

# E-cig refills contain irritants, and people who smoke and use e-cigs suffer more symptoms

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Two new studies presented at the European Respiratory Society International Congress highlight the risks associated with using e-cigarettes, especially for those who also smoke conventional cigarettes.

One study examined 122 of the most commonly sold e-cigarette liquids in nine European countries and found that all contained at least one substance classified as a health risk.

The other study, a survey of more than 30,000 people in Sweden, found that e-cigarette use was most common among people who already smoke, and that people who use both experience more symptoms, such as a persistent cough, wheezing and coughing up mucus.

The research on the combined effects of smoking and e-cigarettes will be presented by Dr Linnea Hedman, a behavioural scientist at Umeå University in Sweden.

Dr Hedman and her colleagues questioned more than 30,000 people, who were randomly selected from the general population in Sweden, about their smoking habits, use of e-cigarettes and [respiratory symptoms](#)

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Around 11% of people surveyed said they only smoke conventional cigarettes, while 0.6% said they only use e-cigarettes and 1.2% said they use both. The results revealed that e-cigarette use was more common among people who currently smoke conventional cigarettes (9.8%), compared to former smokers (1.1%) or non-smokers (0.6%).

The results also showed that people who use both conventional cigarettes and e-cigarettes were the most likely to suffer with respiratory symptoms. Among non-smokers 26% experienced any respiratory symptoms, compared with 34% among those using only e-cigarettes, 46% among those only smoking conventional cigarettes, and 56% among dual users.

Dr Hedman will tell the congress: "Our results show that a proportion of smokers are also using e-cigarettes. It could be that they're turning to e-

cigarettes when they're in places like cafes and restaurants where they cannot smoke conventional cigarettes, or it could be that they're using e-cigarettes in the hopes of quitting smoking. One argument for e-cigarettes is that they could help smokers to quit, but our study does not support this argument. If that was the case, e-cigarette use would have been most common among former smokers.

"We have also found that people who use both conventional and e-cigarettes are more likely to suffer wheezing, or a long-standing or productive cough. It could be that some smokers, who are already suffering these symptoms, want to quit smoking by changing to e-cigarettes but they are not managing to stop. Alternatively, it could be that using both products causes worse respiratory effects than either alone. More research is needed to determine whether e-cigarette use contributes to smoking cessation or if it increases the burden of respiratory disease.

"The possible health effects of e-cigarettes are far from established and it will take some years before the long-term effects will be revealed. However, this research adds to the evidence that e-cigarettes cannot yet be marketed as a safe alternative to conventional cigarettes.

The research on the content of e-cigarette refills was presented by Dr Constantine Vardavas (MD, PhD), from the University of Crete.

Dr Vardavas and his colleagues selected a random sample of e-cigarette liquids from the most popular brands on sale in Greece, Spain, Germany, The Netherlands, the UK, Hungary, Romania, Poland and France, which included a variety of different flavours and nicotine strengths.

They analysed each sample to find out exactly which chemicals were present and in what quantities. Every liquid they tested contained at least one substance that has some level of risk to health according to the

United Nations (UN) classification system.

These included methyl cyclopentanolone (found in 26.3% of samples) and a-ionone (found in 8.7% of samples), both which "may cause allergy or asthma symptoms or breathing difficulties if inhaled", according to their classification. Other substances, such as menthol (42.9% of samples), ethyl vanillin (16.5% of samples) and acetyl pyrazine (8.2% of samples), are classified as "able to cause respiratory irritation".

Dr Vardavas told the congress: "The most recent evidence from across the European Union shows a substantial increase in e-cigarette use over the past few years. The EU Tobacco Products Directive notes that e-liquids should not contain ingredients that pose a risk to human health. However, despite growing research on the effect of different ingredients within e-liquids there is little knowledge on the impact they may have on respiratory health.

"Our research reveals that [e-cigarette](#) liquids on sale in Europe have ingredients that are potential respiratory irritants. This means that they are substances which irritate the airways according to previous research and international classification standards.

"An EU Directive on e-cigarettes rules that: 'except for nicotine, only ingredients are used in the nicotine-containing liquid that do not pose a risk to human health in heated or unheated form'. We think the respiratory irritants we found may be a breach of this legislation.

"Based on this work, we also think users should be aware that e-cigarettes are not risk-free, and that doctors should inform their patients that e-cigarettes may contain respiratory irritants."

In a separate study also presented at the Congress, Dr Vardavas and his team examined trends in smokers' attempts to quit, with surveys of

almost 10,000 Europeans in 2012 and in 2014. They found that use of nicotine replacement therapy declined (from 14.6% in 2012 to 12.2% in 2014) and quitting with the help of healthcare professionals and smoking cessation clinics also fell (6.7% to 5.0%). However, experimentation with e-cigarettes for the purpose of quitting increased (from 3.7% in 2012 to 11.0% in 2014).

**More information:** Abstract no: PA4485, "Highest prevalence of respiratory symptoms among smokers who also use e-cigarettes", Smoking cessation treatment and e-cigarettes session, 14.45-16.45 hrs, Tuesday 12 September, Amber 5 + 6 (South)

Abstract no: PA1272, "Smoking Cessation in Europe: Trends in methods used in the European Union between 2012 and 2014", Smoking cessation, 12.50-14-40 hrs, Sunday 10 September, Hall 4

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