suitability for *Ae. albopictus* as well as chikungunya transmission (Figure 1). However, some regions in the Mediterranean, notably Spain and Portugal, may become less suitable.[3] The tick species *I. ricinus*, meanwhile, has been observed to reach higher latitudes and altitudes as a result of climate change, a pattern likely to continue.[2] Crucially, however, it is not only global trade, travel and climate change that affect the risk of vector-borne disease. Land-use pattern and land management, as well as socioeconomic factors, have been convincingly shown to affect the geographic distribution of ticks in Europe.[2] Similarly, in the Baltics, as a result of the socioeconomic transition following the collapse of the Soviet Union, rates of tick-borne encephalitis surged. Subsequent analyses have suggested that economic downturns, leading to increased unemployment, increase the risk of infection, through mechanisms including lower vaccination coverage and greater time spent harvesting and foraging food in the forests habited by ticks.[4] In the context of the economic crisis that continues to affect many European countries, the risk that unemployed and other vulnerable groups may face in relation to vector-borne diseases remains a relatively understudied area.

Elucidating the contribution of global forces on local vector-borne disease transmission requires a multi-sectorial perspective. Not only are vector-borne disease epidemics influenced by other sectors of society, they can also lead to disruptions, etc., that can have severe economic implications. Thus, recognizing the complex and interconnected nature of vector-borne disease risks is an essential starting point for an integrated approach towards public health action.[5] The cross-sectoral interdependencies of vector-borne disease risk in Europe call for improved intersectoral collaboration, reflected in the EU Decision (1082/2013/EU) on serious cross-border threats to health that entered into force on 6 November 2013. Consistent with the growing attention paid to One Health, contribution and collaboration across a wide range of disciplines, from ecology to entomology, from sociology to spatial epidemiology, will be essential for strengthening European capacities orientated towards the surveillance, anticipation and preparedness of vector-borne diseases.

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E-cigarettes: threat or opportunity?

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Two contrasting viewpoints by Stimson and Chapman in this edition illustrate the divisions in the public health community over e-cigarettes. Stimson argues that we should embrace and promote e-cigarettes, while Chapman highlights the pitfalls of this simplistic approach. Such contrasting views are perhaps inevitable given the infant evidence base surrounding this rapidly emerging technology, but the consequent uncertainty about the population impacts of e-cigarettes should preclude an overly firm stance either for or against—as we outline below, it is simply too early to know.

Two key questions surround this debate: are e-cigarettes an opportunity or threat to public health and how can we ensure benefits are maximized and harms minimized? As Michael Russell wrote in 1976, 'people smoke for the nicotine but they die from the tar'. E-cigarettes deliver the nicotine without the tar, as their use involves no combustion. Common sense therefore dictates that e-cigarettes are significantly less harmful than cigarettes, and for the individual smoker who cannot or does not want to quit, there is little doubt that switching to e-cigarettes will be beneficial.

The population-level impacts, however, are far less certain. If taken up only by smokers or those who would otherwise have taken up smoking and if effective as a cessation aid, e-cigarettes will undoubtedly be a force for good. Conversely, if the heavy marketing of e-cigarettes, which has been found to target young people through advertisements uncannily similar to cigarette ads long ago banished from our screens, and use in smoke-free public places re-normalize and re-glamorize smoking thereby threatening progress in tobacco control, lead into rather than out of smoking (the so-called gateway effect), and maintain addiction rather than promoting cessation, they may be detrimental to public health. Ultimately, the balance between these various potential outcomes and the health impacts of e-cigarettes will determine the extent of any public health gain.

These are all issues on which we know relatively little. The remarkable speed of uptake shows e-cigarettes are acceptable to smokers in a way that medicinal nicotine products are not, suggesting they could replace smoking. Yet, their efficacy as quit aids remains uncertain. While dedicated users report that e-cigarettes helped them quit smoking, these benefits are not seen in population-based cross-sectional surveys.[1] Longitudinal studies are either flawed or find no significant impact on quitting, (the latter potentially reflecting the way in which e-cigarette use is measured) while randomized controlled trials find e-cigarettes are no more

effective than nicotine patches in achieving smoking cessation.[2] The Smoking Toolkit Study, monthly repeat cross-sectional surveys representative of the English population, provides the most supportive data showing that those people using e-cigarettes to quit were significantly more likely to succeed than those people using over-the-counter nicotine replacement.[2] The data also suggest e-cigarettes may be contributing to a reduction in smoking prevalence in England through increased quit attempts and success, although other reasons for this trend cannot yet be ruled out.

Despite consensus on the health benefits of e-cigarettes relative to cigarettes, little is known about their absolute health impacts. No studies have examined long-term impacts including those of inhaled humectants (the main e-liquid ingredient), flavourings or additives.[1] Yet, e-cigarette vapour has been found to contain a variety of toxic and carcinogenic chemicals, albeit, initial studies suggested, at considerably lower levels than in cigarette smoke.[3] Recent work, however, finds that at high temperatures, concentrations may reach levels seen in cigarette smoke, while *in vitro* studies find varying levels of cytotoxicity.[4]

Despite concerns about uptake among young non-smokers, no longitudinal studies have yet examined whether e-cigarettes serve as 'gateways' to future tobacco use, though it is reassuring that in all studies, including those in young people, the majority of users are current or former smokers.[1] Nonetheless, while surveys show negligible use among young non-smokers in the UK (2013 data), elsewhere in Europe—including France, Poland, Finland and Hungary—e-cigarette use among young non-smokers is reported as ranging from 3.2 to 4.7%. Repeat cross-sectional data from the USA show increasing rates of youth e-cigarette use although smoking has declined simultaneously.

The transnational tobacco companies' (TTCs) growing involvement in e-cigarettes is a further concern. TTCs' own documents show their historical interest in harm reduction was driven by the potential to prevent, rather than encourage, declines in smoking, to enhance their tarnished reputation and to enable access public health groups and policymakers,[5] the latter a particular concern when TTCs have increasingly being driven from the policymaking table. TTCs are already actively using harm reduction rhetoric to undermine the authority of public health organizations, while e-cigarette advertisements have been used to undermine smoke-free policies and effectively promote smoking given the marked similarity between cigarettes and e-cigarettes at a time when other marketing routes are being rapidly closed.

We turn then to our second question—how best to maximize opportunities and minimize harms? This requires research and timely monitoring of trends so that adverse developments can be quickly addressed. It also requires a regulatory framework that encourages e-cigarette uptake among current smokers and innovation to maximize effectiveness as a quit product while simultaneously maximizing product safety and preventing uptake among non-smokers. Such aims may be mutually exclusive as reflected in heated debates over the 2014 European Union Tobacco Products Directive (TPD), which reached a compromise in requiring products to be licenced either as medicines with related limitations on marketing, or as consumer products subject to quality and purity standards and the same advertising restrictions as tobacco. However, the TPD comes into force only in 2016 and much can happen in the interim. Member States may, therefore, wish to implement marketing restrictions prior to this. Some have also advocated restricting use in public places by brining e-cigarettes under the auspices of smoke-free regulations.

Above all, we must not allow e-cigarettes to detract attention from what should be our key focus—smoked tobacco. Policies on e-cigarettes must therefore be combined with those making tobacco even less desirable and available. Indeed, we believe e-cigarettes could present a unique opportunity to take a more radical approach and phase out combustible tobacco use. If e-cigarettes really do enable quitting, if tobacco companies really are committed to harm reduction and if changes are phased in giving companies and users time to adjust, there should be little objection. Such an approach would eliminate the threats identified above and save far more lives. Twenty years ago no-one believed smoke-free public places would be possible.

Supplementary data

For the full list of references, please see supplementary data available at *EURPUB* online.

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