

E-cigarettes: Public Health England's evidence-based confusion

Last week, Public Health England (PHE) reported what it described as a “landmark review” of evidence about e-cigarettes. The headline in their press release quoted their top-line finding—“E-cigarettes around 95% less harmful than tobacco”. Kevin Fenton, Director of Health and Wellbeing at PHE, commented that, “E-cigarettes are not completely risk free but when compared to smoking, evidence shows they carry just a fraction of the harm”. Indeed, the 95% figure was widely picked up in news media. The BBC, for example, reported with certainty that “E-cigarettes are 95% less harmful than tobacco”. So what was the allegedly “game-changing” evidence that e-cigarettes are so safe?

In the “evidence update” published by PHE, written by Ann McNeill (King's College London) and Peter Hajek (Queen Mary University of London), the safety of e-cigarettes “in the light of new evidence” is summarised in this way: “While vaping may not be 100% safe, most of the chemicals causing smoking-related disease are absent and the chemicals that are present pose limited danger. It had previously been estimated that EC [e-cigarettes] are around 95% safer than smoking (10, 146). This appears to remain a reasonable estimate.” The headline conclusion of the PHE report was a judgment relying on two references from 2014. One (reference 146) was a briefing report to the UK All-Party Parliamentary Group on Pharmacy. The other (reference 10) was a paper by David Nutt and colleagues published in *European Addiction Research*. It is from this paper that the 95% figure derives. McNeill and Hajek are clear about the importance of this work: “There is a need to publicise the current best estimate that using EC is around 95% safer than smoking.” PHE immediately acted on this recommendation. But with undue haste.

It is worth reading the paper on which PHE has based its latest advice carefully. Nutt and colleagues describe how the Independent Scientific Committee on Drugs, which Nutt founded in 2010, convened an international expert panel to consider the “relative importance of different types of harm related to the use of nicotine-containing products”. During a two-day workshop in July, 2013, the panel met in London to review the context of perceived harms from nicotine products, the range of products (including

“electronic nicotine delivery system products”), and the criteria of harms. The group scored the products for harm, and weightings were applied to the results. Based on the opinions of this group, cigarettes were ranked as the most harmful nicotine product with a score of 99.6. E-cigarettes were estimated to have only 4% of the maximum relative harm. It is this result that yields the “95% less harmful” figure reported last week.

But neither PHE nor McNeill and Hajek report the caveats that Nutt and colleagues themselves emphasised in their paper. First, there was a “lack of hard evidence for the harms of most products on most of the criteria”. Second, “there was no formal criterion for the recruitment of the experts”. In other words, the opinions of a small group of individuals with no prespecified expertise in tobacco control were based on an almost total absence of evidence of harm. It is on this extraordinarily flimsy foundation that PHE based the major conclusion and message of its report.

The study led by Nutt was funded by Euroswiss Health and Lega Italiana Anti Fumo (LIAF). Riccardo Polosa, one of the authors of the Nutt paper, is the Chief Scientific Advisor to LIAF. In the paper, he reports serving as a consultant to Arbi Group Srl, an e-cigarette distributor. His research on e-cigarettes is currently supported by LIAF. Another author reports serving as a consultant to manufacturers of smoking cessation products. The editors of the journal added a note at the end of the paper warning readers about the “potential conflict of interest” associated with this work.

Tobacco is the largest single cause of preventable deaths in England—e-cigarettes may have a part to play to curb tobacco use. But the reliance by PHE on work that the authors themselves accept is methodologically weak, and which is made all the more perilous by the declared conflicts of interest surrounding its funding, raises serious questions not only about the conclusions of the PHE report, but also about the quality of the agency's peer review process. PHE claims that it protects and improves the nation's health and wellbeing. To do so, it needs to rely on the highest quality evidence. On this occasion, it has fallen short of its mission. ■ *The Lancet*



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For the Public Health England report see <https://www.gov.uk/government/publications/e-cigarettes-an-evidence-update>