

Novel smart technology explores smoking-to-vaping transitions

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Novel smart technology used in a University of Otago-led study explores smoking-to-vaping transitions, suggesting vaping is a complicated process and that some vapers may need additional cessation support to become smoke-free.

In collaboration with the University of California San Francisco and Johns Hopkins University, Otago researchers led the feasibility study trialling "smart" technology, including a "smart" [e-cigarette](#) and smartphones to track 11 participants' real-time vaping and daily smoking during an eight-week smoking quit attempt. The results were published today in the international journal *Nicotine & Tobacco Research*.

Research Fellow Mei-Ling Blank from the Department of Marketing and ASPIRE 2025 – a University of Otago research theme bringing together researchers from several departments supporting the goal of smoke-free New Zealand by 2025—says while the study aimed primarily to examine whether "smart" e-cigarette technology is advanced enough for research purposes, the results provide preliminary insights into how easy

or difficult the transition from smoking to vaping may be.

"E-cigarettes are a very controversial technology. Some people suggest they could end the smoking epidemic, while others are concerned they might actually prevent some smokers from quitting, and also act as a gateway to cigarettes for some young people," Ms Blank says.

"While some smokers stop smoking with the help of an e-cigarette, researchers do not yet know whether e-cigarettes will provide an overall benefit to the health of the population."

The research showed that few participants managed to quit cigarettes completely but several substantially reduced their smoking. Overall, researchers observed three potential vaping and smoking patterns: immediate and dramatic reduction in smoking coupled with relatively intensive e-cigarette use resulting in smoking cessation; gradual smoking reduction and vaping intensification leading to daily dual use; and vaping experimentation before returning to exclusive smoking.

"Our findings are very tentative and need to be confirmed by studies with larger numbers of participants being followed over a longer period of time, but we now know 'smart' technology can help us answer important questions about smoking-to-vaping transitions," Ms Blank explains.

Another of the lead researchers, Professor Janet Hoek, Co-Director of ASPIRE 2025, says e-cigarettes and how smokers and non-smokers use the many different devices available raise interesting questions, but until recently it was impossible to collect detailed information on people's vaping behaviours.

"Virtually all studies of e-cigarette use are based on participants telling researchers about their vaping;

instead, 'smart' e-cigarettes record participants' real-time vaping behaviours, thus allowing researchers to develop very detailed pictures of vaping patterns," Professor Hoek explains.

"At this stage we do not know enough to be able to recommend that smokers use their e-cigarette in a particular way to help them completely stop smoking, but 'smart' technology may help us answer this question in future."

During fortnightly in-depth interviews, the researchers learned that many participants struggled to fully replace their cigarettes with vaping, stymied by a "learning curve" as they discovered vaping was not an exact replacement for smoking. Some participants also reported difficulty managing smoking urges in social situations with other smokers.

"Although this was only a feasibility study and our findings are preliminary, we hope to explore further whether smokers who want to try quitting [smoking](#) using an e-cigarette could benefit from additional support designed to help them become smoke free as completely and quickly as possible," Professor Hoek explains.

The researchers also used surveys delivered and answered via smartphones to record the number of cigarettes smoked, while follow-up interviews explored behavioural and social aspects that helped or hindered participants' transitions.

Provided by University of Otago

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