FACTS

E-Cigarettes and Public Health

OVERVIEW

In the 50 years since the Office of the Surgeon General released its first report on the dangers of tobacco use, the American Heart Association, in partnership with other major public health organizations, has made major strides in tobacco cessation and prevention. Nearly 8 million lives have been saved since the 1960s and youth smoking rates have been cut in half since the mid-1990s. However, smoking still kills nearly 480,000 Americans a year and remains the most preventable cause of death and disease in the U.S.[1] Declines in smoking rates have forced tobacco companies to seek new ways to appeal to a new generation of smokers. Now a new class of products has entered the marketplace - electronic cigarettes ("e-cigarettes"), also called electronic nicotine delivery systems.

E-CIGARETTES: WHAT ARE THEY?

E-cigarettes are battery-powered devices that have cartridges or refillable tanks that contain a liquid mixture primarily comprised of propylene glycol and/or glycerol and nicotine, as well as flavorings and other chemicals.[2] They emulate conventional cigarettes, but the exhaled aerosol does not contain smoke or most of the assorted chemicals found in cigarettes and studies of specific types of e-cigarettes have shown that they produce less air toxins compared with regular cigarettes.[3,4,5]

Proponents argue that they don't expose the user to as many of the harmful toxins found in conventional cigarette smoke. Therefore, e-cigarettes have the potential to enhance public health if smokers switch to e-cigarettes and quit or reduce their cigarette smoking habit.

However, opponents point out that e-cigarettes could fuel and promote nicotine addiction, and their acceptance has the potential of re-normalizing smoking behavior. The use of e-cigarettes could also potentially serve as a gateway to other drugs and harmful substances, especially for youth.

WHO IS USING?

Survey research has painted a broad picture of the typical e-cigarette user:

- Non-Hispanic whites, current smokers, young adults, and those with a higher education and higher income perceive e-cigarettes as less harmful than combustible tobacco products and are more likely to use them.[6,7,8,9]
- Most are current or former smokers.[10]
- Almost 20% of smokers who try e-cigarettes go on to become regular users.[11]
- 3-7% of adults have ever used e-cigarettes at least once.[12,13]

E-CIGARETTES' IMPACT ON YOUTH

The rise of the manufacturing and marketing of e-cigarettes has had a particular influence on U.S. youth:

- Nearly 1.78 million adolescents have tried e-cigarettes, twice the rate from 2010.[14]
- 9% of middle school students who reported ever using e-cigarettes have never tried conventional cigarettes.[14]
- 76% of current adolescent users of e-cigarettes also smoke conventional cigarettes.[14]
- E-cigarette use is higher among those who either previously smoked or still smoke conventional cigarettes, as well as among those who intend to quit.[15]
- Adolescents see e-cigarettes as accessible and convenient, especially in places where smoking cigarettes is not allowed.[16]
- There are currently more than 460 brands and 7764 unique flavors of e-cigarettes in the marketplace.[17]
- These products are now widely available online and in retail outlets in many countries across the world.[18]
- E-cigarettes are being marketed to children and adolescents via celebrities and appealing flavors.[19]
- E-cigarette ads often appear on social media sites and YouTube, as well as traditional media sources such as television, radio, and newspapers.[20]

CURRENT STATUS OF RESEARCH

E-cigarettes are mostly unregulated and their health effects are not fully known, especially when associated with long-term use.

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- Recent longitudinal studies have shown that e-cigarettes may be similar to nicotine replacement therapy for tobacco cessation.[9,21]
- To date, approximately half of tobacco-related adverse event reports in the United States concern electronic cigarettes, although causation between e-cigarette use and these events has not been proven, and it is possible that some of these events may be secondary to a preexisting condition. [22] There have been an increasing number of calls to poison control centers due to ingestion of the nicotine refill liquids.

THE ASSOCIATION ADVOCATES

- Including e-cigarettes in smoke free laws.
- Including e-cigarettes in laws that prohibit the sale and marketing of tobacco to minors.
- Taxing e-cigarettes at a rate high enough to discourage youth use while retaining or increasing differentials with combustible products by increasing taxes on combustibles.
- Addressing marketing, youth access, labeling, quality control over manufacturing, and standards for contaminants of e-cigarettes through effective regulation by the Food and Drug Administration.
- Educating health care workers so they can adequately counsel their patients regarding comprehensive tobacco cessation strategies.
- Incorporating e-cigarette use into screening questions at clinical visits and worksite/community health screenings.
- Increasing or maintaining surveillance on the prevalence of e-cigarette use in adults, children, and adolescents.
- Further research and surveillance on the short, medium, and long-term physiological effects of e-cigarette nicotine, propylene glycol and glycerol, flavorings and other ingredients.
- Including e-cigarettes in the definition of tobacco products for legislation and regulation.

AREAS FOR FURTHER RESEARCH

More research is needed in the following areas so we can better assess the effects of e-cigarette use:

- Identify whether e-cigarette use is a gateway to smoking conventional cigarettes.
- Ascertain whether e-cigarettes are consistently used dually with other tobacco products.
- Evaluate the effects of the tobacco industry's marketing strategy of e-cigarettes on public health.
- Identify any acute and chronic adverse health effects of e-cigarettes.
- Assess the health effects of second or third hand exposure to e-cigarette vapor and constituents.
- Evaluate the efficacy of e-cigarettes as a smoking and nicotine cessation modality
- Ascertain the addictive potential of e-cigarettes and their pattern of use and withdrawal symptoms.
- Identify cultural, social and economic factors that promote, sustain or discourage e-cigarette use.
- Identify and monitor e-cigarette manufacturing practices, e-cigarette constituents, their variation between different brands, pharmacokinetics, and modes of delivery.
- Identify how often e-cigarettes are being used for the delivery of other drugs and medications.
- Indicate whether or not youth experimentation with e-cigarettes results in nicotine addiction and the later transition to use of conventional cigarettes.

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