

# Five questions to put to the US Surgeon General on e-cigarette science

written by Clive Bates | 7 December 2016



Will he get the thumbs up for his e-cigarette report?

**Update 8 December - my reaction:** [Bad science, poor insights and likely to do harm - rapid reaction to the Surgeon General's terrible e-cigarette report](#) (these questions remain unanswered).

On 8 December 2016 the U.S. Surgeon General will release a new report on e-cigarettes. I don't yet know what's in it, but these are the five questions I would like to see honestly and candidly addressed (with supplementaries and some supporting data)

1. [How much has vaping played a role in the recent accelerated decline in U.S. adult smoking and how beneficial for health will this be?](#)
2. [How much of the decline in youth smoking is attributable to vaping and how beneficial for health will this be?](#)
3. [Compared to smoking cigarettes, how harmful are e-cigarettes?](#)
4. [If nicotine is harmful to the developing brain, where are the smokers with brain damage?](#)

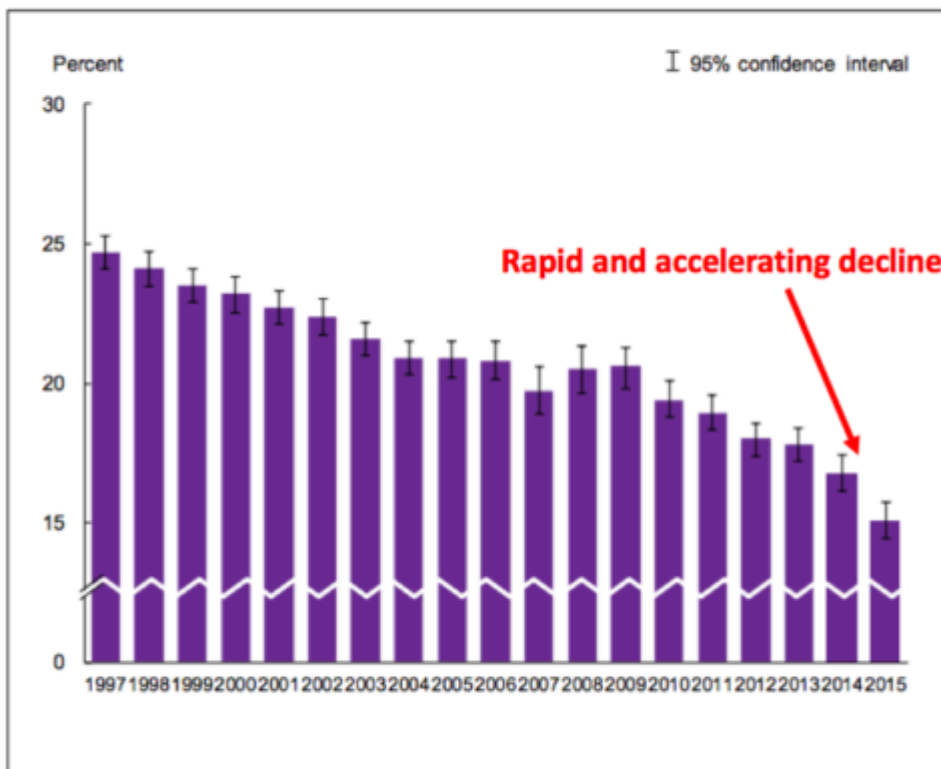
5. [On what basis is it possible to claim any material risk to bystanders for second-hand vapor exposure?](#)

This is part two of a twin posting. Part 1. is [The critic's guide to bad vaping science](#) - this is the informed critic's plain language guide to questioning the science of sensationalist and alarmist e-cigarette studies.

## 1. How much has vaping played a role in the recent accelerated decline in U.S. adult smoking and how beneficial for health will this be?

### Current smoking

Figure 8.1. Prevalence of current cigarette smoking among adults aged 18 and over: United States, 1997–2015



NOTES: Data are based on household interviews of a sample of the civilian noninstitutionalized population. Current cigarette smokers were defined as those who had smoked more than 100 cigarettes in their lifetime and now smoke every day or some days. The analyses exclude persons with unknown cigarette smoking status (about 2% of respondents each year). See [Technical Notes](#) for more details.

Source: [Early Release of Selected Estimates Based on Data From the National Health Interview Survey, 2015](#)

### Supplementaries

1a. Are you worried that measures taken to protect kids from vaping may increase adult smoking and cause more harm to adults? The Royal College of Physicians

draws us to concern about unintended consequence of excessively precautionary anti-vaping policies:

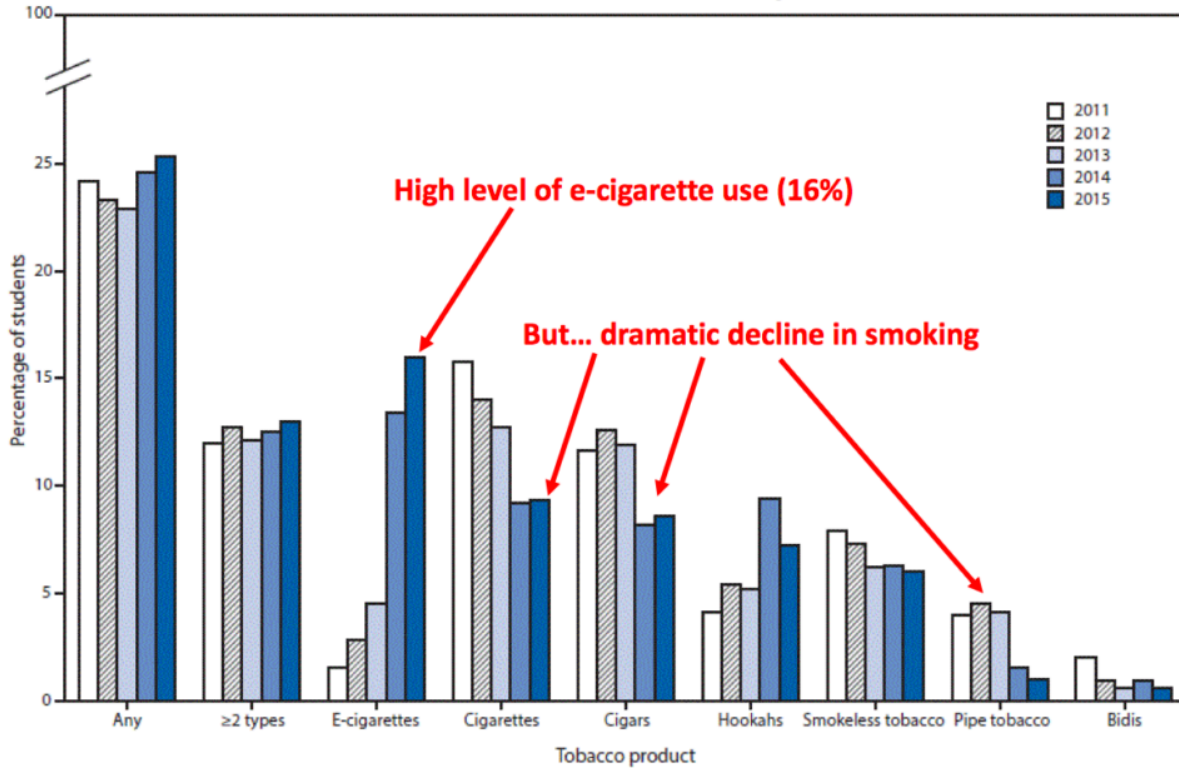
*A risk-averse, precautionary approach to e-cigarette regulation can be proposed as a means of minimising the risk of avoidable harm, eg exposure to toxins in e-cigarette vapour, renormalisation, gateway progression to smoking, or other real or potential risks. However, if this approach also makes e-cigarettes less easily accessible, less palatable or acceptable, more expensive, less consumer friendly or pharmacologically less effective, or inhibits innovation and development of new and improved products, then it causes harm by perpetuating smoking. Getting this balance right is difficult. ([Nicotine without smoke, Section 12.10 page 187](#))*

1d. In making your recommendations, what have you done to ensure that no harmful unintended consequences will arise from them, and how will you know if your ideas are causing more harm than good if they are put into practice?

1c. How much extra harm to an adult smoker is justified to prevent one adolescent experimenting with vaping?

**2. How much of the decline in youth smoking is attributable to vaping and how beneficial for health will this be?**

**Use of tobacco and nicotine products by U.S. high school students, 2011-2015**  
**National Youth Tobacco Survey, CDC**



Source: CDC [Tobacco Use Among Middle and High School Students — United States, 2011-2015](#)

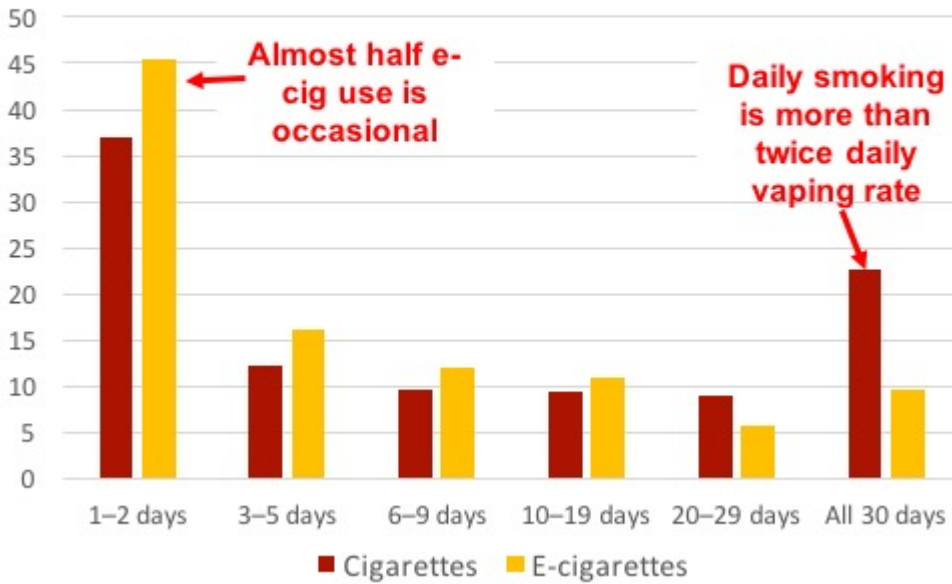
Supplementaries

2a. How much high school age vaping is daily? Answer for 2014: only 9.7% of the 11.9% = 1.1% Source CDC: [Frequency of Tobacco Use Among Middle and High School Students — United States, 2014](#)

### Use in last 30 days - frequency breakdown

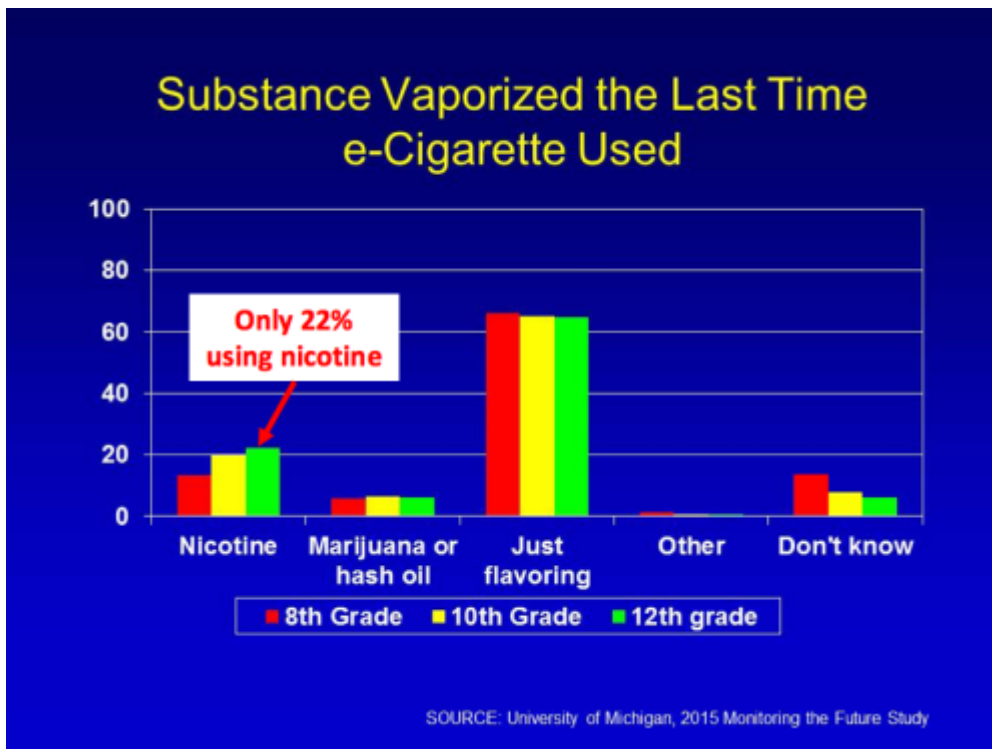
Percentage of smokers/e-cig users by frequency

CDC NYTS U.S. High school students 2014



2b. How much vaping

involved nicotine the last time vaped? Answer for 2014: only 22% Source: Monitoring the Future data, University of Michigan - [What are kids vaping? Results from a national survey of US adolescents, Tobacco Control. 2016](#)



**3. Compared to smoking cigarettes, how harmful**

## are e-cigarettes?

A National Cancer Institute Survey for the FDA asks the following question. How would the Surgeon General answer this?

*Compared to smoking cigarettes, would you say that electronic cigarettes are...*

- Much less harmful
- Less harmful
- Just as harmful
- More harmful
- Much more harmful
- I've never heard of e-cigarettes
- I don't know enough about these products

These are the most recent answers to this question given by the American public. Only 5.3% say 'much less harmful' - the only right answer.

		ESTIMATED US ADULT POPULATION	
	Response	Number	Percentage
1	Much less harmful	12,857,915	5.3%
2	Less harmful	49,647,460	20.6%
3	Just as harmful	79,002,499	32.8%
4	More harmful	6,468,816	2.7%
5	Much more harmful	4,908,187	2.0%
6	I've never heard of electronic cigarettes	2,850,637	1.2%
7	I don't know enough about these products	81,669,059	33.9%
-9	Missing data (Not Ascertained)	3,260,475	1.4%
	Total	-	100%

Source: National Cancer Institute: [HINTS 2015 for FDA](#)

### Supplementaries

3a. Do you think the perceptions shown in this survey are well aligned with reality or with expert opinion such as yours?

3b. Do you think the Surgeon General has any responsibility to ensure that the American public has a proper basis for perceiving relative risks of smoking and vaping and making informed choices?

3c. What in your report will help tobacco users have more realistic perceptions of risk and make better informed choices?

3d. Do you worry that if you understate or equivocate about the risk reduction from smoking to vaping that more people will stick with smoking and will be harmed as a result?

3e. The Royal College of Physicians made a judgement based on assessment of the many toxicity studies of e-cigarette vapour and cigarette smoke that:

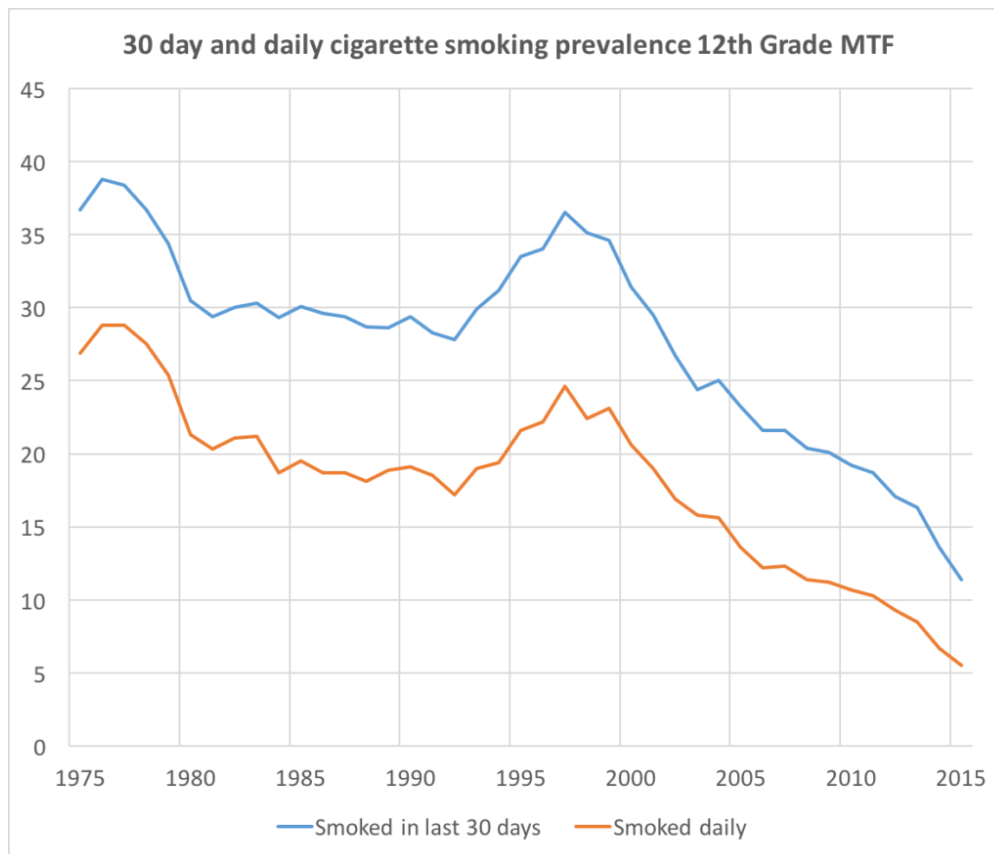
*“Although it is not possible to precisely quantify the long-term health risks associated with e-cigarettes, the available data suggest that they are unlikely to exceed 5% of those associated with smoked tobacco products, and may well be substantially lower than this figure”. ([Nicotine without smoke: section 5.5 page 87](#))*

Do you accept this is reasonable advice to give to health professionals, smokers, politicians, media etc as a an accessible way of communicating risk reductions, noting the caveats and qualifying language? If so would you repeat the same advice? If not can you explain why you differ?

3f. Are you surprised that Americans are confused about these risks?

## **4. If nicotine is harmful to the developing brain, where are the smokers with brain damage?**

The chart shows teenage smoking rates over the last 40 years from the Monitoring the Future survey. If nicotine was damaging the teenage brain, we would expect to find some adverse effects in this population as it grows up, compared to those who didn't smoke. What data confirms this?



Source: Monitoring the Future (NIDA / University of Michigan) [Table 1. Trends in Prevalence of Use of Cigarettes in Grades 8, 10, and 12](#) [Table 1 PDF]

## Supplementaries

4a. What, if any, is the nature of the harm done by nicotine to teenage brains if any and what sort of impairment does it cause to normal life (reduced intelligence, poor memory or learning skills, anxiety)?

4b. What do studies of long term nicotine use through NRT and snus (smokeless tobacco) tell us about health risks of nicotine - other than that it contributes to dependency?

4c. If you are suggesting nicotine does have risks, can you give an idea of the magnitude of such risks, either relative to smoking or to something else familiar? Saying there is a risk without some sort of quantification or comparison is meaningless?

## 5. On what basis is it possible to claim any



# material risk to bystanders for second-hand vapor exposure?

The most thorough assessment to date found no basis for any material concern about second hand vapor exposures.

*Current state of knowledge about chemistry of liquids and aerosols associated with electronic cigarettes indicates that there is no evidence that vaping produces inhalable exposures to contaminants of the aerosol that would warrant health concerns by the standards that are used to ensure safety of workplaces. However, the aerosol generated during vaping as a whole (contaminants plus declared ingredients) creates personal exposures that would justify surveillance of health among exposed persons in conjunction with investigation of means to keep any adverse health effects as low as reasonably achievable. Exposures of bystanders are likely to be orders of magnitude less, and thus pose no apparent concern. (Source: [Burstyn I. Peering through the mist: systematic review of what the chemistry of contaminants in electronic cigarettes tells us about health risks. BMC Public Health. 2014 Jan;14\(1\):18.](#))*

## Supplementaries

5a. If vaping is a nuisance or matter of etiquette, shouldn't it be a matter of owners or managers deciding the vaping policy - managing the interests of their clients, their staff and their business?

5b. What is wrong with the following vaping policies implemented by owners and managers?

- A bar wants to have a vape night every Thursday
- A bar wants to dedicate one room where vaping is permitted
- In a town with three bars, one decides it will cater for vapers, two decide not to allow vaping
- A bar manager decides on balance that his vaping customers prefer it and his other clientele are not that bothered - he'd do better allowing it
- A hotel wants to allow vaping in its rooms and in its bar, but not in its restaurant, spa, and lobby
- A care home wants to allow an indoor vaping area to encourage its

smoking elderly residents to switch during the coming winter instead of going out in the cold

- A vape shop is trying to help people switch from smoking and wants to demo products
- A shelter for homeless people allows vaping to make its clients welcome

Under what circumstances should the crude prohibitive powers of the law be used to stop these owners and managers exercising these preferences?