Public Health Effect of ENDS

Odds & ENDs E9

Public Health: Data Suggests ENDS Currently Have a Net Positive Effect... But this depends on rates of ENDS initiation

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Public Health Effect of ENDS

Learning Objectives:

1. *Review potential ENDS harms.*
2. *Identify potential benefits of ENDS.*
3. *Apply the population health standard to understand the net public health impact of ENDS.*

What are the risks of ENDS use?

Harms associated with ENDS use among those only using e-cigarettes:

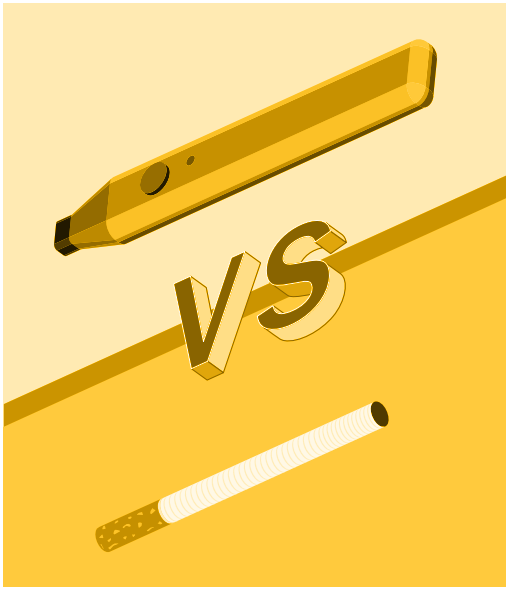
- Large doses of nicotine, which is known to be addictive and may have long-term consequences
- Other hazardous or potentially hazardous chemicals in ENDS flavors or emissions
- Aerosol can interact with sensitive tissues in the lungs and respiratory tract, which could lead to significant respiratory harm
- Exposure to potentially harmful contaminants or device malfunctions

Risks of ENDS to non-users:

- 16% of ENDS non-users are exposed to secondhand aerosol from ENDS users in an indoor setting at least weekly
- ENDS aerosols comprised of substantial amounts of propylene glycol, vegetable glycerin, nicotine, aldehydes, and heavy metals, which could pose risks to bystanders

It was thought that ENDS could lead to increased conventional cigarette smoking due the renormalization of smoking or the gateway effect; however, there is little evidence of this effect.

Dual use may lead to increased harm compared to cigarette use only.



Source: www.istockphoto.com/vector/cigarette-vs-vape-simple-isometric-illustration-gm1400427692-454006170

Lower levels of carcinogens such as formaldehyde and TSNAs in aerosol vs. smoke

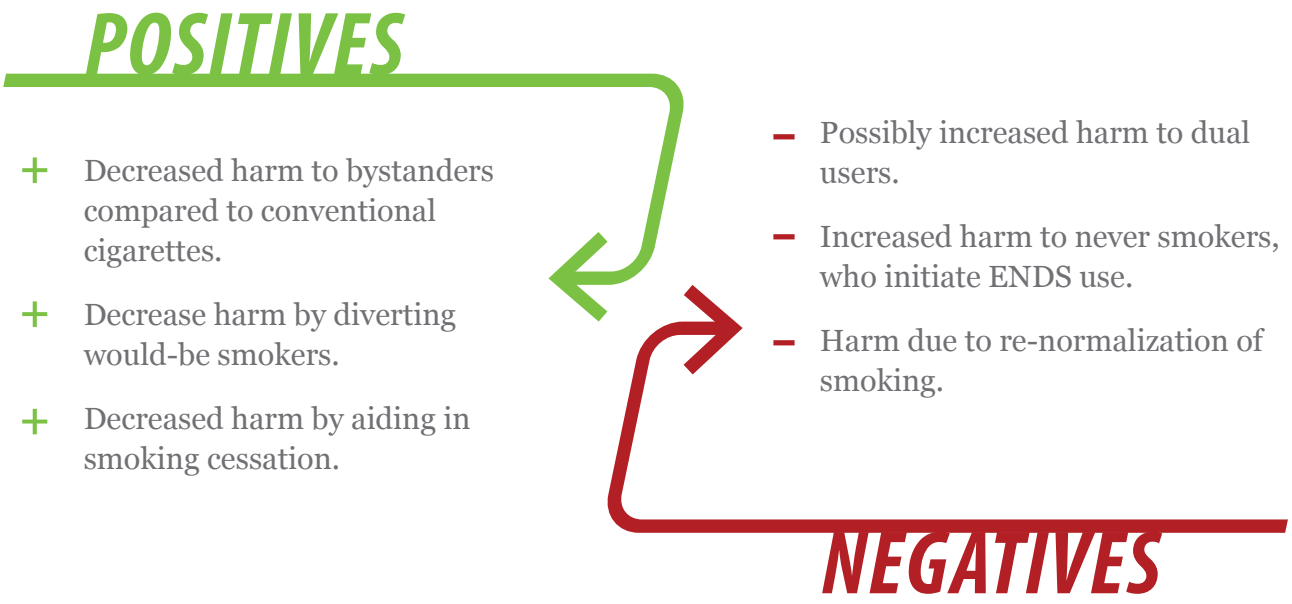
What are the possible benefits of ENDS use?

+ ENDS may assist in conventional cigarette smoking cessation
  + ENDS may increase the overall share of quit attempts
+ Would-be cigarette smokers could be diverted to ENDS
+ The concentration of carbonyl compounds such as formaldehyde, a probable carcinogen, found in e-cigarette aerosol is significantly lower than that in the smoke from conventional cigarettes
+ ENDS may reduce risk to bystanders because e-cigarette aerosol contains much lower levels of tobacco-specific nitrosamines (also called TSNAs), which are carcinogens compared to cigarette smoke

What is the net public health effect of ENDS use?

- Researchers estimate there will be a reduction of 21% of smoking attributable deaths and 20% in life years lost as a result of ENDS use by the cohort examined in the study.
- Multiple research groups have concluded that the ability of ENDS to assist adults in smoking cessation outweighs the negatives associated with ENDS use based on current data.
- ENDS seem to have a net positive effect on public health, but that doesn't mean that they are completely risk free.
  - Switching to exclusive ENDS use could reduce harm.
  - For non-smokers, initiating ENDS use may have a net negative impact on that individual's health.

The Net Public Health Effect



> NOTE: The net public health effect may change if future research reveals long-term ENDS use to be more harmful or the rates of youth initiation on ENDS are underestimations.

References

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