

New scientific test delivers greater insight to inform future scientific studies on e-cigs

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If you are a vaper, scientists want to know how you vape because understanding this is an essential first step to understanding how vaping products are used and the potential they may have to reduce harm caused by smoking.

In the largest study of its kind, scientists from British American Tobacco and Nicoventures have developed a test to examine vaping behaviour and then used it to inform their studies on e-cigarettes. The study results are published in journal *Scientific Reports*.

Understanding vaping behaviour allows scientists to programme vaping machines in the laboratory so that they effectively mimic real world use when a product is being tested. This leads to more accurate machine conditions for e-cigarette testing, which produce more realistic, true to life results. These tests help determine the extent to which e-cigarettes emit toxicants in comparison to conventional cigarettes.

The test used in this study is based on Smoking Analyser (SA7) technology, which was developed initially to measure smokers' puffing behaviour. This is a small portable device that can measure pressure and flow and provides information such as the size and length of a puff and the time between puffs.

Using a modified version, two types of e-cigarette were tested: a rechargeable Vype cig-a-like device, and a Vype ePen, which is a larger, enclosed button-activated device.

Sixty current e-cigarette users participated in the study and attended the testing location on two separate days to use the products provided as they wanted.

'Puffing behaviour was slightly different for the two groups tested,' said Dr James Murphy, Head of Risk Substantiation at British American Tobacco. There was variability across populations for each device so the results represent an average of behaviour. Currently, there are no internationally agreed standardised testing protocols that measure the emissions of e-cigarette aerosols in a life-like manner. Understanding how e-cigarette users vape on their products, however, could help to establish the standardised protocols needed.

The test described here forms part of a framework of tests used in the assessment of next generation products (NGPs). These tests are part of a product stewardship process designed to support the safety and quality of NGPs in development.

Many in the [public health](#) community believe e-cigarettes offer great potential for reducing the public health impact of smoking. Public Health England, an executive body of the UK Department of Health, recently published a report saying that the current expert estimate is that using e-cigarettes is around 95% safer than smoking cigarettes, although more research is needed. The Royal College of Physicians have said that the public can be reassured that e-cigarettes are much safer than smoking and that they should be widely promoted as an alternative to cigarettes. Cancer Research UK, Action on Smoking and Health and the British Heart Foundation are also of the view that e-cigarettes are substantially less harmful than smoking.

More information: Anthony Cunningham et al, Development, validation and application of a device to measure e-cigarette users' puffing topography, *Scientific Reports* (2016). [DOI: 10.1038/srep35071](https://doi.org/10.1038/srep35071)

Provided by British American Tobacco

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