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**Medical News & Perspectives****Calls Increase for Tighter Control of e-Cigarettes**

Bridget M. Kuehn, MSJ

**T**he World Health Organization (WHO) and the American Heart Association (AHA) have joined the chorus of groups calling for tighter regulation of e-cigarettes, which have grown into a \$3 billion global industry.

The use of e-cigarettes are becoming increasingly popular. In a report released in July, the WHO noted that in 2012 an estimated 7% of individuals older than 15 years in the European Union had tried these products, and about 1% were regular users. In addition, nearly half of US smokers reported having tried the devices, but only 4% were regular users.

Yet evidence on the benefits and risks of e-cigarettes remains limited. Some evidence suggests that these products may be less harmful than conventional cigarettes or may help smokers quit. However, little is known about the safety of the products or whether they might lead a new generation to become addicted to nicotine.

**Regulatory Response**

Earlier this year, the US Food and Drug Administration (FDA) issued a proposed rule to extend its regulatory oversight of tobacco products to include e-cigarettes. The comment period for the FDA proposal ended August 8. The WHO report (<http://bit.ly/1vliHzp>) backs such moves by regulators. The AHA issued a policy statement in August calling for tighter regulations to protect public health until more is known about e-cigarette safety (Bhatnagar A et al. *Circulation*. doi:10.1161/CIR.000000000000107 [published online August 24, 2014]).

According to the WHO report, e-cigarettes "represent an evolving frontier, filled with promise and threat for tobacco control." To address this evolving situation, the WHO recommends that

governments develop new regulations designed to do the following:

- Discourage the promotion of these products to nonsmokers and youth.
- Reduce the possible health risks of e-cigarettes to both users and those near them.
- Prevent companies from making unproven health claims.
- Preserve ongoing tobacco/nicotine control efforts.

In an e-mailed statement, Jenny Haliski, an FDA spokeswoman, explained that the agency has been unable to fully examine the public health consequences of e-cigarettes and other currently unregulated tobacco products. If the FDA's proposed rule is implemented, the FDA would be required to assess the products' public health effects among users and nonusers and their potential value as cessation aids.

"If e-cigarettes have reduced toxicity, help smokers quit, or do not introduce

adolescents to tobacco use, they may have the potential to reduce disease and death," the FDA statement said. "However, if e-cigarettes prompt young people to start using them separately or with other conventional tobacco products, or discourage or delay quitting tobacco use, then the public health impact could be negative."

**Youth Smoking Concern**

Some worrisome evidence that youth may be gravitating to e-cigarettes already exists. A recent study found that from 2011 to 2013, the number of youth who don't smoke traditional cigarettes but have used e-cigarettes tripled, from 79 000 to 263 000. Additionally, 43.9% of those who had tried e-cigarettes said they intended to use conventional cigarettes (Bunnell RE et al. *Nicotine Tob Res*. doi:10.1093/ntr/ntu166 [published online August 20, 2014]).

The AHA, which has worked for decades to promote tobacco control, is par-



A number of different e-cigarette designs are on the market. Some e-cigarettes have a refillable "tank" containing a liquid that includes nicotine and may pose a risk to young children.

ticularly concerned about companies marketing e-cigarettes to youth. Aruni Bhatnagar, PhD, lead author of the AHA policy statement and a professor of medicine at the University of Louisville, noted that there are more than 7000 flavors of e-cigarettes, including bubblegum and other candy-like flavors. He said he is concerned that companies are using the flavors to attract youth.

"I think they are targeting e-cigarettes to youth by passing them off as safe, desirable, trendy, and easily accessible," Bhatnagar said. "We don't want to create a new generation of nicotine addicts."

The WHO has urged regulators to ban flavors in e-cigarettes to make them less attractive to youth.

### Evidence Mixed

A recent review pointed out that many questions remain unanswered about the potential health benefits and risks of e-cigarettes (Breland AB et al. *J Addict Med.* 2014;8:223-233).

Although e-cigarettes do not emit toxins associated with combustion like cigarettes do, they do release some chemicals that may be a concern, according to the FDA. Bhatnagar explained that because combustion contributes to the toxicity of cigarettes, it is possible that e-cigarettes may be less harmful. If so, the extent of the difference is unknown without more data on the comparative health effects of these products.

Both e-cigarettes and traditional cigarettes expose users to nicotine and its cardiovascular effects. "Nicotine is not innocuous," Bhatnagar said. The nicotine content of e-cigarettes can vary widely, the FDA noted.

Some e-cigarettes have refillable "tanks" that contain a liquid with nicotine in it. This liquid may pose a risk to children or animals if they ingest the nicotine, according to the review. The review noted there has been at least 1 published case report of a young child dying after ingesting the nicotine from an e-cigarette refill.

The AHA made the controversial recommendation that physicians recommend patients use e-cigarettes only as a last-resort cessation tool and only for limited duration.

Alison B. Breland, PhD, lead author of the review and assistant professor of psychology at Virginia Commonwealth University, said in an interview that physicians should learn as much as they can about the current evidence on e-cigarettes' potential risks and benefits. She noted that evidence is currently mixed on whether or not e-cigarettes can help smokers quit.

Breland recommends that clinicians provide patients with smoking cessation assistance, including discussing e-cigarettes and other potential methods. She suggests that smokers who want to try e-cigarettes should use them only for a short time because the long-term effects are unknown. She noted that combining behavioral therapy with cessation aids can increase the chance an individual will successfully quit.

"Work with the patient on what the best choice is for them," she said. ■

## CDC Tracking Enterovirus D-68 Outbreak Causing Severe Respiratory Illness in Children in the Midwest

Joan Stephenson, PhD

Clinicians should be on the alert for severe respiratory illness in children that might be caused by infection with a rarely seen virus, enterovirus D-68 (EV-D68), according to federal health officials. This advice, from the US Centers for Disease Control and Prevention (CDC), was prompted by clusters of severe respiratory illness in children in Missouri and Illinois that emerged in August.

The CDC wants "to make sure that clinicians around the country are on the lookout for this, and health departments are ready to support clinicians," said Anne Schuchat, MD, director of CDC's National Center for Immunization and Respiratory Diseases, during a September 8 telebriefing. Children with asthma appear to be especially vulnerable, the agency said.

A CDC report released the same day provided details about the clusters of children, who presented with severe respiratory illness at Children's Mercy Hospital in

Kansas City, Missouri, and the University of Chicago Medicine Comer Children's Hospital in Illinois (Midgley CM et al. *MMWR Morb Mortal Wkly Rep.* 2014; 63[36]:798-799). Symptoms included difficulty breathing, hypoxemia, and wheezing; a minority of the children had a fever. The CDC sequenced nasopharyngeal specimens from most of the patients and identified EV-D68 in 19 of 22 specimens from the Kansas City hospital and 11 of 14 specimens from the Chicago facility.

Ages of the affected individuals ranged from 6 weeks to 16 years, with a median of 4 to 5 years, said Schuchat. "Well over half of the children in those 2 clusters had a previous history of asthma or wheezing," she said.

Rates of admissions for severe respiratory infections were continuing at the 2 hospitals at higher-than-expected levels for this time of year, the report said.

Several other states were also investigating clusters of severe respiratory illness

that might be caused by EV-D68, and testing was ongoing to determine if the enterovirus was responsible. About a dozen states had sent samples to the CDC for testing, said Schuchat. "The situation is evolving quickly," she noted.

There are no vaccines or specific treatments for EV-D68 infection, and clinical care is supportive, the CDC report noted. Of the 30 patients in Kansas City and Chicago with confirmed EV-D68 infection, 29 were admitted to the pediatric intensive care units, 6 required bilevel positive airway pressure ventilation, and 2 required mechanical ventilation (1 of whom also received extracorporeal membrane oxygenation).

First identified in California in 1962, EV-D68 has been rarely reported in the United States. The full spectrum of all the illnesses EV-D68 can cause is not well defined, Schuchat explained. "That's something people are looking into," she said. ■