



Haut
Conseil de la
Santé
Publique

Is ENDS use a gateway for becoming a smoker among youths?

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Innovations for prevention in healthcare system



PHARES / Recherche translationnelle
en santé des populations

Centre de Recherche Inserm-Université de Bordeaux
U1219 : « Bordeaux population health »

Background - Increasing use

- Smoking is decreasing but is high in France among young people vs. other European countries
- Significant and increasing use of SEDEN among adolescents
 - 52% experimentation among high school students in 2018 (35% in 2015)
 - 17% use in the month among high school students in 2018 (10% in 2015)
 - 1.9% daily use at age 17 in 2018
- Nearly 10% of high school students who experimented with vaping had never smoked tobacco before (2018).
- The majority of adolescent users use ENDS for itself

EnCLASS, Escapad, OFDT

Background - a legal framework for the protection of minors

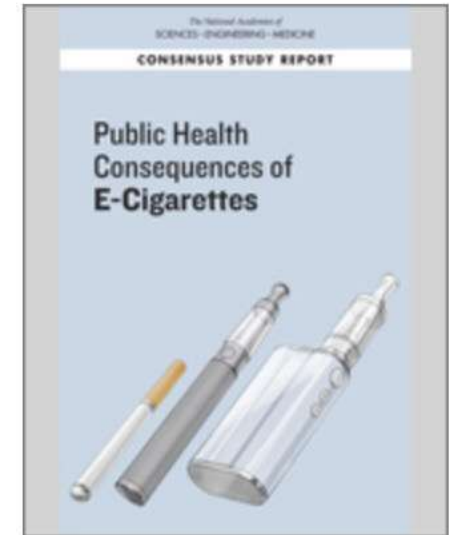
- The sale of smoking products is prohibited to minors under 18 years and the seller must require the customer to establish proof of his majority
- Absolute prohibition of consumption in:
 - Schools
 - establishments intended for the reception, training and housing of minors
 - (...)

Methods

- Observational studies with the higher level of evidence = prospective cohorts
- Sources:
 - National Academies of Sciences, Engineering, and Medicine report (bibliography through 8/30/2017).
 - Extended by a systematic review 2017/2021

National Academy of Sciences, Engineering, and Medicine. Report 2018

- Conclusion 16-1. There is **substantial evidence** that e-cigarette use **increases risk** of ever using combustible tobacco cigarettes among youth and young adult.
- Conclusion 16-2. Among youth and young adult e-cigarette users who ever use combustible tobacco cigarettes, there is moderate evidence that e-cigarette use increases the frequency and intensity of subsequent combustible tobacco cigarette smoking.
- Conclusion 16-3. Among youth and young adult e-cigarette users who ever use combustible tobacco , there is limited evidence that e-cigarette use increases, in the near term, the duration of subsequent combustible tobacco cigarette smoking.



Synthesis of recent literature 2017/2021

- **10 reviews / meta-analyses**
- **6 princeps**
- **Do not invalidate NAS conclusions**

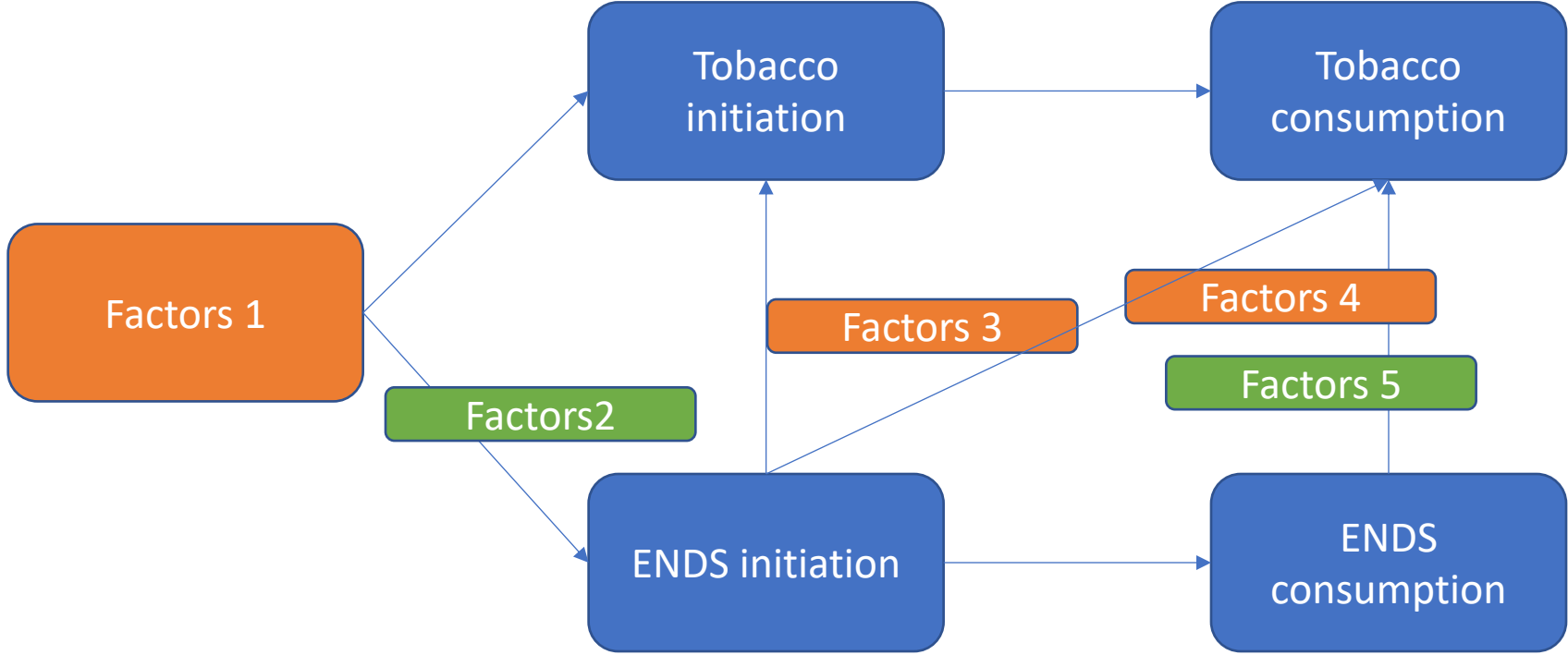
E.g.: the most recent meta-analysis (at the time of this report) agrees with the NAS findings

- **Methods:** Systematic review and meta-analysis of longitudinal studies that examined the association between e-cigarette use at baseline and smoking at follow-up. Participants were non-smokers aged < 18 at baseline.
- **Results:** Meta-analysis of 11 studies showed a significant longitudinal association between vaping and smoking [**adjusted odds ratio (aOR) = 2.93**, 95% confidence interval (CI) = 2.22, 3.87]. Studies with sample sizes < 1000 had a significantly higher odds ratio (OR = 6.68, 95% CI = 3.63, 12.31) than studies with sample sizes > 1000 (OR = 2.49, 95% CI = 1.97, 3.15). Overall, the attrition rate was very high (median = 30%). All but one study reported results from complete sample analysis, despite those dropping out having higher risk profiles. Only two studies comprehensively adjusted for confounding. The median E-value was 2.90, indicating that the estimates were not robust against unmeasured confounding.
- **Conclusions:** There is a longitudinal association between adolescent vaping and smoking initiation; however, the evidence is limited by publication bias, high sample attrition and inadequate adjustment for potential confounders.

Synthesis of the literature

- Prospective studies (and meta-analyses of these studies) are **almost unanimous** in their conclusions: initiation or use of ENDS is a determinant of smoking initiation or use
- However, there are methodological limitations
- The nature of the relationship remains to be explained

Complex relationships between ends initiation/consumption and youth smoking initiation/consumption: gateway or diversion?



6. Contextual moderators

Policy recommendations

- Recommendation 6: (...) The objective of delaying the initiation and use of ENDS among teenagers who do not use tobacco is a precautionary principle. **The HCSP recommends that the ban on sales to minors be maintained and that measures be taken to ensure that it is effectively enforced and monitored.**
- Recommendation N°7 : The HCSP recommends that all legislative and regulatory measures relating to ENDS be maintained in order to limit their attractiveness and accessibility and that measures be taken to ensure their effective application (...)
- Recommendation N°10: The HCSP recommends that health education interventions aimed at young people include informed information on ENDS.

Research recommendations

- Recommendation 12: The scientific evidence is in favor of the initiating role of ENDS in tobacco consumption. However, the available studies are not free of bias and to our knowledge no cohort study has been conducted in France to answer this question. **It would thus be important to support the production of data in the French context on the relationship between initiation/consumption of ENDS and initiation/consumption of tobacco among adolescents.** In order to answer this question, **longitudinal cohort studies should be conducted, taking into account all individual and collective factors of tobacco initiation, providing precise measurements of consumption that differentiate between experimentation and use, and controlling for the number of dropouts during follow-up.**
- Recommendation 13: (...) the HCSP recommends acquiring knowledge on the attractiveness of flavors by taking into account the practices in France.

