



Severe allergic reaction to vaping prompts warning from doctors

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A Nottinghamshire paediatrician has reported a severe immune reaction in a 16 year old boy who had been smoking e-cigarettes. The incident comes amid growing concerns at the safety of the products, following reports of an increasing number of deaths among users in the US.

The case study in the *Archives of Disease in Childhood*¹ warns that the fluid in e-cigarettes may cause a potentially life threatening lung inflammation in those who are susceptible to it.

“Coming from a paediatric perspective, we remain concerned that young adults are experimenting with e-cigarettes,” said the study’s lead author, Jayesh Mahendra Bhatt, from the Department of Paediatric Respiratory Medicine at the Nottingham University Hospitals NHS Trust. Bhatt reiterated guidance published earlier this year from the Forum of International Respiratory Societies,² which he said “have been quite clear that e-cigarettes should be banned for under 21s.”

The patient, now 18 and fully recovered, came into hospital with shortness of breath, fever, and a persistent cough and “just got worse and worse,” said Bhatt. The patient was diagnosed with hypersensitivity pneumonia. Asthma treatment had no effect and he developed respiratory failure, requiring extracorporeal membrane oxygen, intravenous antibiotics, and steroids.

The researchers believe that the trigger was likely to have been an exaggerated immune response to one of the chemicals found in e-cigarette fluid which the patient had been using before becoming ill.

After two months, he still had symptoms. When the doctors tested his skin reactivity with a tiny amount of vaping fluid, he got worse. Subsequent tests showed that he seemed to have more antibodies to one of the two liquids in the e-cigarettes, suggesting this might have been the source of his reaction.

The case study comes as doctors in the US report a growing number of deaths in people using e-cigarettes. As of 15 November there have been 39 reported deaths from lung diseases triggered by vaping and 2051 cases of e-cigarette or vaping associated lung injury.

Researchers at the Centres for Disease Control and Prevention reported that two substances in US e-cigarettes may be triggering problems: tetrahydrocannabinol, which is the hallucinogenic agent in cannabis, and vitamin E acetate, although they have not been able to confirm these are the cause of the illnesses. There are fewer regulations on the content of vaping liquid in the US than in the UK.³

“There are two important lessons here,” said the Nottingham based researchers. “The first is always to consider a reaction to e-cigarettes in someone presenting with an atypical respiratory illness. The second is that we consider e-cigarettes ‘much safer than tobacco’ at our peril.”

John Britton, director of the UK Centre for Tobacco and Alcohol Studies and consultant in respiratory medicine at the University of Nottingham, insisted, however, that vaping was still far less risky than smoking, which kills half of long term smokers.

“This report is worrying, and the risk needs to be acknowledged, but in absolute terms it is extremely small—and, crucially, far smaller than that of smoking. The advice remains the same: if you smoke, switch to vaping; if you don’t smoke, don’t vape.”

- 1 Nair N, Hurley M, Gates S. Short report: Life-threatening hypersensitivity pneumonitis secondary to e-cigarettes. *Arch Dis Child* 2019. 10.1136/archdischild-2019-317889.
- 2 Ferkol TW, Farber HJ, La Grutta S, et al Forum of International Respiratory Societies. Electronic cigarette use in youths: a position statement of the Forum of International Respiratory Societies. *Eur Respir J* 2018;51:1800278. 10.1183/13993003.00278-2018 29848575
- 3 Rimmer A, Iacobucci G. Vaping: CDC investigation continues after patient dies from severe lung injuries. *BMJ* 2019;366:l5320. 10.1136/bmj.l5320 31467143

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