UCSF Smoking Cessation Leadership Center | National Center of Excellence for Tobacco-Free Recovery

"Reducing the Nicotine Content of Cigarettes and the Tobacco Endgame"
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I. Research

Q: Dr. Victor DeNoble (first scientist fired by the tobacco industry and hired to develop a safer cigarette) indicated that if the tobacco industry removed nicotine from cigarettes that acetaldehyde is produced when tobacco additives (such as sugars, sorbitol and glycerol) are burned, and is released in cigarette smoke could keep the smoker addicted to tobacco. Should we also be looking at this and examine what is produced from the cigarette ingredients? Any thoughts on this?

A: While acetaldehyde seems to have some actions in promoting nicotine dependence in animal studies, it is doubtful that it would sustain smoking behavior in the absence of nicotine.

Q: Were there subgroups within any of the samples in the low nicotine cigarette RCT's in which people began smoking more cigarettes because each one was less satisfying? I'm wondering in particular about people with mental health problems.

A: In the gradual reduction studies, smoker do smoke more cigarettes with the higher nicotine level cigarettes, but when they get down to very low nicotine content cigarettes they do not. There is not enough nicotine in the very low nicotine cigarettes (VLNC) to make smoking more worthwhile. People with mental illness have been studied by investigators from U. Vermont and Brown and have seen similar results to data in people without mental illness

Q: Is there any research being done in the test market states where the VLN products are now being sold to see how this is playing out in real world situation?

A: VLNC are currently being sold, but the market share is extremely small. This is because few people will purchase low nicotine cigarettes when normal nicotine cigarettes are readily available. Sales would only grow if normal nicotine cigarettes were no longer marketed.

Q: Is there compensation in lower nicotine vapor juices?

A: Yes. Several studies have shown that vapers inhale much more aerosol, and have higher toxicant exposure when vaping low v high nicotine e-liquids.

Q: [T]he trials demonstrate that smokers' nicotine intake decreases and they smoke fewer cigarettes per day. While they indicate an increase in days without smoking, you didn't report any studies that have demonstrated effects on actual quitting. What is the evidence that reduced nicotine will significantly increase smoking cessation?

A: Data are limited with respect to quitting. In one of my studies, 25% of smokers quit, but this was a small study of 20 smokers with only 4 week follow up. Also volunteer research participants still have access to regular cigarettes, which they appear to smoke occasionally, which could depress full quitting rates.

II. Policy

Q: Could you suggest a solution to the problem that more kids are using E-cigs than adults?

A: I think the best approach, although not perfect, is restricted access. I think internet sales be banned and that e-cigarettes should only be available at specialty tobacco shops that require age verification. Access restriction is hopeless when e-cigarettes are easily available at convenience stores.

Q: Unless E-cigs are as heavily regulated as tobacco is here in the US, how can E-cigs be a part of the solution?

A: I think the answer to this question depends on what outcome is desired. If the outcome is to reduce smoking and accept nicotine from non-combusted sources, then it makes sense to make e-cigarettes more easily available than regular cigarettes, to encourage switching (a harm reduction approach). If the desired outcome is a nicotine-free society, then regulation would have to take a different approach.

Q: Did Dr. Benowitz just state that cigarettes and ENDS should only be sold in licensed establishments? If so, how would Dr. Benowitz address states currently without tobacco licensure (i.e., North Carolina)?

A: Good question. I have no answer to this except that the voters in North Carolina can convince legislators to change the licensure laws.

Q: In suggesting immediate rather than gradual nicotine reduction is probably "safest" - do you mean safe in terms of the net benefit of quitting? or is there a connection to "safety" related to quitting that increases with gradual vs. immediate reduction?

A: Safest because with gradual reduction over several years, people would still be exposed to high levels of smoke toxicants for several years before the threshold level for nicotine dependence is reached. The big concern with immediate reduction was that withdrawal symptoms would be more severe and smokers would not be able to tolerate the reduction. However, in the JAMA Hatsukami study, this was not found to be the case.

Q: Do you consider low-nicotine cigarettes a form of tobacco harm reduction?

A: Not in the usual sense. The usual harm reduction paradigm is to encourage switching from a harmful to a less harmful way of using the same drug, while still allowing use of that drug as desired (the carrot approach). The low nicotine intervention is to make the cigarette less rewarding and therefore to encourage switching to a less harmful nicotine product (The stick and carrot approach).

Q: Does it make sense to do this without better regulation on ENDS including regulating nicotine content in those products? I work in Youth Tobacco Cessation and ENDS are the primary issue with them. Calling ENDS a "safer" alternative will give the perception that they are safe to use.

A: This is a question undergoing active debate. Clearly the most at risk are adult smokers, who would benefit tremendously by quitting smoking or switching to less harmful nicotine products such as e-cigarettes as soon as possible. Once adults stop smoking cigarettes, they can work on stopping vaping if they wish.

The question is how much does promoting access to e-cigarettes among adults result in harm to children. There is very little evidence that e-cigarette use among children is acting like gateway to smoking – smoking rates among adolescents are extremely low and continue to fall. There are general concerns about addiction in youth, about possible adverse effects on brain development, and about adverse effects to respiratory health. While these concerns should not be ignored, I believe that most likely these risks will prove to be much less than the health risks to adults who to smoke cigarettes.

The question for public health is how to weigh benefits to adult smokers vs risks in children for the optimal protection of public health. As commented on above, I think we can do much better with reducing childhood use with greater restricted access regulations.