



It's been called "a runaway problem" and a "worrisome trend." It's a big issue in schools. The problem? Dramatically rising **vaping** rates among teens.

Canadian teenage vaping rates have soared, says University of Waterloo professor David Hammond. His recent study shows that the percentage of Canadian teens 16 to 19 who said they had vaped in the last month has grown. In 2017 it was 8.4. In 2018, it was 14.6. That's a 74 percent increase in one year.

The spike is a concern because e-cigarettes are relatively new. It could be years before the risks of exposure to chemicals in vaping products are fully understood.

HOW E-CIGARETTES WORK

An e-cigarette has two parts. One is a vaporizer, or vape pen. The other is a cartridge of e-liquid (e-juice). The liquid can be dissolved nicotine or cannabis compounds along with other chemicals and flavourings. This juice is sold in appealing flavours, such as apple, watermelon menthol, bacon, and bubblegum.

Vaporizing devices have a tiny battery that powers a coil. The coil heats up the e-juice and turns it into a vapour. Users draw the vapour into their lungs.

E-cigarettes mimic the look and feel of regular cigarettes. The key difference? E-cigarettes don't contain **tobacco** and there is no **combustion**. Users get nicotine without inhaling tobacco smoke.

They also avoid the thousands of chemicals and dozens of cancer-causing toxins present in traditional cigarettes. Instead, e-cigarette users puff a vapour.

MYSTERY ILLNESS

When e-cigarettes arrived in 2004, many people thought they could be useful. They were seen as a possible tool for lowering cigarette or cannabis use. Still, no one thought they were healthy or risk-free. Now, doctors warn of serious illness likely linked to vaping. It is affecting hundreds of people, mostly teenagers.

By mid-October, 1604 vaping-related illnesses and 34 deaths had occurred in the United States. Cases have also been reported in Canada. The median age of those affected is 23. Symptoms include cough,

DEFINITIONS

COMBUSTION: the process of burning something

TOBACCO: a plant with large, sticky leaves that are smoked or chewed

VAPING: inhaling and exhaling the vapour produced by an electronic cigarette or similar device



shortness of breath, chest pain, fatigue, and vomiting. Many people need oxygen or mechanical ventilation to recover.

The suspected cause is chemical inhalation. Our lungs are only equipped to inhale clean air. When we breathe in something that we shouldn't, the air sacs in the lungs meant for respiration become lined with the substance. That makes it hard for them to pump oxygen through the body.

Health officials are still figuring out which ingredient or additive is responsible. Researcher Michael Siegel of Boston University says there are two possibilities. The first is oil. Oils are sometimes added as thickening agents to **black-market** vaping product. This is especially true of products containing tetrahydrocannabinol (THC). It's the chemical that gives marijuana its high.

The second suspect is a contaminant in e-liquid. It appears to cause lung damage and severe inflammation. Contaminants are more often found in products bought on the street than in a licensed store.

In October the U.S. Food and Drug Administration (FDA) issued an alert. It warned people

ABOUT NICOTINE

Nicotine is absorbed through the lungs, nose, mouth, or skin. It is not, on its own, responsible for tobacco-related illnesses such as cancer or heart disease. However, it can change brain development and affect memory and concentration. It is also highly addictive. It is what keeps smokers smoking, or vapers vaping. When users try to quit, they experience unpleasant withdrawal symptoms.

Not all vaping products contain nicotine, but most do. That's why some smokers see e-cigarettes as a **harm reduction** tool. Because the nicotine intake can be adjusted, they believe switching to e-cigarettes can help smokers cut back and eventually kick the habit.

But maybe not. "There is some research that shows for young people 25 and under with a brain that's still changing, these devices are not an effective smoking **cessation** tool because you can get hooked to the nicotine that comes with it," says one addiction specialist.

Nicotine-containing medications are a better aid for quitting. They deliver nicotine gradually and at very low levels.

to stop using vaping products containing THC. It also advised people not to buy vaping products from unauthorized sources. It stressed that "... no youth or women who are pregnant should be using any vaping product, regardless of the substance."

Health Canada tobacco expert James Van Loon agrees. He says young people should never use e-cigarettes because we don't understand all the risks.

TURNING THE TIDE

Yet youth vaping remains on the rise. Why? One key reason is that vaping has changed

dramatically in the last two years. Newer devices, made by companies such as Juul, deliver more nicotine to the brain than ever. One cartridge now has roughly the same nicotine as a pack of 20 cigarettes.

To prevent a new generation of addicts, experts say we need tougher laws on all aspects of vaping. Dr. Hammond adds that we also have to change our thinking.

"We have to find a way of... [protecting] kids and change the perceptions of these things as a fun, modern, sleek way of taking your drugs," says Dr. Hammond. ★

DEFINITIONS

BLACK-MARKET: to do with goods bought and sold illegally
CESSATION: an end to something

HARM REDUCTION: practical strategies and ideas aimed at reducing negative consequences associated with drug use



TEEN VAPING ON THE RISE

ON THE LINES

Answer the following in complete sentences:

1. Explain what nicotine is.

2. What are the two parts of an e-cigarette?

3. Describe how an e-cigarette works.

4. What is the biggest difference between regular cigarettes and e-cigarettes?

5. What did many people think of e-cigarettes when they were first introduced?

6. What warnings regarding e-cigarettes did health authorities recently issue? Why did they do this?

7. Describe the symptoms of those who are affected.

8. What is the suspected cause of this new illness?



QUIZ

A. Write the letter that corresponds to the best answer on the line beside each question:

- _____ 1. Which harmful drug contained in tobacco keeps smokers smoking?
 a) nicotine b) vapour
 c) propylene glycol d) e-juice
- _____ 2. E-cigarettes do not contain:
 a) nicotine b) a battery
 c) tobacco d) a heating coil
- _____ 3. Which term describes goods bought and sold illegally?
 a) stock market b) black-market
 c) import - export d) futures market

B. Mark the statements T (True) or F (False). If a statement is True, write one important fact to support it on the line below. If a statement is False, write the words that make it true.

_____ 4. True or False? E-cigarettes are more harmful than regular cigarettes.

_____ 5. True or False? The rate of vaping among youth is going down.

_____ 6. True or False? Nicotine causes lung cancer and heart disease.

C. Fill in the blanks to complete each sentence.

7. Some smokers believe e-cigarettes can be a _____ reduction tool.

8. Vaping can make it hard for the lungs to pump _____ through the body.

9. FDA = U.S. _____ and Drug Administration.

D. Respond to the following question in paragraph form. (Use a separate sheet of paper if necessary.)

What advice would you give to a friend who wants to try vaping? Give reasons to support your response.
