



**Communications
Office**

Queen's University
Belfast
Belfast
BT7 1NN
Northern Ireland
Tel 028 9097 3091
www.qub.ac.uk/info

Media Release

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New research shows e-cigarette vape increases the potential for lung bacteria to cause harm and increase inflammation

Researchers from Queen's University Belfast have discovered that bacteria often found in the lungs became more harmful and caused increased inflammation when they were exposed to e-cigarette vape.

The results of the three-year study, published today (Wednesday 18 December) in *Respiratory Research*, show that this increase in lung inflammation is due to bacteria made more virulent by exposure to e-cigarette vapour.

Dr Deirdre Gilpin, researcher and lecturer from the School of Pharmacy at Queen's University and lead author of the research explains: "There is currently a knowledge gap about whether vaping is harmful, or less harmful than smoking tobacco.

"Bacteria have long been associated with the development of lung diseases such as bronchitis and pneumonia where smoking plays a role. Our study is the first of its kind which aimed to compare the effect of cigarette smoke and e-cigarette vapour on key lung bacteria."

Vaping has been suggested as a safer alternative to smoking but there is limited evidence to support this and there are major concerns around its safety.

As rates of tobacco smoking have decreased the number of people vaping has increased. Vapers are not always ex-smokers, and there has been an increase of vaping among young people who have never smoked before. According to the World Health Organization, there has been a small but steady decrease in the estimated number of smokers globally, to just over one billion. Whereas the number of vapers has been increasing rapidly - from about seven million in 2011 to 41 million in 2018.

The study compared the effect of exposure to cigarette smoke extract and e-cigarette vapour on levels of inflammation and the virulence of bacteria commonly associated with lung disease.

The research team found that exposure to both cigarette smoke extract and e-cigarette vapour caused an increase in the potential of bacteria to cause harm in the lungs, in a way which could lead to diseases such as COPD and asthma.

The researchers also found that changes in bacteria exposed to e-cigarette vapour were similar, and in some cases exceeded those observed following bacterial exposure to cigarette smoke, suggesting that there is little difference between cigarette smoke and e-cigarette vapour.

Dr Gilpin added: “This study shows us that vaping may carry the same risk as cigarette smoke in increasing the susceptibility to bacterial infection.”

Professor Jose Bengoechea, Director of the Wellcome-Wolfson Institute for Experimental Medicine and co-author of the study said: “This is a study with phenomenal public health implications. Worryingly, e-cigarette vapour as well as cigarette smoke increase the harmful potential of already dangerous infections, in addition to the well-known detrimental effect on lung function. At the very least this work should open a frank debate on vaping safety.”

-Ends-

1. Media enquiries to comms.officer@qub.ac.uk or +44 (0) 28 9097 5292.
2. Queen’s University Belfast has an in-house Globelynx camera for TV interviews.
3. Lead author, Dr Deirdre Gilpin is available for interview. Bids to comms.officer@qub.ac.uk or +44 (0) 28 9097 5292.
4. Audio file of Dr Deirdre Gilpin discussing the research (45 seconds): [Dr Deirdre Gilpin.mp3](#)
5. During the embargo period the article can be accessed: <https://bit.ly/2Rn2TgM>

After the embargo lifts, the article will be available here:

<https://respiratory-research.biomedcentral.com/articles/10.1186/s12931-019-1206-8>

Electronic cigarette vapour increases virulence and inflammatory potential of respiratory pathogens Gilpin et al. Respiratory Research 2019

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6. Image of Dr Deirdre Gilpin:



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