cancer. Fifty years later, the Surgeon General's report in 2014 added even more smoking-related diseases. It's hard to predict the possible health consequences we will see in another 50 years as a result of e-cigarettes.

We are very troubled by what we see so far. E-cigarettes contain nicotine. In addition to being extremely addictive, it can increase blood pressure, heart rate. And, according to CDC, nicotine use among youth and adults can alter brain development and cause memory and learning problems.

Two of the other primary ingredients found in e-cigarettes, propylene glycol and vegetable glycerin, can expose users to high levels of toxins, and these harmful chemicals can cause irreversible lung and heart disease.

Flavors attract kids, which is why the American Lung Association has long advocated for the removal of flavored tobacco products from the market. According to a study from the Journal of the American Medical Association, 81 percent of youth who have ever used tobacco products initiated with a flavored product.

The American Lung Association believes everyone who uses tobacco products can quit if they use proven, safe, and effective drugs by the FDA. The FDA has not found any e-cigarette to be safe and effective in helping smokers quit.

We are often asked about a study from earlier this year in the New England Journal of Medicine comparing e-cigarettes to nicotine replacement therapy. In this study, over 90 percent of the smokers using nicotine replacement therapy quit smoking, ending their nicotine addiction entirely. In contrast, 80 percent of the smokers given e-cigarettes did not quit but switched and, instead, remained addicted to e-cigarettes and, therefore, nicotine.

Switching is not quitting. Quitting means ending your addiction to nicotine, which can be very difficult. I have patients who have switched to e-cigarettes, believing they had quit. Some remain addicted to nicotine, some have been dual users, and some have returned to regular cigarettes.

In conclusion, the American Lung Association supports President Trump's call to clear the markets of flavored e-cigarettes. E-cigarettes, as they now exist, have not been shown to be safe. They're responsible for the possible loss of another generation of American youth to tobacco use, death, and disease.

Thank you for the opportunity to testify, and I'll be happy to take questions later.

Mr. KRISHNAMOORTHY. Thank you, Dr. Rizzo.

Next we have Mrs. Johnson.

You are recognized for five minutes.

**STATEMENT OF RUBY JOHNSON, ADVOCATE AGAINST E-CIGARETTES; AND VICKI PORTER, ADVOCATE FOR E-CIGARETTES**

Ms. JOHNSON. Thank you so much for having me.

My name is Ruby Johnson, and I am a mother of seven children, ranging from an 18-year-old college freshman all the way down to a 5-year-old kindergartner, from New Lenox, Illinois.

I'm here to tell you about the biggest blessing in my life, which is the fact that my oldest child is still alive. As you'll hear, that could've easily not been the case.

On August 16th, I loaded up our daughter and all the makings of a dorm room to drive her from Illinois to Colorado to begin her freshman year of college. As we set out, she began to cough, to complain of pain in her chest when she took a deep breath, and to shiver like she was running a fever. She also admitted to me that she had been vaping.

What started as an exciting rite of passage turned into a terrifying near-death experience that involved a week-long hospital stay where my daughter went from a healthy, vibrant 18-year-old to a patient who needed rapidly increasing amounts of oxygen and medications to treat her declining health.

When we arrived in her college town, we went directly to the hospital. She was nauseous, tachycardic, coughing, running a high fever, couldn't take a deep breath without intense pain, and struggled to keep her oxygen saturation up to even the mid-80's.

A CT scan showed what the doctors called a diffuse pneumonia all over her lungs. Though antibiotics appropriate for pneumonia were started immediately, her condition continued to worsen as her oxygen needs increased steadily, and she was transferred to the ICU in case more extreme measures to help her became necessary.

With every doctor came the same question: Have you traveled out of the country recently? Have you had a cold? And the million-dollar question, are you a smoker? The answer to all those questions was no.

Finally, they asked, how about e-cigarettes? Her answer to that question was yes, though it wasn't until we got to the third doctor to see her that it actually seemed to be taken seriously.

It was that doctor who paid attention to the fact that she said she had been vaping and that she was now experiencing symptoms that matched with the newly reported cases of a mysterious lung illness popping up. He did his research by contacting doctors and hospitals that had already seen similar cases in order to determine the best course of treatment.

I'll never forget watching her cry that she literally couldn't breathe without excruciating pain, as she was pumped full of IV fluids, antibiotics, steroids, pain meds, anti-nausea meds, and a diuretic to clear fluid from her badly inflamed lungs.

She couldn't even get up to walk to the bathroom without her alarm screaming because her oxygen saturation was dipping so low. Her belly was dark purple from the nightly injections they gave her to prevent blood clots as she lay in a hospital bed.

Our daughter ended up being one of the lucky ones in this case, because she got to leave the hospital and can breathe without supplemental oxygen, but it could've so easily been a totally different tragic outcome. Her pulmonologist said that he feared had we wait-

ed another 24 hours to seek medical attention she'd most likely have been unresponsive on a ventilator.

We're so grateful that she received the care she did, though we don't know what the future holds in terms of permanent damage.

It's hard enough to be a parent in today's world. We all know that teenagers will inevitably make bad choices, and we hope they learn from them. But it's scary to think that there's an industry full of largely unregulated products with zero long-term health studies that are so attractive and easily accessible to youth.

The e-cigarette industry has actively targeted our kids through social media campaigns; advertising on Quizlet, a popular homework site for younger kids; and through flavors that were clearly created to appeal to young people.

This committee knows better than anyone how youth have been fooled into believing these products are safe by companies that act as if they could care less about the health and well-being of these kids. Consequently, we have the most serious adolescent public health crisis our country has faced in decades.

These products are designed to be hidden from parents and teachers, and they accomplish that well. With smells and vapors that disappear as quickly as they appear and devices that look like flash drives and Apple watches, it would seem we're fighting a losing battle.

You may have read JUUL CEO Kevin Burns address this epidemic in the recent *Time* magazine article by saying, "[blank] happens." Well, "blank" happened to my family. And I'm joining the movement of moms that is Parents Against Vaping E-Cigarettes in saying, "Enough is enough." Our kids should not be the guinea pigs.

These products flooded the market without anyone knowing how they would cause damage, and now we're trying to clean up a mess that involves a cocktail of mystery toxins and proprietary flavors, devices that are easily tampered with, and a generation of teens who are addicted to nicotine.

If this was romaine lettuce, the shelves would be empty. We desperately need our legislators to help us by banning the flavors that have drawn in youth like my daughter, including mint and menthol.

What happened to my daughter is indicative of this outbreak, but it points to the bigger crisis: Our kids are being hooked by flavors. Kids who would've never picked up a cigarette instead started using flavored e-cigarettes, and nicotine becomes a gateway to other substances. The FDA has allowed these markets to proliferate, flourish, and remain for purchase and consumption without pre-market review.

This was a terrifying experience and something that probably would've been easier to keep private, but I'm here today to share our story with the hope that no other family will have to live the same nightmare.

I'm a mom who's in her teenager's business constantly, and I did all of the right things, and this still happened, because our youth are being actively targeted by manufacturers with appealing flavors, and they're able to satisfy their nicotine addiction using devices that are designed to be secretive. It's time we do something

about it. This goes beyond party lines, because these are all of our children.

Mr. KRISHNAMOORTHY. Thank you, Mrs. Johnson.

Ms. Porter, you have five minutes for your opening statement.

**STATEMENT OF VICKI PORTER, MINORITY WITNESS**

Ms. PORTER. Thank you very much.

My name is Vicki Porter. I'm from Lake Mills, Wisconsin. I'm 51 years old.

I started smoking cigarettes in college. You know what? I even remember the evening I started smoking. I'd just gotten dressed to go out, and I was listening to jazz records, drinking Irish coffee. I spotted a pack of Benson and Hedges Ultra Lights that a friend had left behind in my dorm room.

So, feeling invincible, I took out one of those cigarettes and I lit it. Because what goes better with whiskey and jazz, right, than a cigarette? In just a few weeks, I was addicted to cigarettes and began a lifestyle of smoking that lasted for 23 years.

After a few years of this smoking lifestyle, I realized it's not cool. It was revolting and embarrassing and deadly. But quitting smoking is very, very, very hard. Nobody tells you that.

Over the years, I tried to quit many times, using many techniques. I tried cold-turkey, nicotine gum, nicotine patches, all approved by the FDA. I tried two FDA-approved drugs, even tried one of those drugs twice. I tried hypnosis twice. I tried some hocus-pocus called laser acupuncture. All failures.

By now, I was around 40 years old, and I figured I'd just learn to live to be content to die a smoker, probably gasping for air like my grandmother and mother did when they died of lung cancer.

Years ago now, a coworker of mine showed me an online ad for e-cigarettes. The promise was: smoking without the harm or smell. So I ordered one, because I thought, what if it's real? What if it's real? And as it turns out, it's actually real. Around 2010, I stopped smoking, only because of e-cigarettes. It literally changed and probably saved my life.

Nine years later, my doctor says my lungs are healthy. I can climb stairs without being winded. I exercise four times a week. I can walk for miles and miles. I can do things now I haven't done since before my lungs became overwhelmed with the filth and deadly toxicity of cigarettes.

Vaping is a health miracle to me, because without it I'd probably be on my way to a lung cancer diagnosis.

Two main reasons why e-cigarettes work: first, the inhalation of a far less harmful—not safe, but less harmful nicotine dose, similar to smoking, without the deadly toxins caused by burning tobacco; and, second—and this is critically important—flavors. Flavors matter to me, an adult ex-smoker.

Flavors are not an industry-driven innovation; they are a user-driven innovation. Big Tobacco didn't come up with the idea of flavors. Consumers, adult smokers like me, came up with the idea of flavors. We demanded it.

The tobacco flavors that everybody seems to think are so wonderful of the early e-cigarettes were awful. Those flavors mimic the taste of a cigarette and were poor imitations of the cigarettes we

actually liked to smoke. We don't want our vapor to taste like cigarettes. We're trying to quit them. We want something that tastes good, that makes us want to keep vaping. Flavors keep us vaping. Flavors keep us not smoking.

I took a survey on my Facebook page of ex-smokers-turned-vapers. About 150 people left comments, and I admit this is not scientific. But, at last count, approximately 90 percent use flavors other than tobacco. These are middle-aged and older ex-smokers.

These flavors are demanded by adults, sold by adults, consumed by adults. And we're not alone. According to a recent survey of more than 69,000 vapers, 92 percent preferred non-tobacco flavors.

Now, much has been made of the lung illnesses tied to vaping, but it's manifestly dishonest to blame e-cigarettes and nicotine liquid for these illnesses. All available information overwhelmingly suggests the lung diseases being diagnosed have exactly nothing to do with nicotine vapor products and everything to do with adulterated street drugs or products, notably oil-based THC. I have now been vaping for nine years, and I've never been healthier. And none of the nicotine vapor products that I use contain oil.

E-cigarettes are a public health miracle that America is about to squander based on misinformation and disinformation. So let me remind the committee members of a few points.

The FDA and local agencies, communities, and parents absolutely need to do a better job of enforcing existing laws and obligations to see to it that kids don't use e-cigarettes. But you don't need to ban the product to make progress on that mission.

In 2018, the U.K.'s Royal College of Physicians published a comprehensive scientific report which concluded that vaping nicotine can eliminate almost all the harm from smoking cigarettes and recommended promoting the use of e-cigarettes to smokers as widely as possible. The report also indicated that vaping nicotine is at least 95 percent less harmful than smoking. Public Health England concurs.

Even the American Cancer Society is beginning to understand the promise of tobacco harm reduction, stating that e-cigarettes are, quote, "likely to be significantly less harmful for adults than smoking regular cigarettes," and they encourage adults who have failed other FDA-approved methods to switch to e-cigarettes.

E-cigarettes were the only thing—the only thing—that worked for me to quit smoking. This product probably saved my life. Vaping has helped more than 8 million adult smokers quit completely when all other options failed for them. I think that's incredible. Eight million people quit smoking.

On behalf of former smokers, I hope you'll reject the general war on vaping, and I encourage you to proceed with these comments in mind.

Thank you very much for your consideration.

Mr. KRISHNAMOORTHY. Thank you, Ms. Porter.

I need to correct the record on a couple things that were just said.

There is no evidence to suggest that e-cigarettes are safe or even safer than cigarettes. That's why the FDA just released their regulations directed at JUUL.

Second, the CDC just came in and presented evidence that they don't know the cause of the current outbreak and did not rule out nicotine e-cigarettes.

Ms. PORTER. May I respond?

Mr. KRISHNAMOORTHY. No. We are about to start questioning, and you can respond then.

Ms. PORTER. Okay.

Mr. KRISHNAMOORTHY. I will recognize myself for five minutes—I'm sorry—Ms. Wasserman Schultz for five minutes first.

Ms. WASSERMAN SCHULTZ. I thank the chairman for his indulgence.

Dr. Ezike and Dr. Rizzo and to all the panelists, thank you for joining us. Specifically, my initial question is directed at the two experts in public health.

Is there any evidence—and I'm asking you the same question that I asked Dr. Schuchat. Is there any evidence that nicotine addiction is harmful to an individual's health?

And are there any health benefits at all, including the reduction of the likelihood of smoking cigarettes, of inhaling nicotine on a short-term or long-term basis?

Dr. EZIKE. There is no evidence that nicotine is healthful at all to young kids or their developing brains.

Ms. WASSERMAN SCHULTZ. Dr. Rizzo?

Dr. RIZZO. I agree with that.

What was the second part of your question?

Ms. WASSERMAN SCHULTZ. Is there any evidence that nicotine addiction is harmful to an individual's health?

Dr. RIZZO. It is harmful, yes.

Ms. WASSERMAN SCHULTZ. Individuals of any age?

Dr. RIZZO. Yes. Nicotine, by itself, affects the vascular system—blood pressure, heart rate—and can cause heart and lung disease by itself, especially in the elderly.

Ms. WASSERMAN SCHULTZ. And do we have evidence that that is further complicated by the other chemicals combined with nicotine that are utilized in a vaping product?

Dr. RIZZO. I was referring mainly to nicotine by itself, but certainly when it's combined with other ingredients in a vaping product—

Ms. WASSERMAN SCHULTZ. The accelerants—

Dr. RIZZO. Yes.

Ms. WASSERMAN SCHULTZ.—the chemicals. I mean, it's not just nicotine that is—

Dr. RIZZO. Correct.

Ms. WASSERMAN SCHULTZ.—inhaled when using a vaping product. And are there negative health impacts, including the potential for death, from the combination of chemicals in vaping?

Dr. RIZZO. Yes.

Ms. WASSERMAN SCHULTZ. Thank you.

The CDC has identified 530 cases of lung illness associated with the use of e-cigarette products in 38 states and 1 U.S. territory. It is important that we hear from partners like you at the state level, collaborating with the Federal Government, to stop what is a national outbreak of lung illness.



Dr. Ezike—am I pronouncing your name correctly? Thank you. Illinois and Wisconsin were the first states to identify the outbreak and to spearhead investigations in July, when e-cigarette-related lung disease sprung up in your states. Can you describe the severity of those initial cases and why your state felt compelled to act so swiftly?

And as your office continues to collaborate with CDC, what steps has Illinois taken to identify all possible e-cigarette-related lung disease incidents even prior to this summer's outbreak?

Dr. EZIKE. Thank you for that question.

So, unfortunately, we did find ourselves at the epicenter of this outbreak. And because of the alert that the Wisconsin Department of Health had released, people were attuned to the possibility of these illnesses that were not well-described but had a connection between young healthy people without a reason otherwise to fall so sick who had presented with severe respiratory illnesses and had a connection with vaping.

So when our first case came and was reported to the Department of Public Health, we didn't waste any time. And we were able to send out alerts to the medical professionals, sending alerts out to pulmonologists, hospitals, ER doctors, pediatricians, to alert everyone and encourage them to report any suspicious cases directly through their local departments, which would then come to the state department.

So putting out press releases, putting out information on our social media, connecting with the state Board of Education, working with our advocates in the community who put messaging out to doctors—

Ms. WASSERMAN SCHULTZ. I just want to piggyback on my question, because I'm running a little bit short on time.

You conducted detailed interviews of those struck by the disease. Sixty-one percent of the people you interviewed reported using nicotine e-cigarettes, and nearly 20 percent of them were using only nicotine e-cigarettes. Many did also report THC use.

Is it safe to say that you cannot rule out any nicotine e-cigarettes or any THC products as contributing factors to the outbreak?

Dr. EZIKE. That is correct.

Ms. WASSERMAN SCHULTZ. Your advice, like the CDC, has been for people to not use any e-cigarette products. I assume a decision like that is not made lightly. Can you tell us how you decided that recommendation was necessary for the public health?

Dr. EZIKE. As our role to protect the public, not knowing what the actual etiology is but knowing that the only commonality among all of our 69 cases was vaping, we know that something with the vaping activity, whether the product, the product device, the brand—something therein is the culprit. And without knowing specifically, it seemed safer to give a broader warning until we could get more information out.

Ms. WASSERMAN SCHULTZ. And, last, before my time expires, reports show that e-cigarette aerosol, which is present in all types of vaping, is not harmless. Why is e-cigarette aerosol dangerous to individuals that vape?

Dr. EZIKE. The chemicals within the aerosol are usually irritants to the lung. The lung then responds with different kinds of reac-

tions that we're seeing in some of the patients, which obviously affects the oxygenation, which is the primary function of the lung, which sometimes results in needing a breathing machine to now perform that process of oxygenation.

Ms. WASSERMAN SCHULTZ. Thank you.

And, Mr. Chairman, I know my time has expired, but I do just want to confirm, my understanding is that the testimony of Ms. Porter is anecdotal, related specifically to her opinion, and that she is not a public health expert.

Mr. KRISHNAMOORTHY. Thank you. I think that's correct.

Ms. WASSERMAN SCHULTZ. Okay. Thank you. I yield back.

Mr. KRISHNAMOORTHY. I now recognize Congressman Grothman for five minutes of questioning.

Mr. GROTHMAN. First of all, Dr.—I forgot—Ezike?

Dr. EZIKE. "Ezike."

Mr. GROTHMAN. Okay. I know you've recently legalized marijuana in the state of Illinois. Are these cartridges—are THC cartridges now legal in Illinois under the new law or not?

Dr. EZIKE. So THC cartridges are legal through the Medical Cannabis Act. So for patients who are on the Medical Cannabis Program, THC cartridges are available.

Mr. GROTHMAN. Do you think that was a mistake?

Dr. EZIKE. I beg your pardon?

Mr. GROTHMAN. Do you think that was a mistake?

Dr. EZIKE. We have no cases, of our 69 cases in Illinois, that are from the registry of medical cannabis patients.

Mr. GROTHMAN. Well, I'm sure they're not registered, but once you make these things legal, there's certainly more of them out there. That sort of thing. It implies they're Okay.

Dr. EZIKE. And, again, we're still waiting to identify the exact etiology, so—

Mr. GROTHMAN. Okay.

Again, you mentioned that, in your study, 80 percent of the people who have a health problem self-reported that they had some THC in there. But, as I asked the last panel, I assume people don't usually admit that they're doing something illegally.

If 80 percent admitted that they were using a product with THC in it, is it possible that the actual number is higher? Significantly higher?

Dr. EZIKE. The numbers could be higher, but we have interviewed and re-interviewed the patients. There wasn't a single go-round. So there have been persistent conversations with these—

Mr. GROTHMAN. Okay.

Dr. EZIKE [continuing]. people, and so people have reported more use.

Mr. GROTHMAN. Now, Ms. Porter, you wanted to respond to some of the other Congressmen. I'd like to give you an opportunity to say what you wanted to say.

Ms. PORTER. Well, what I wanted to say was, with regard to the chairman's comments that there is no evidence that e-cigarettes are less harmful, that's just simply not true.

It was a comprehensive scientific report that was generated by the United Kingdom's Royal College of Physicians. It wasn't just an

opinion. It wasn't anecdotal, as it were. It was actually a scientific report.

Also—and I'm not sure how many people had a chance to see this—on "CBS This Morning" last week, Dr. David Abrams from the NYU College of Global Public Health indicated that abundant evidence exists that the cancer biomarkers associated with e-cigarettes are vastly lower than the ones that are associated with smoking.

I would also like to ask, if somebody could please answer me this particular question, what is the particular mechanism by which PG and VG could possibly cause disease? I recall Dr. Rizzo said something about PG and VG causing disease. What is the particular mechanism that vegetable glycerin or propylene glycol actually could cause disease?

Mr. GROTHMAN. I don't think you're supposed to ask questions, but I'll ask that question. Doctor, could you respond?

Dr. RIZZO. Well, the short answer, but I'll expand is that we really don't know anything about these devices because they haven't been studied in any rigorous manner. When you heat a substance up to the temperatures that e-cigarettes do, you no longer have the same properties of the compound that we knew before. A compound that could have been ingested safely is now being vaporized and inhaled into the lungs, which is a much different part of the body than the stomach.

So, in short, we don't know the toxins—what the toxins are doing. We know toxins are created. And even if we say toxins are less than cigarettes, that is a very low bar to beat. And 7,000 chemicals in tobacco means there are still 350 in 5 percent of e-cigarettes.

Mr. GROTHMAN. Ms. Porter, if we banned e-cigarettes or you're no longer able to get them, it's obviously important for you not to smoke, what would you do? What will be fallback position?

Ms. PORTER. If I may, the 7,000 chemicals that the doctor was talking about are the chemicals that are generated when tobacco is burnt. The nicotine extracted from tobacco does not generate 7,000 chemicals in a 5 percent solution in e-liquid. That's when you actually light something on fire and inhale the particulate matter, the carbon monoxide, the various carcinogens into your lungs.

I know this because I smoked, and I decided to learn about it. What would I do? I would probably just find a way to get my e-cigarettes, that's what I would do. That's me, though. I'm a very knowledgeable user, and I'm a very knowledgeable navigator of this marketplace. I would probably order from China.

Most people, and, in fact, anecdotally again, but most people that I have spoken to who vape would simply go back to smoking because the reason we're vaping instead of smoking is because all of the FDA-approved quit methods have failed for us multiple times. That's the short answer. I would probably order from China, but other people would probably start smoking.

Mr. GROTHMAN. Thank you.

Mr. KRISHNAMOORTHY. Thank you, Mr. Grothman.

I am going to recognize myself for five minutes of questioning.

Dr. Rizzo, could you care to respond to the claim that e-cigarettes are safer than combustible cigarettes?

Dr. RIZZO. The quote about the United Kingdom's decision that it's 95 percent safer than tobacco, if you read the articles about how that decision was made, a group of experts got together for two days in Europe. Several of those experts admitted to working for the vaping industry. And the European Respiratory Society, The Lancet editorial, and 14 professional societies in this country wrote letters to the United Kingdom saying they don't agree with that public health decision.

And, also, in the United Kingdom, there's a much different aspect of e-cigarettes. They are controlled and regulated much more strictly than this country. The tobacco flavors are not there. So you really can't compare what happens in England to this country, and it really is faulty science it was based on.

Mr. KRISHNAMOORTHY. Right. So that was a bogus study. What's the nicotine levels that are allowed for nicotine e-cigarettes in the U.K. versus in America?

Dr. RIZZO. I can get the exact number. I think 18 to 20 milligrams is the most that is recommended in e-cigarettes in England, but—

Mr. KRISHNAMOORTHY. And here it's 59?

Dr. RIZZO. I believe you're correct. Yes.

Mr. KRISHNAMOORTHY. So roughly almost three times the amount of nicotine here in the U.S. in any e-cigarette pod compared to in Britain.

Now, Mrs. Johnson, I want to ask you a couple questions. How old is your daughter now?

Ms. JOHNSON. She's 18.

Mr. KRISHNAMOORTHY. And when did she first start vaping?

Ms. JOHNSON. After all this happened, she told us she tried it the first time when she was a sophomore in high school, and that she had tried it on and off for about 18 months before she became ill.

Mr. KRISHNAMOORTHY. And what devices had she been vaping?

Ms. JOHNSON. She started using a JUUL, and the vast majority of what she used was a nicotine e-cigarette. She did try vaping THC as well and used mostly nicotine in the weeks leading up to her illness.

Mr. KRISHNAMOORTHY. Now, Mrs. Johnson, I presume—well, how is she doing now?

Ms. JOHNSON. She's doing better. She's, you know, adjusting to life as a college freshman. She's still out of breath when she has to walk quickly or far, and we'll just kind of see what the future holds for her.

Mr. KRISHNAMOORTHY. So are you saying there's some kind of permanent injury associated with what happened due to the vaping?

Ms. JOHNSON. Unfortunately, with this being such a new thing, the doctors can't really make any promises that there won't be permanent damage. So we'll just continue to followup with repeat CT scans of her lungs and see what that reveals as time goes on.

Mr. KRISHNAMOORTHY. And how did she first begin vaping in high school?

Ms. JOHNSON. She said that a friend offered her—offered it to her to try. You know, they are passed around, the bathrooms in the high schools, even the junior highs. I mean, I've got two sons in

high school as well, and it's kind of common for the high schoolers to refer to the bathroom as the JUUL room, because that's what goes on in there most.

Mr. KRISHNAMOORTHI. Now, 28 percent of high-schoolers today are vaping, and five percent of the middle-schoolers are vaping. What do you say to parents who are concerned about their children getting hooked on e-cigarettes?

Ms. JOHNSON. Well, I think that it's super important to keep the conversation open. And, as parents, we have to ask questions. But the problem is that so many of us don't know what to look for, so I feel like it's also important that we work together with our schools to educate parents with what these devices actually look like, what the signs could be that your child is vaping, and to just educate ourselves and our kids.

Mr. KRISHNAMOORTHI. And you said mint flavor was one of the ones that got her hooked, correct?

Ms. JOHNSON. Yes. And she's been super honest as this has all happened because she's terrified. You know, and she said: I'll never ever touch a vape again.

But she said that mint was her favorite.

Mr. KRISHNAMOORTHI. You were very close to losing your daughter, correct?

Ms. JOHNSON. That's correct.

Mr. KRISHNAMOORTHI. And before they correctly diagnosed what was happening, did you come up with the idea that it was the e-cigarettes, or how did they arrive at the question of about e-cigarettes?

Ms. JOHNSON. Well, I think the timing really worked in our favor because there was just enough talk of what was going on and enough cases out there, that it was on my radar. I had seen the news articles, like I said, she was 100 percent honest, so she mentioned it to every doctor, but it wasn't until we got to the third doctor that it was really paid attention to. I mean, I remember this night where she just cried to her nurse saying: It hurt so bad; I can't take a deep breath.

And the nurse reached out to the doctor, and he said that, since he had admitted her, he was trying to reach out to other hospitals and doctors, and that was when—you know, they had us wearing a mask at first thinking it was pneumonia, and that's when the masks came off, and they said: I think this is what we're dealing with.

Mr. KRISHNAMOORTHI. Thank you, Mrs. Johnson.

Ms. JOHNSON. Thank you.

Mr. KRISHNAMOORTHI. I'd like to now recognize Ranking Member Cloud for five minutes of questions.

Mr. CLOUD. Thank you, Chairman.

Dr. Rizzo, could you give—enlighten us a little bit on the distinction between infectious disease and chemical exposure as it relates to lung injury?

Dr. RIZZO. Sure. When someone presents with the symptoms that were mentioned, it could be a bacterial or a viral pneumonia, meaning that organisms got into the lung, the immune system is led to the cells of the body going to the lung to try to fight off that infection. Basically that's inflammation. And when that occurs in

the lung, and depending on the intensity that it occurs in the lung, it will fill the normal air spaces with fluid, pus, inflammatory cells, and, therefore, the ability to get oxygen in the bloodstream is diminished.

So, when it's an infection, you can usually culture that media, whether it's sputum, or whether a tube is put down in the lung and aspirated fluid out. You culture that. You look for organisms under the microscope. Once that's ruled out, the inflammation must be being caused by something else. And in situations like this is where the history is very important. You have to find out, what could they have been exposed to? And in this case, the right questioning and putting two and two together, doctors started to realize there was a commonality in the process of vaping something.

Mr. CLOUD. This has been touched on already, but could you explain specifically why it's much more of an issue for young people to start vaping?

Dr. RIZZO. The young people seem to start vaping more than the adults because of the flavors. Most smokers—

Mr. CLOUD. From a health perspective, what does it do to their body?

Dr. RIZZO. Flavors—the inhalation into the lung occurs—there's a couple different things. First of all, the lung doesn't reach its full development until about mid-20's. So you're dealing with a population where the lungs are still growing and developing. All of a sudden now, you're having an insult of inflammation, you're changing the immune system. And now the body has to try to compensate for that and recover from that but has lost ground with regard to what ultimately that lung development's going to be.

So, in cases like you've heard about, this population will need to be monitored and followed for any permanent damage that may occur.

Mr. CLOUD. And, Dr. Ezike, could you explain kind of the legal framework in Illinois right now as it relates to teen vaping? Is it illegal for people under—

Dr. EZIKE. Right. We actually have Tobacco 21. So it is illegal to use products under the age of 21.

Mr. CLOUD. Okay.

And, Ms. Johnson, first of all, as a mom of seven children, kudos. I have a number of parenting questions that are not appropriate for this setting.

I'm happy to hear your daughter is doing well. Do you know where she was obtaining the product from?

Ms. JOHNSON. I do know that—so she turned 18 in December, and so there was a small period of time where it was legal for her to buy vaping products. And I do know that she obtained some from a local store. I am also fairly certain that that store continued to sell to her after the Tobacco 21 law was passed in July, and she was no longer legally buying them.

Mr. CLOUD. Okay.

Ms. JOHNSON. Like I said, there's a way for the kids to buy them, you know, but also they are being passed around in schools, which is a huge problem. I mean, we're scared enough as parents, but our poor educators are drowning because these products are not only accessible to the kids, but they are very discreet.

Mr. CLOUD. You mentioned a list of legitimate and illegitimate products.

Ms. JOHNSON. That's correct.

Mr. CLOUD. Dr. Ezike, what's being done—because it was just mentioned that we have a store that was a bad actor, and we have people who are giving product to minors in the schools—what's being done on the enforcement end to prosecute bad actors in Illinois?

Dr. EZIKE. So not exactly within our realm, but we are working with the Illinois State Police, and they are very much on top of this issue, and they're going to step up enforcement in terms—

Mr. CLOUD. Has anyone been charged?

Dr. EZIKE. No one has been charged as far as I know, but they are going to step up sending people in to as decoys to come in and try to purchase the products who don't look of age, and seeing if they're getting carded. So those investigations and that enforcement is going to be stepped up.

Mr. CLOUD. Okay. Thank you.

And, Ms. Porter, you've used e-cigarettes for a long time. What kind of regulation do you think is appropriate?

Ms. PORTER. I've used e-cigarettes for nine years, and just to kind of bring a point: There are 11 million regular e-cigarette users who are adults and obtaining these products legally. And I also want to say that the products that I have been vaping for nine years are not 59 milligrams. They're 12 milligrams.

I think that regarding the product, the manufacturing of the product, insisting on good manufacturing practices, GMP, is something that is important, and that is something that I look for in the products that I purchase, as someone who has—you know, making sure that nothing gets adulterated, that there isn't cross contamination in the production of the product.

With regard to kids, I think we don't even talk much about enforcement. You know, in the state of Wisconsin, the police would send decoys in to see if young people could potentially buy a pack of cigarettes. Stores were fined substantially if they violated that. The same with underaged drinking, we did the same thing. And that kind of regular enforcement, I think, is something that is quite important that doesn't seem to really be a priority is folks are fully, you know, neck deep in the panic about vaping.

But, again, I point out, if you get rid of flavors from vaping or vapor products, then you are stranding 11—well, 8 million people at least who are can ex-smokers and 11 million people from access to products that work so that they don't pick up a pack of cigarettes.

With regard to advertising, I think I made a note here—hoodies, who makes this garbage? This kind of stuff, obviously, if it is marketed directly to children, it's appalling. There isn't a single person who uses a vapor product who is an adult who thinks it's appropriate for young people, freshmen, ninth graders or eighth graders or sixth graders, to be able to pass around vapor products.

And I also think that we need to really understand here that it appears, from all indications—and no, we don't have evidence, but from all indications, these diseases, which are—and I don't want

one of these diseases, by the way. I don't want to suddenly wake up one day and not be able to breathe. That's why I quit smoking.

Mr. KRISHNAMOORTHY. Your time is up. Thank you so much.

Ms. PORTER. But I do think we can do something about the adulterated products.

Mr. KRISHNAMOORTHY. Thank you.

Congresswoman Pressley, you have five minutes of questioning.

Ms. PRESSLEY. Thank you, Mr. Chair.

An NIH-funded study found that that over 8,000 e-liquid flavors are currently on the market. Some of these flavors include Banana Pudding, Rainbow Candy, and Hawaiian Punch. Dr. Rizzo, do we know how many of these 8,000 flavors have been tested for toxicity?

Dr. RIZZO. The one study I know was done at the Harvard School of Public Health, the Chan School of Public Health. They looked at 51 different flavors, and 47 of those flavors did have chemicals in them they thought were toxic to the lung. I don't know about any other larger studies at this point.

Ms. PRESSLEY. Forty-seven out of 51?

Dr. RIZZO. Out of 51, I believe, was the number, yes.

Ms. PRESSLEY. Dr. Ezike, you have collected samples of the products that were used by victims of the outbreak, and those are in the process of being tested, correct?

Dr. EZIKE. That's correct. They're with the FDA, and we're waiting for those results.

Ms. PRESSLEY. And as you search for the cause of the outbreak, you have not ruled out components of flavors as possible contributing factors to the outbreak, have you?

Dr. EZIKE. That is correct. We have not ruled that out.

Ms. PRESSLEY. Dr. Ezike, are any e-cigarettes approved by the FDA as smoking-cessation devices?

Dr. EZIKE. No, they are not.

Ms. PRESSLEY. Dr. Ezike, e-cigarettes companies have been allowed to apply for FDA approval as smoking cessation devices for years, but they have not done so, have they?

Dr. EZIKE. They have not.

Ms. PRESSLEY. Getting approval would require proving e-cigarettes work for smoking cessation, and manufacturers haven't even conducted the clinical trials to back up that central claim?

Dr. EZIKE. That's correct.

Ms. PRESSLEY. So, Ms. Porter, you know, I'm grateful for every one adult smoker that e-cigarettes are actually helping to quit nicotine, but for every one adult smoker that is being helped, 81 kids will be introduced to nicotine through e-cigarettes and graduate to cigarette addiction as an adult. None of us want that.

Ms. PORTER. And that's an impossible statistic. There are 11 million vaporers. There are 11 million vaporers.

Ms. PRESSLEY. Reclaiming my time. I was just making a statement. I actually wasn't posing a question to you.

Mr. KRISHNAMOORTHY. Please let Ms. Pressley finish her question to you.

Ms. PRESSLEY. I just didn't want to take away from your personal experience.



Now, I'll get to Dr. Rizzo. So we have seen no evidence that e-cigarettes are useful for smoking cessation. In fact, dual use is significantly more prevalent. Is dual use safe?

Dr. RIZZO. No.

Ms. PRESSLEY. If someone cuts back on cigarettes and adds vaping, is that safe?

Dr. RIZZO. No.

Ms. PRESSLEY. Dr. Rizzo, even if e-cigarettes were useful for cessation, have you seen any evidence that adults who want to use them for that purpose would refuse to use tobacco-flavored e-cigarettes?

Dr. RIZZO. No.

Ms. PRESSLEY. I yield back.

Mr. KRISHNAMOORTHY. Thank you, Congresswoman Pressley.

Congresswoman Miller for five minutes of questioning.

Mrs. MILLER. Thank you, Chairman Krishnamoorthi.

I want to thank all of you for being here today. This is very important.

And, Ms. Johnson, thank you for sharing your story, and I hope your daughter is continuing to recover, particularly after listening to Dr. Rizzo say that our lungs continue to form into our 20's. I think that's a positive, and I hope and pray that she gets better.

Ms. JOHNSON. Thank you.

Mrs. MILLER. Dr. Rizzo, is nicotine additive?

Dr. RIZZO. Yes, definitely.

Mrs. MILLER. Is it also a depressant?

Dr. RIZZO. It actually has two phases. It can initially be a stimulant, and then it can be depressive. It's a chemical that acts as a neurotransmitter in our body. The acetylcholine receptors, which are called nicotinic, and muscarinic receptors, they're all affected by nicotine.

Mrs. MILLER. People have been smoking for centuries, haven't they?

Dr. RIZZO. Yes.

Mrs. MILLER. And it wasn't until the 1960's when they finally came out and established that it caused cancer?

Dr. RIZZO. Yes.

Mrs. MILLER. I also remember in the early 1960's, trucks putting out vapor with DDT driving around my neighborhood and children riding bicycles behind the truck because they thought that was really neat. Were there ever any studies done to see if DDT caused cancer?

Dr. RIZZO. I would have to look, but I suspect it was looked at as an inhaled toxin, but I don't know the details on that right now, but I can get back to you on that.

Mrs. MILLER. And that was another vapor that they put out. I just vividly remembering that happening.

Ms. PORTER, you said you smoked for 20-some years?

Ms. PORTER. Twenty-three.

Mrs. MILLER. When you started, did you just think that that was really cool?

Ms. PORTER. Sure did. I thought it was the coolest thing. I thought I'm listening to jazz and drinking whiskey and smoking a cigarette.

Mrs. MILLER. Yes. I remember, you know, movies about World War II, and everybody had a cigarette hanging out of their mouth, and the message was just that that was a cool thing to happen, you know, in 1950's and 1960's.

Ms. PORTER. My movie was "House of Games," that was my movie.

Mrs. MILLER. I don't know that one.

Ms. PORTER. It's a good one.

Mrs. MILLER. And you are concerned about youths using e-cigarettes?

Ms. PORTER. Absolutely. I'm concerned about youth using e-cigarettes. I'm concerned about youth smoking, which is—it's an amazing statistic that now youth smoking is so low. And then, after today's testimony from multiple witnesses, I'm very concerned that the 12.5 percent of youth who are saying that they're using pot—but, yes, the youth—kids are going to do things that are risky, but we should try to make sure that they don't make dumb choices like I did when I was 18 or 19 years old.

Mrs. MILLER. Well, I remember our next-door neighbor had a catalpa tree and the kids thought it would be really cool to light those long cigar-looking things that really smelled terrible. Once you went to e-cigarettes, did you ever notice how bad your clothing smelled or how bad your hair smelled or your house?

Ms. PORTER. Yes. Oh, sure. Within about two weeks of switching to e-cigarettes, I couldn't tolerate the smell of smoking. I couldn't tolerate the, you know, smell of somebody who had been smoking an hour earlier. I became one of those people who just became an annoying ex-smoker. Everyone knows what I'm talking about. But, yes, I mean, it's very obvious.

The more obvious change, though, came about three months after I had begun vaping. And just to see, I went to go with my physician and asked for a chest X-ray to see if I had done permanent damage. I wanted to know if I was going to be sick and die, potentially of lung cancer, if I had the beginnings of COPD.

Mrs. MILLER. Did you, I mean, in three months, did you think your lungs were going to change?

Ms. PORTER. Yes, because I felt so much better. And my doc said: Your lungs are pretty clear.

And I said: Well, good, because I quit smoking.

She said: I can tell.

Mrs. MILLER. Well, you mentioned a much lesser amount of nicotine in the e-cigarette. Is there like a step down if you were a—

Ms. PORTER. There's a lot of—there's a lot of misunderstanding of what the marketplace is for the vapor products, the liquid itself. It can go from zero milligrams of nicotine to, you know, with some of what they call salts, to as high as 60 milligrams of nicotine. People like me, I don't use salts; I use just regular old fashioned e-liquid. I use 12 milligrams. Depending on the device, there are multiple different devices you can use. I can use as little as 3 milligrams of nicotine in e-liquid. And, yes, you can absolutely—there are multiple different variations in concentration of the liquid itself.

Mrs. MILLER. So it would be possible that you could step down and totally get off of—

Ms. PORTER. People do it all the time. In fact, on my Facebook page, when I asked for some stories, multiple people said: I began at 18. I stepped down to 12. I went down to nine, and then I was at zero.

Some people are still vaping zero. Some people just decided to use that zero point to quit vaping as well.

Mrs. MILLER. I didn't realize my time was up. Thank you.

Mr. KRISHNAMOORTHY. Thank you, Congresswoman Miller.

Now, I'd recognize Congresswoman Tlaib for five minutes of questions.

Ms. TLAIB. Thank you, Mr. Chairman.

Thank you all so much for being here and for contributing to this important conversation.

As a mother, thank you, Ms. Johnson, for coming here. I know it's not easy. Even for me, speaking publicly, to this day, my stomach turns. So I know how hard it is, especially something so personal. So I really do appreciate you being here.

E-cigarettes were allowed onto the market without fully understanding the long-term effects and without regulation, as you all know. Their safety wasn't tested yet. Big tobacco companies, like JUUL, touted their products as safe and certainly safer than cigarettes. They even sent representatives into schools to tell students that it's, quote, this is—and I continue to repeat it because it's obvious they're tailoring it toward our kids—quote, totally safe.

The result is that e-cigarette use took off. Now 27.5 percent of the high school kids use e-cigarettes, and those kids are used a guinea pigs. We are just now beginning to find out the health risks they pose, risks like those who we—those that are suffering right now from it and the outbreak of lung disease and so forth. In fact, most e-cigarettes hold and discharge numerous other potentially toxic substances, such as, I'm going to try to pronounce this, formaldehyde and a compound named Benzene, which is found in car exhaust systems.

Dr. RIZZO, yes or no, is it safe to inhale these liquids contained inside e-cigarettes directly into your lungs?

Dr. RIZZO. No.

Ms. TLAIB. Dr. Rizzo, what are the outcomes of inhaling such toxic substances, and are there any links to lung damage or heart disease? Are there any studies regarding the health risks associated with vaping?

Dr. RIZZO. There are no long-term studies since it has only been in the marketplace here for about nine to 10 years.

Ms. TLAIB. Likewise, the cigarette smoking process requires the user to inhale ultrafine particles that could possibly irritate their throat, eyes, and airways. Dr. Rizzo, could these particles exacerbate respiratory ailments that affect our breathing?

Dr. RIZZO. Particularly, the ultrafine particles are very similar to the small particles that are talked about in air pollution. So they definitely get into the lung, the bloodstream, and can affect the cardiovascular system in the lungs.

Ms. TLAIB. Thank you. Very little is definitely known about the long-term health effects of e-cigarettes use in vaping, but there is a consciousness as to nicotine's dangerous effects on development of adolescent brain and increased risk of future addiction.

Dr. Ezike, can you explain how nicotine impacts brain development in adolescents?

Dr. EZIKE. Of course, the brain is still developing almost until age 26. And with nicotine, the receptors in pediatrics are more susceptible to being addicted. So they get addicted quicker, and the addictions predispose to future addictions down the road. So we have seen that people who have worse addictions usually started at earlier ages.

Ms. TLAIB. This is very scary, and as a mom, you know, I hope e-cigarette users are aware of this fact and are not waiting for government to declare this kind of a national crisis right now—right?—that we already know from just the mere hospitalization cases like in your daughter's case and so forth that it's unsafe. We've heard today vapping exposes users to harmful chemicals and so forth.

You know, I go in to speak to kids all the time. You know, I do the second grade and third grade reading class. They always ask, what do you do? And I tell them I work at the Capitol, and I show them the picture and tell them where it is geographywise. And then I tell them: You know, when I was your age, I used to go to restaurants with my parents, and they say, you know, right now, you go, and they say, "How many people in your group?" When I was little, they said, "Nonsmoking or smoking section?"

And the kids are like: What?

And I was like: Yes, they would say nonsmoking or smoking, because they smoked cigarettes in public places like restaurants, hospital, schools, planes.

And the kids' eyes are wide, and they are like: What? That's unbelievable.

And I said: Yes, even though scientists, people were saying secondhand smoking was worse—was worse—than directly smoking cigarettes. And even though health experts and others were coming forward, you had Big Industry, corporate greed, misleading information out there to the public, what the real impact was on health.

And so it's so important that you all continue to speak truth about this because the long-term effects are very dangerous, especially because they have been targeted toward youth.

And, you know, Ms. Porter, I was reading, because I want to know more about you and your beliefs. And I respect that. Well, we all have different beliefs. But you call yourself a converted Conservative and reformed Marxist. Are you conspiracy theorist?

Ms. PORTER. I think my politics are entirely irrelevant to this hearing.

Ms. TLAIB. Oh, okay. Why were you winking at one of my colleagues on the other side of the aisle? You winked.

Ms. PORTER. Because I know Glenn Grothman.

Ms. TLAIB. Oh, that's what it—so the winking—

Ms. PORTER. He introduced me. He's a friend of mine.

Ms. TLAIB. Okay. I Understand. I didn't know what the winking was because I thought maybe there was something like a conspiracy thing going on there. I didn't know.

Ms. PORTER. You think there's a conspiracy in this hearing, ma'am?

Ms. TLAIB. No. No. I actually think people are speaking truth here, and you can provide information—

Ms. PORTER. May I address the truth?

Mr. KRISHNAMOORTHY. No, no, no.

Ms. TLAIB. Well, the truth to you is very different for the majority of people in this room who do believe that children are being targeted by—

Ms. PORTER. The truth for me is I quit smoking with e-cigarettes, and so did 8 million other people.

Ms. TLAIB. You're still smoking, ma'am. You're still smoking.

Ms. PORTER. I'm not smoking.

Mr. KRISHNAMOORTHY. Thank you. Order, please.

Ms. PORTER. And I'm not lying under oath.

Mr. KRISHNAMOORTHY. I'd like to recognize Congressman Connolly for five minutes of questions.

Mr. CONNOLLY. Thank you.

And welcome to our panel. It seems to me that this is a new crisis that kind of came upon us real fast and unawares. And part of the problem is, frankly, the lack of any Federal structure in which to look at this issue and leaving states like Illinois kind of on their own. And is that a fair summation of where you think the state of Illinois finds itself, Dr. Ezike?

Dr. EZIKE. I believe that there's always ways for improvements. The support for research around data modernization tools so that we can quickly upload our information and share it across states or with our Federal partners is very key to being able to disseminate information faster around these kinds of epidemics as they emerge.

Mr. CONNOLLY. But if the Federal Government is not regulating the product and hasn't done the research and analysis of pros and cons, dangers, benefits, it kind of leaves you either to do nothing and wait, or to try to take some action to protect the citizens of your state, isn't that fair?

Dr. EZIKE. That's correct.

Mr. CONNOLLY. Yes. So we have a vacuum at the Federal level. Fair enough, Dr. Rizzo.

Dr. RIZZO. Yes, I agree.

Mr. CONNOLLY. And what steps should the Federal—I mean, this reminds me a little bit of marijuana where we have haven't done our job at the Federal level in justifying how we categorize or classify marijuana. We have essentially limited the kinds of studies we sponsor at the Federal level and who gets to do them, with a clear bias toward "it's dangerous," and as a result, we've lost control. So we have 27, 28 states that are moving to legalization in some form, some full legalization for recreational purposes and some for medical purposes. But, meanwhile, the Federal control is gone.

In this case, the Federal Government hasn't really even acted yet. And I just wonder, what would be helpful, from your point of view, for the Federal Government to undertake so we deal with this, obviously, in an expeditious way because—you look at smoking. It can take 30, 40, 50 years for someone to have the negative health impacts of smoking, chronic smoking. What has shocked us about this crisis is that that timeline has collapsed, and we're looking at young people who have engaged in vaping and, according to

some medical reports, at least anecdotally, their lungs look like that of a chronic smoker of 40 years. How did that happen? What in the world is at work here that could do that? And what must we do to protect the public in an efficacious way and not and not take 10 years to do it. Dr. Rizzo?

Dr. RIZZO. Well, I think the first step with regard to this recent crisis of the vaping illness, everything is being done and will continue to be done by the CDC and the FDA, and we're hoping they will come up with some answers. I think the bigger picture is, should there have been—and we think, at the Lung Association, there should have been a premarket review of any products that come out into the marketplace to deem whether or not they're appropriate for public protection. And I think the lack of that authority by the FDA, for multiple reasons, has been very slow in developing.

Mr. CONNOLLY. Dr. Ezike, anything?

Dr. EZIKE. I do concur with that.

Mr. CONNOLLY. Ms. Johnson, would that have made a difference, from your perspective?

Ms. JOHNSON. I think so. The fact that nobody really knows how these products are going to affect people, especially young people, who I understand shouldn't be using them but have super easy access to them, it's just kind of Russian roulette. You know, you just don't know what's going to happen. And, with developing lungs, it seems to be worse.

Mr. CONNOLLY. You know, I'll just end on this note. Sometimes we have mindless debate about regulation, and all of it's bad. And I bring attention to the fact that my colleague, Mr. Comer, Republican, conservative Republican, stated earlier, but sometimes we need it. It ain't all bad, and sometimes we need to protect the public. And as you all said, frankly, absent the vacuum that we created, which wasn't deliberate—nobody did it with malice—has cost lives and will cost more. And so we need to be seized of this issue, and we need to understand that meaningful regulation protects people and can save lives. And here is a great example where that's needed.

Thank you for being here today. I appreciate it. And my time is up.

Mr. KRISHNAMOORTHY. Thank you so much. I'd like to thank our witnesses for their testimony today.

Without objection, all members will have five legislative days within which to submit additional written questions for the witnesses to the chair, which will be forwarded to the witnesses for responses.

I ask our witnesses to please respond as promptly as you are able.

This hearing is adjourned.

[Whereupon, at 12:58 p.m., the subcommittee was adjourned.]