

# **E-papierosy – nowe wyzwanie dla zdrowia publicznego**

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**Warszawa, 16.09.2019r.**





Źródło: Opracowanie własne na podstawie zdjęcia z domeny publicznej

# E-papieros – wybrane fakty

- Elektroniczny system dostarczający nikotynę powszechnie zwany e-papierosem
- Element grzewczy podgrzewa płyn inhalacyjny (e-liquid) do temperatury około 200-300°C, tworząc aerozol dostarczany drogą inhalacji do układu oddechowego użytkownika (Caponnetto et al., 2012)



Rycina 1. Schemat budowy e-papierosa

Źródło: Opracowanie własne na podstawie zdjęcia z domeny publicznej.



# Vitamin ELECTRONIC CIGARETTE.

- Nicotine-Free
- No Smoke, Second Hand Smoke, or Tar
- Just Vitamins + Flavored Vapor
- 500 Puffs per VitaCig (Disposable/Recyclable)
- Only \$5 per VitaCig
- Five Exciting Flavors:  
Relax, Refresh, Energize,  
Calm, Grace



Every VitaCig includes the following base Vitamins A, B, C, E, and CoQ10 (Ubidecarenonol).



**Szcuje się, że w sprzedaży dostępne jest ponad 15 000 różnych smaków e-liquidu!**

# E-liquid (1)

- Od 30% do 70% użytkowników e-papierosów samodzielnie przygotowuje e-liquidy  
(*Farsalinos et al., 2014; Wong et al., 2017; wyniki własne*)



Źródło: <https://www.fasttech.com/product/>

A screenshot of a YouTube search results page for the query "how to make e-liquid". The page shows three video results. The first result is "Complete Beginner's Guide To Making E-Liquid - DIY Tutorial" by New Amsterdam Vape, with 1.1 million views and a duration of 34:15. The second result is "How to make your own E-Liquid - DIY Tutorial" by New Amsterdam Vape, with 1.6 million views and a duration of 10:11. The third result is "DIY E-Liquid Recipe Development" by New Amsterdam Vape, with 57 thousand views and a duration of 13:02. Each result includes a thumbnail image of the video content and a link to the video page.

YouTube

how to make e-liquid

Complete beginner's guide to making e-liquid

Complete Beginner's Guide To Making E-Liquid - DIY Tutorial

New Amsterdam Vape • 1,1 mln wyświetleń • 2 lata temu

Liquid Barn : [https://www.liquidbarn.com/?utm\\_source=NewAmsterdamVape&utm\\_medium=affiliate](https://www.liquidbarn.com/?utm_source=NewAmsterdamVape&utm_medium=affiliate)  
Liquid Barn's BASIC eLiquid ...

34:15

How to make your own e-liquid

How to make your own E-Liquid - DIY Tutorial

New Amsterdam Vape • 1,6 mln wyświetleń • 3 lata temu

Liquid Barn : [https://www.liquidbarn.com/?utm\\_source=NewAmsterdamVape&utm\\_medium=affiliate](https://www.liquidbarn.com/?utm_source=NewAmsterdamVape&utm_medium=affiliate)  
Liquid Barn's BASIC eLiquid ...

napisy

10:11

DIY E-Liquid Recipe Development

DIY E-Liquid Recipe Development

New Amsterdam Vape • 57 tys. wyświetleń • 2 lata temu

Liquid Barn : [https://www.liquidbarn.com/?utm\\_source=NewAmsterdamVape&utm\\_medium=affiliate](https://www.liquidbarn.com/?utm_source=NewAmsterdamVape&utm_medium=affiliate)  
Liquid Barn's BASIC eLiquid ...

13:02

Źródło: YouTube

# E-liquid (2)

- E-papierosy stanowią również nowy sposób inhalacji kannabinoidami i innymi substancjami psychoaktywnymi

European  
Addiction  
Research

## Research Report

Eur Addict Res 2015;21:124–130  
DOI: 10.1159/000369791

## Electronic Cigarettes and Cannabis: An Exploratory Study

Jean-Francois Etter

Institute of Global Health, Faculty of Medicine, University of Geneva, Geneva, Switzerland

*Int. J. Environ. Res. Public Health* **2015**, *12*, 9988–10008; doi:10.3390/ijerph120809988

OPEN ACCESS

International Journal of  
**Environmental Research and  
Public Health**  
ISSN 1660-4601  
www.mdpi.com/journal/ijerph

*Review*

## E-Cigarettes: A Review of New Trends in Cannabis Use

Christian Giroud <sup>1,2,3,\*</sup>, Mariangela de Cesare <sup>4</sup>, Aurélie Berthet <sup>2,3,6</sup>, Vincent Varlet <sup>1,2,3</sup>,  
Nicolas Concha-Lozano <sup>2,3,6</sup> and Bernard Favrat <sup>2,3,5,7</sup>



# Epidemia użytkowników e-papierosów?

## Ever use

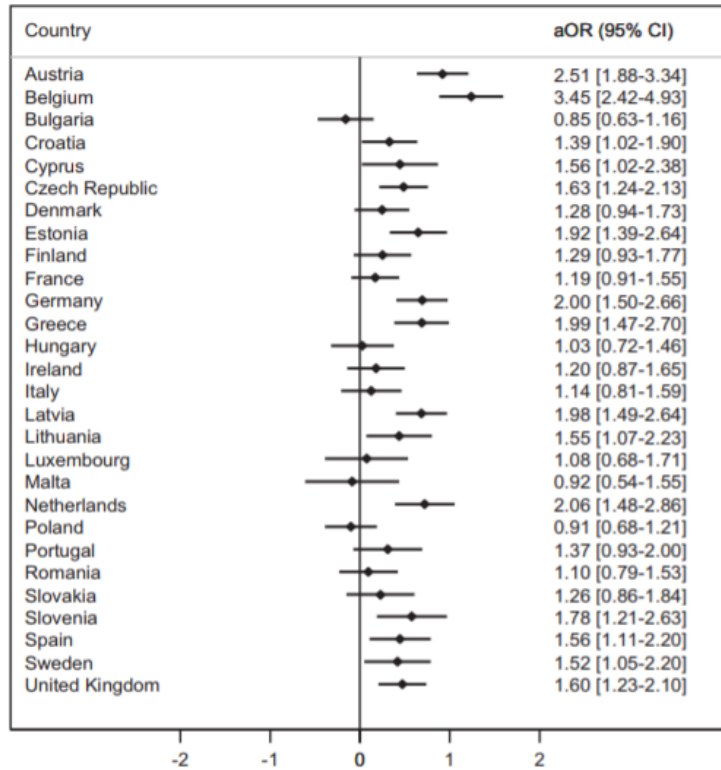


Fig. 1. Changes in ever e-cigarette use between 2014 and 2017 in EU

Table 1

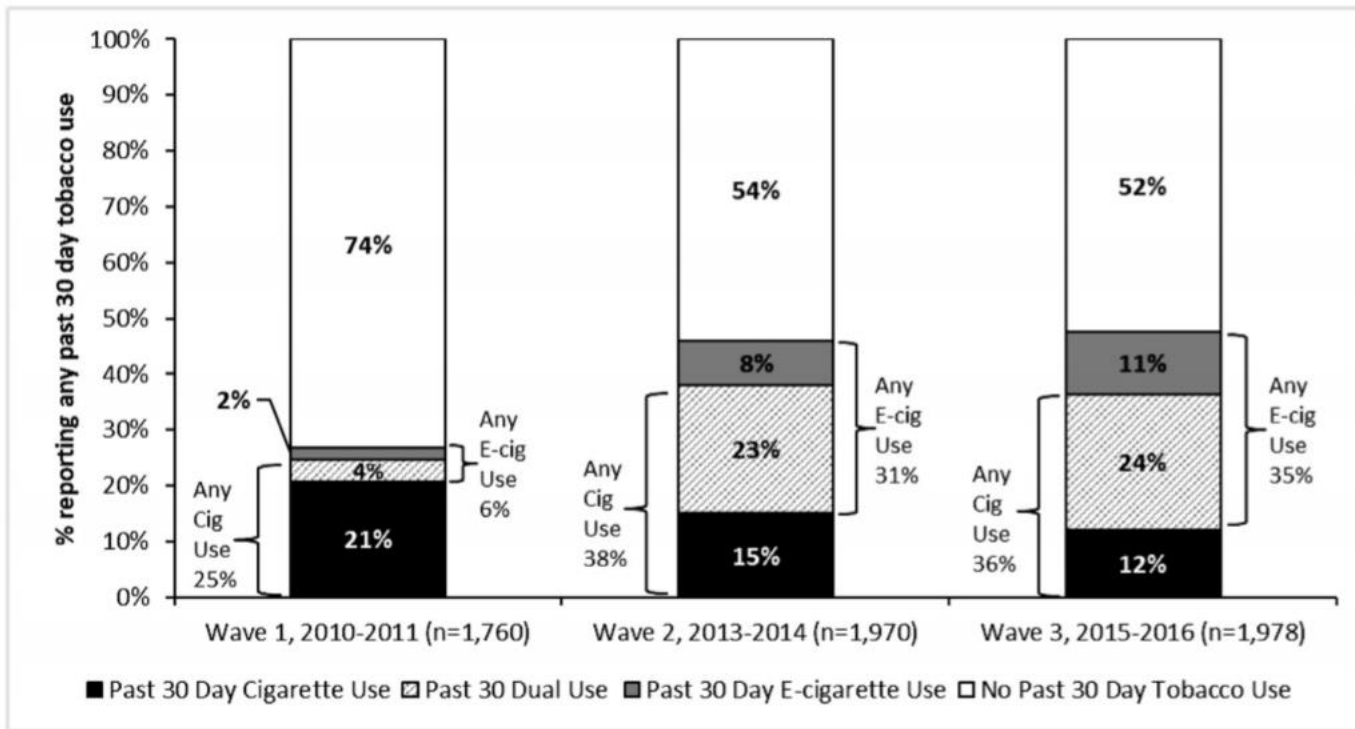
Change in daily or weekly (i.e. 'regular') use of e-cigarettes in 28 European Union member states (EUMS), from the 2014 and 2017 Special Eurobarometer for Tobacco Survey.

EU Member state	2014		2017		% change 2014 to 2017
	n	% (95% CI)	n	% (95% CI)	
Austria	1044	0.9 (0.4-2.0)	1001	2.6 (1.7-4.1)	199.4%
Belgium	1009	0.4 (0.1-1.1)	1023	2.7 (1.8-4.0)	579.7%
Bulgaria	1003	0.6 (0.2-1.3)	1044	0.2 (0.1-0.8)	-62.5%
Croatia	1009	1.2 (0.5-2.5)	1048	0.3 (0.1-0.9)	-75.3%
Cyprus (Republic)	500	1.8 (0.9-3.8)	501	1.8 (0.8-3.7)	-3.3%
Czech Republic	1044	0.6 (0.3-1.4)	1058	1.2 (0.6-2.1)	83.6%
Denmark	1024	1.8 (1.2-2.9)	1000	1.7 (1.0-2.9)	-5.4%
Estonia	998	0.6 (0.3-1.5)	1017	1.0 (0.4-2.4)	59.5%
Finland	1010	0.7 (0.3-1.5)	1012	0.8 (0.3-1.8)	18.0%
France	1009	3.6 (2.4-5.2)	1004	3.7 (2.6-5.3)	5.3%
Germany	1572	1.1 (0.6-2.0)	1537	1.4 (0.9-2.3)	35.2%
Greece	1008	0.9 (0.5-1.6)	1010	2.3 (1.5-3.6)	169.0%
Hungary	1057	0.3 (0.1-0.9)	1053	0.6 (0.2-1.5)	107.3%
Ireland	1003	2.4 (1.6-3.6)	1021	1.9 (1.2-3.0)	-22.3%
Italy	1010	0.1 (0.0-0.5)	1022	0.2 (0.0-0.7)	159.3%
Latvia	1003	0.8 (0.3-2.1)	1004	0.8 (0.3-2.2)	4.6%
Lithuania	1007	0.2 (0.0-1.2)	1001	0.5 (0.1-2.0)	185.2%
Luxembourg	504	0.8 (0.3-2.6)	510	1.3 (0.5-3.3)	65.0%
Malta	502	0 (0-0)	500	1.9 (0.9-4.2)	n/a
Netherlands	1019	1.4 (0.8-2.4)	1015	1.3 (0.7-2.2)	-5.9%
Spain	1012	1.6 (0.9-2.6)	1008	1.0 (0.5-2.1)	-35.0%
Poland	1002	0.9 (0.4-1.9)	1061	0.9 (0.5-1.8)	4.2%
Portugal	1034	0.2 (0.0-1.2)	1033	0.5 (0.2-1.2)	175.6%
Romania	1031	0.5 (0.2-1.3)	1014	0.3 (0.1-0.8)	-48.1%
Slovakia	1035	0.1 (0.0-0.8)	1027	0.4 (0.1-1.5)	285.6%
Slovenia	1011	0.5 (0.2-1.2)	1024	0.4 (0.1-1.0)	-24.0%
Sweden	1029	0.3 (0.1-0.9)	1007	0.3 (0.1-1.1)	-13.3%
United Kingdom	1312	3.6 (2.5-5.2)	1346	4.7 (3.4-6.3)	28.5%
EU - all 28 EU MS	27,801	1.5 (1.2-1.8)	27,901	1.8 (1.5-2.1)	21.2%



# Odsetek Polskich nastolatków używających e-papierosa

(A) All Youth Tobacco Use (n=5,708)



Używanie tylko e-papierosa:

2% - 8% - 11%



Dual use:

4% - 23% - 24%



E-papieros jako inicjujący:

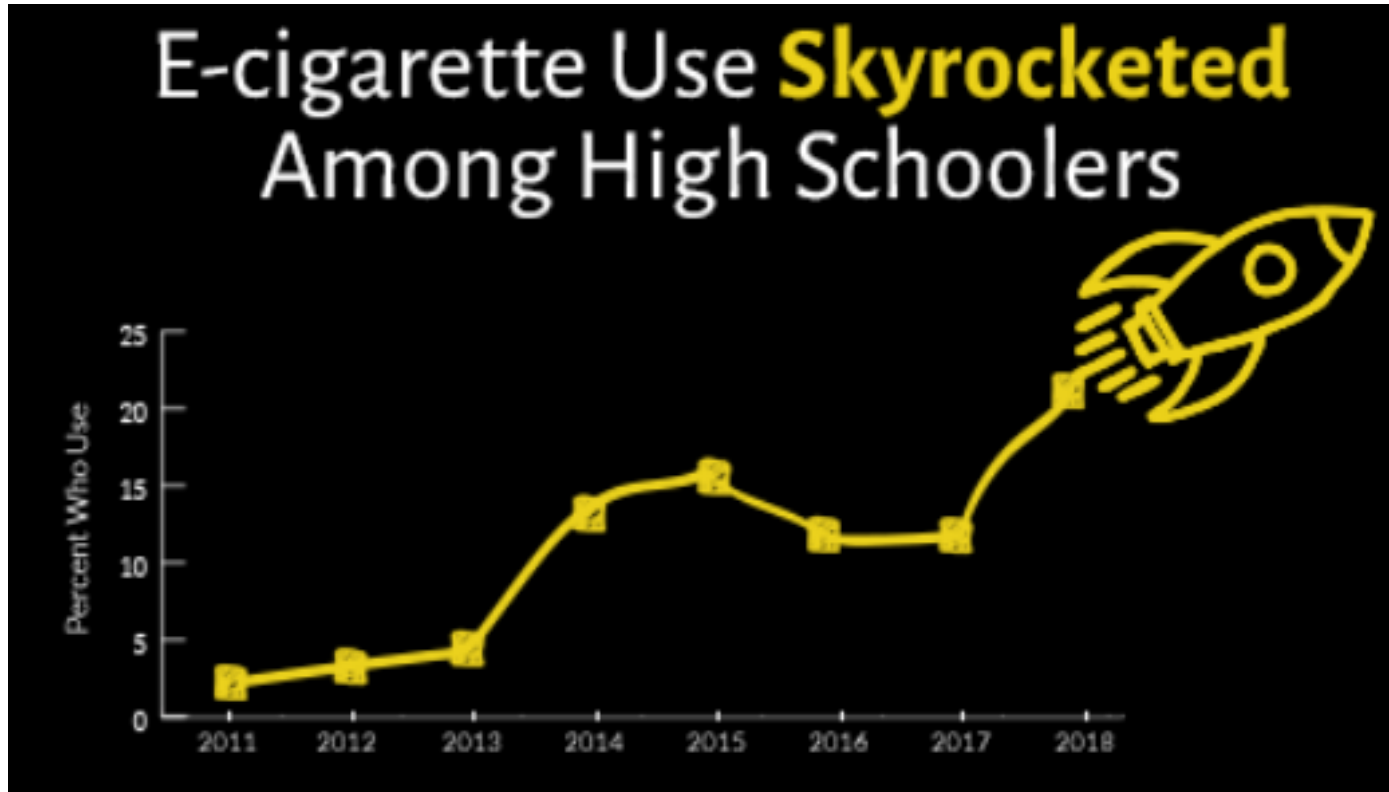
18% (2013-2014)

24% (2015-2016)



# Epidemia e-palaczy w USA

W ciągu roku (2018 vs 2017) liczba nastolatków używających e-papierosy w USA wzrosła o 1,5 mln użytkowników.







CLASSIC MENTHOL



COOL CUCUMBER



CLASSIC TOBACCO



MANGO



VIRGINIA TOBACCO



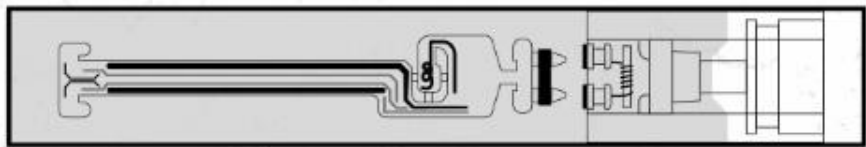
COOL MINT

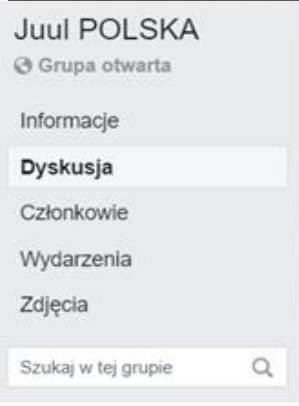
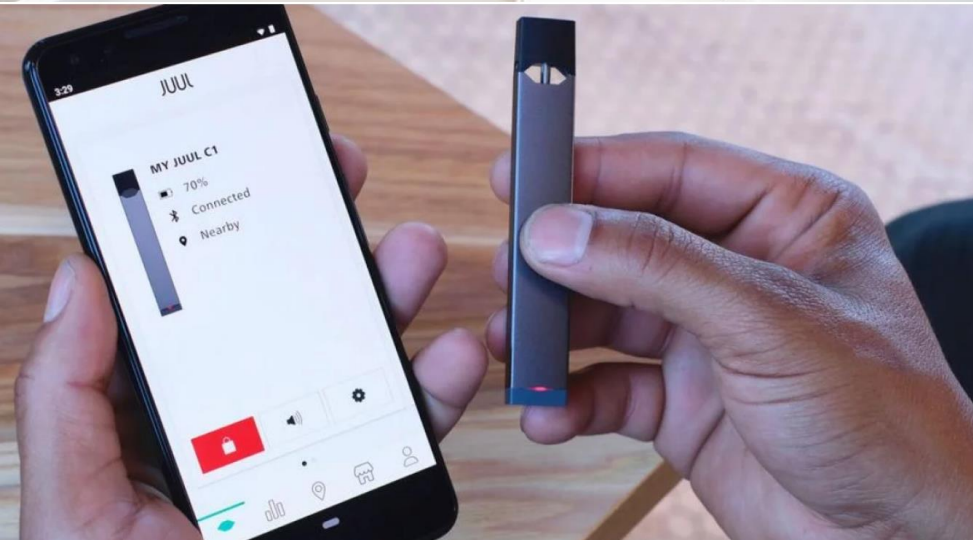


FRUIT MEDLEY



CREME BRULEE







# JUUL: marka e-papierosów kierowana do nastolatków

**Table 1** Ever use, current use and reasons for use of electronic cigarettes shaped like USB flash drives\* among US adults, 2018

Characteristics	Ever use† of USB-shaped EVPs			Current use‡ of USB-shaped EVPs	
	Unweighted sample size (unweighted ever users)	Weighted % (95% CI)	AORs§ (95% CI)	Unweighted sample size (unweighted current users)	Weighted % (95% CI)
Overall	3991 (276)	7.9 (6.8 to 8.9)	–	3985 (65)	2.0 (1.4 to 2.6)
Sex					
Male	1978 (144)	8.3 (6.8 to 9.8)	Ref	1976 (37)	2.2 (1.4 to 3.0)
Female	2013 (132)	7.5 (6.0 to 8.9)	1.09 (0.79 to 1.49)	2009 (28)	1.8 (1.0 to 2.6)
Age (years)					
65+	918 (24)	2.8 (1.6 to 4.0)	Ref	916 (4)	–¶
45–64	1650 (107)	7.1 (5.7 to 8.6)	<b>2.77 (1.68 to 4.57)</b>	1648 (20)	1.2 (0.7 to 1.8)
25–44	1253 (124)	10.1 (8.2 to 11.9)	<b>4.95 (2.96 to 8.28)</b>	1252 (33)	2.6 (1.6 to 3.6)
18–24	170 (21)	<b>12.5 (7.3 to 17.7)</b>	<b>10.52 (4.92 to 22.49)</b>	169 (8)	5.2 (1.6 to 8.7)
Cigarette smoking status**					
Never smoker	2301 (57)	3.4 (2.4 to 4.5)	Ref	2298 (13)	1.0 (0.4 to 1.6)
Former smoker	1167 (102)	10.3 (8.2 to 12.4)	<b>5.99 (3.91 to 9.19)</b>	1165 (23)	2.4 (1.3 to 3.5)
Current smoker	433 (110)	25.7 (20.9 to 30.5)	<b>12.60 (8.04 to 19.76)</b>	432 (28)	6.8 (3.9 to 9.7)
EVP use††					
Never EVP use	3434 (71)	2.4 (1.8 to 3.1)	–	3431 (28)	0.2 (0.1 to 0.4)
Former EVP use	390 (137)	35.6 (30.0 to 41.2)	–	388 (11)	3.0 (1.0 to 5.1)
Current EVP use	156 (65)	45.9 (36.5 to 55.4)	–	155 (46)	34.3 (24.9 to 43.7)
Reasons for use‡‡					
To deliver nicotine	270 (85)	30.7 (24.3 to 37.2)	–	65 (33)	48.2 (33.1 to 63.3)
To deliver marijuana or cannabis	270 (43)	18.7 (12.8 to 24.7)	–	65 (15)	30.3 (15.5 to 45.2)
Its shape lets me use it unnoticed	270 (13)	5.4 (1.9 to 8.9)	–	65 (8)	14.4 (2.8 to 26.0)
To try to quit other tobacco products	270 (73)	22.6 (17.0 to 28.2)	–	65 (21)	25.9 (13.5 to 38.4)
A friend or family member used them	270 (76)	30.2 (23.5 to 37.0)	–	65 (15)	24.8 (11.2 to 38.4)
Other reasons	270 (59)	22.1 (16.2 to 28.0)	–	65 (6)	–¶





# Marketing JUUL

The makers of PAX invite you to the  
**JUUL LAUNCH PARTY**



Thursday, June 4th | 7 - 11 PM | New York City

Źródło: <https://www.vox.com/2019/1/25/18194953/vape-juul-e-cigarette-marketing>

May 20, 2019

# Estimated Ages of JUUL Twitter Followers

Annice E. Kim, PhD<sup>1</sup>; Robert Chew, MS<sup>2</sup>; Michael Wenger, BS<sup>2</sup>; [et al](#)

» Author Affiliations

*JAMA Pediatr.* Published online May 20, 2019. doi:10.1001/jamapediatrics.2019.0922

**Table. Predicted Age Category of Twitter Users Following @JUULvapor Who Were Classified as Individuals**

Model	Individual Accounts, No. (%) (n = 9077)
<b>3-Age category, y</b>	
13-17	4078 (44.9) ←
18-24	3957 (43.6)
≥25	1042 (11.5)
<b>2-Age category, y</b>	
13-20	7313 (80.6) ←
≥21	1764 (19.4)



## Characterising JUUL-related posts on Instagram.

Czaplicki L<sup>1</sup>, Kostygina G<sup>2</sup>, Kim Y<sup>2</sup>, Perks SN<sup>3</sup>, Szczypka G<sup>2</sup>, Emery SL<sup>2</sup>, Vallone D<sup>3,4</sup>, Hair EC<sup>3,5</sup>.

### Author information

#### Abstract

**BACKGROUND:** JUUL, a high-tech, popular vaping device, was the first major electronic cigarette (e-cigarette) brand to incorporate social media into its marketing strategy. There is growing concern around the increasing use of JUUL and other electronic nicotine delivery devices among youth, and their potential to addict a new generation to nicotine. The current study analysed the amount and characteristics of JUUL-related posts on Instagram, a social media platform used frequently among youth and young adults.

**METHODS:** Hashtag-based keyword queries (n=50) were used to collect JUUL-related posts from the Instagram application programming interface, March 2018-May 2018. Using a combination of machine learning methods, keyword algorithms and human coding, posts were characterised as featuring content related to product promotion, nicotine and addiction, youth culture and lifestyle.

**RESULTS:** Keyword queries captured 14 838 JUUL-relevant posts by 5201 unique users. Over one-third of posts were promotional (eg, linked to commercial website) and 11% contained nicotine and addiction-related information. Approximately half of posts featured content related to youth (55%) or lifestyle (57%). Youth-related content or lifestyle appeals were also notably present within promotional posts and nicotine and addiction-related posts, respectively. Nicotine and addiction-related posts featured memes, hashtags (eg, #nichead, #juulbuzz) and tag lines (eg, 'more flavor, more buzz').

**CONCLUSIONS:** Findings reveal a proliferation of JUUL-related content on Instagram, which focused on product promotion and nicotine and addiction that included youth culture and lifestyle appeals. Regulatory actions should focus on restricting promotional efforts for e-cigarette products, particularly on social media platforms where young people are a primary audience.

← Ho **For Immediate Release:** September 09, 2019 / [FDA warns JUUL Labs for marketing unauthorized modified risk tobacco products, including in outreach to youth](#)

FDA NEWS RELEASE

# **FDA warns JUUL Labs for marketing unauthorized modified risk tobacco products, including in outreach to youth**

*Agency sends additional letter requesting more information on several issues, including outreach and marketing practices, as part of ongoing investigation*



## NEWS

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# E-cigarette makers under fire for marketing to young people

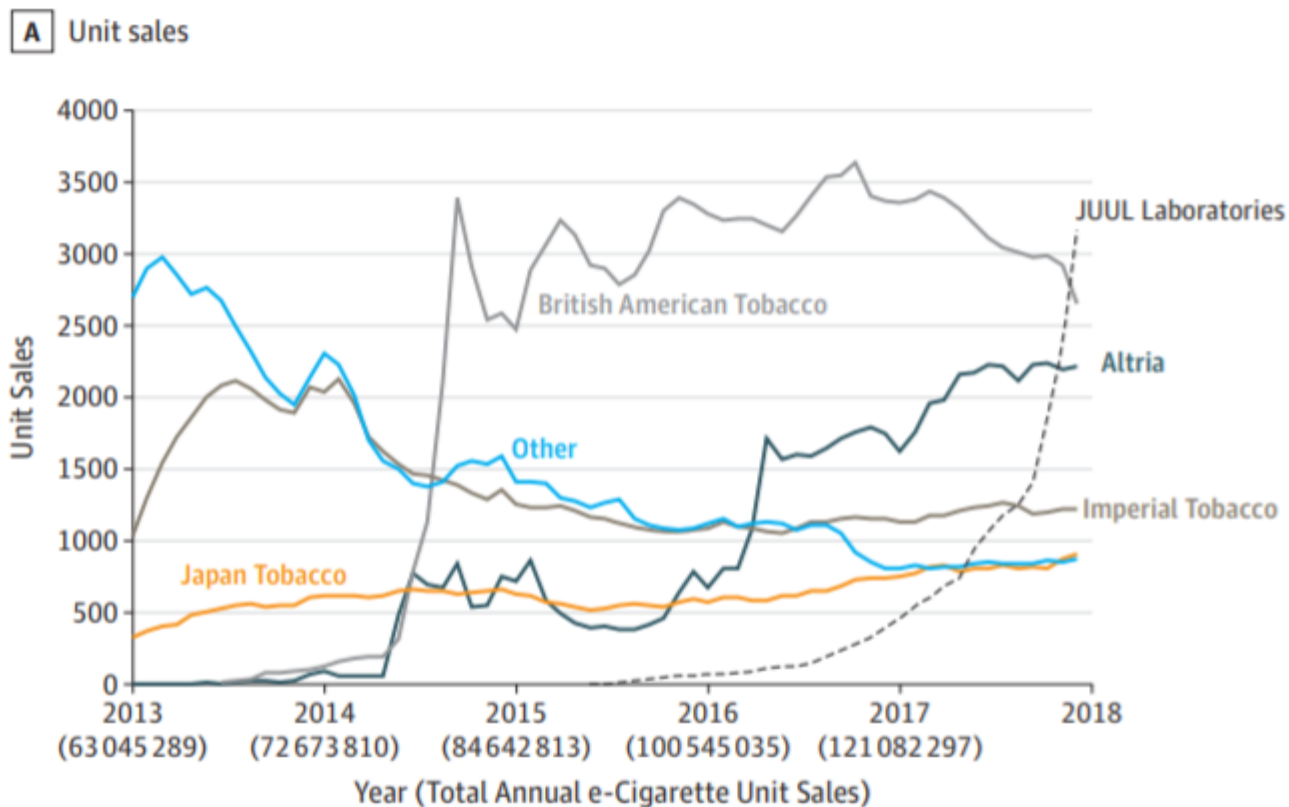
Owen Dyer

**Social Media**

**Popularni Influencerzy**

**YouTube**

Figure. e-Cigarette Unit Sales and Market Share of e-Cigarette Unit Sales, by Manufacturer—United States, 2013-2017





# MIT 1

**Aerazol z e-papierosa to tylko para wodna  
i nikotyna**

➤ W aerozolu z e-papierosa zidentyfikowano m.in.:  
(*McAuley et al., 2012; Goniewicz et al., 2014; Hahn et al., 2014*)

acetaldehyd

formaldehyd

akroleinę

propanal

nikotyne

aceton

o-metyl-benzaldehyd

karcinogenne nitrozaminy

[Arterioscler Thromb Vasc Biol.](#) 2018 Jul;38(7):1607-1615. doi: 10.1161/ATVBAHA.118.311156. Epub 2018 Jun 14.

### **Flavorings in Tobacco Products Induce Endothelial Cell Dysfunction.**

[Fetterman JL](#)<sup>1</sup>, [Weisbrod RM](#)<sup>2</sup>, [Feng B](#)<sup>2</sup>, [Bastin R](#)<sup>2</sup>, [Tuttle ST](#)<sup>2</sup>, [Holbrook M](#)<sup>2</sup>, [Baker G](#)<sup>2</sup>, [Robertson RM](#)<sup>3</sup>, [Conklin DJ](#)<sup>4</sup>, [Bhatnagar A](#)<sup>3</sup>, [Hamburg NM](#)<sup>2</sup>.

[PLoS One.](#) 2018 Sep 7;13(9):e0203717. doi: 10.1371/journal.pone.0203717. eCollection 2018.

### **Carcinogenic potential of sweet flavors in electronic-cigarette liquids.**

[Kim SA](#)<sup>1</sup>, [Smith S](#)<sup>2</sup>, [Beauchamp C](#)<sup>3</sup>, [Song Y](#)<sup>3</sup>, [Chiang M](#)<sup>3</sup>, [Giuseppetti A](#)<sup>1</sup>, [Frukhtbeyn S](#)<sup>1</sup>, [Shaffer I](#)<sup>4</sup>, [Wilhide J](#)<sup>4</sup>, [Routkevitch D](#)<sup>5</sup>, [Ondov JM](#)<sup>6</sup>, [Kim JJ](#)<sup>1</sup>.

[Environ Sci Technol.](#) 2017 Sep 19;51(18):10806-10813. doi: 10.1021/acs.est.7b02205. Epub 2017 Sep 5.

### **Flavoring Chemicals and Aldehydes in E-Cigarette Emissions.**

[Klager S](#)<sup>1</sup>, [Vallarino J](#)<sup>1</sup>, [MacNaughton P](#)<sup>1</sup>, [Christiani DC](#)<sup>1</sup>, [Lu Q](#)<sup>1</sup>, [Allen JG](#)<sup>1</sup>.

[Environ Health Perspect.](#) 2016 Jun;124(6):733-9. doi: 10.1289/ehp.1510185. Epub 2015 Dec 8.

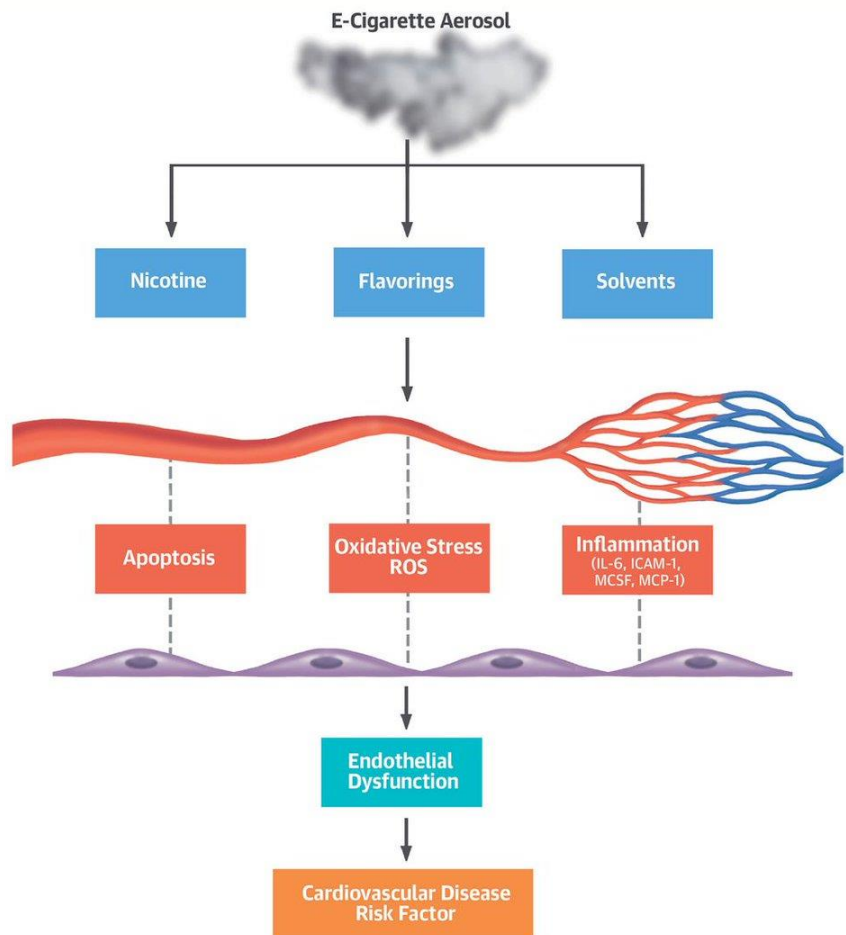
### **Flavoring Chemicals in E-Cigarettes: Diacetyl, 2,3-Pentanedione, and Acetoin in a Sample of 51 Products, Including Fruit-, Candy-, and Cocktail-Flavored E-Cigarettes.**

[Allen JG](#)<sup>1</sup>, [Flanigan SS](#), [LeBlanc M](#), [Vallarino J](#), [MacNaughton P](#), [Stewart JH](#), [Christiani DC](#).

**Modeling Cardiovascular Risks of E-Cigarettes With Human-Induced Pluripotent Stem Cell-Derived Endothelial Cells**

Won Hee Lee, Sang-Ging Ong, Yang Zhou, Lei Tian, Hye Ryeong Bae, Natalie Baker, Adam Whitlatch, Leila Mohammadi, Hongchao Guo, Kari C. Nadeau, Matthew L. Springer, Suzaynn F. Schick, Aruni Bhatnagar and Joseph C. Wu

**CENTRAL ILLUSTRATION: Human-Induced Pluripotent Stem Cell-Derived Endothelial Cells for Evaluating E-Cigarette Risk**



# MIT 2

**E-papierosy są w 95% mniej szkodliwe niż tradycyjne papierosy**

# Wpływ e-papierosa na układ krążenia



1. Alzahrani et al. Association Between Electronic Cigarette Use and **Myocardial Infarction**.  
[<https://www.ncbi.nlm.nih.gov/pubmed/30166079>]
2. Antoniewicz et al. Acute Effects of Electronic Cigarette Inhalation on the Vasculature and the Conducting Airways.  
[<https://link.springer.com/article/10.1007/s12012-019-09516-x>]
3. Benovitz N. Cardiovascular effects of electronic cigarettes [https://www.ncbi.nlm.nih.gov/pubmed/28332500]
4. Benovitz et al. Cardiovascular toxicity of nicotine Implications for electronic cigarette use.  
[<https://www.ncbi.nlm.nih.gov/pubmed/27079891>]
5. Chatterjee et al. Acute exposure to e-cigarettes **causes inflammation and endothelial oxidative stress** in non-smoking healthy young subjects. [https://www.ncbi.nlm.nih.gov/pubmed/31042077]
6. Franzen et al. E-cigarettes and cigarettes **worsen peripheral and central hemodynamics as well as arterial stiffness**: A randomized, double-blinded pilot study. [https://www.ncbi.nlm.nih.gov/pubmed/29985113]
7. Ikonomidis et al. Electronic Cigarette Smoking **Increases Arterial Stiffness and Oxidative Stress** to a Lesser Extent Than a Single Conventional Cigarette An Acute and Chronic Study. [https://www.ncbi.nlm.nih.gov/pubmed/29335291]
8. Moheimani et al. Increased Cardiac Sympathetic Activity and Oxidative Stress in Habitual Electronic Cigarette Users Implications for Cardiovascular Risk. [https://www.ncbi.nlm.nih.gov/pubmed/28146259]
9. Nocella et al. Impact of Tobacco Versus Electronic Cigarette Smoking on Platelet Function.  
[<https://www.ncbi.nlm.nih.gov/pubmed/30170691>]
10. Osei et al. The association between e-cigarette use and **cardiovascular disease among** never and current combustible cigarette smokers BRFSS 2016 & 2017. [https://www.ncbi.nlm.nih.gov/pubmed/30853474]
11. Quasim et al. Short-Term E-Cigarette Exposure **Increases the Risk of Thrombogenesis and Enhances Platelet** Function in Mice.  
[<https://www.ncbi.nlm.nih.gov/pubmed/30021806>]
12. Shi et al. The Effect of Electronic-Cigarette Vaping on **Cardiac Function and Angiogenesis** in Mice.  
[<https://www.nature.com/articles/s41598-019-40847-5>]

# E-papierosy a ryzyko wystąpienia incydentu wieńcowego

**Table 2.** Univariate and Multivariable Associations Between E-cigarette Use and Myocardial Infarction of NHIS 2014 and 2016 Combined

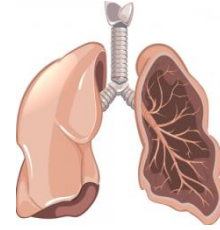
Characteristics	Unadjusted model		Adjusted model	
	OR (95% CI)	p-value	OR (95% CI)	p-value
E-cigarette use				
Never	ref		ref	
Former	<b>0.79 (0.67, 0.94)</b>	<b>0.009</b>	1.06 (0.86, 1.30)	0.608
Some days	1.06 (0.79, 1.44)	0.665	1.16 (0.83, 1.62)	0.392
Daily	<b>1.69 (1.19, 2.39)</b>	<b>0.003</b>	<b>1.79 (1.20, 2.66)</b>	<b>0.004</b>
Cigarette smoking				
Never			ref	
Former			<b>1.70 (1.51, 1.91)</b>	<b>&lt;0.001</b>
Some days			<b>2.36 (1.80, 3.09)</b>	<b>&lt;0.001</b>
Daily			<b>2.72 (2.29, 3.24)</b>	<b>&lt;0.001</b>

Codziennie używanie e-papierosa prawie dwukrotnie zwiększa ryzyko wystąpienia incydentu wieńcowego (OR=1.79, 95%CI=1.20-2.66, p=0.004).

Jednoczesne używanie e-papierosa i palenie papierosów tradycyjnych (dual users) jest bardziej niebezpieczne, niż używanie tylko jednego z tych produktów. **Ryzyko wystąpienia incydentu wieńcowego w grupie „dual users” rośnie prawie pięciokrotnie!**



# Wpływ e-papierosa na układ oddechowy



1. Brożek&Jankowski. **Acute respiratory responses** to the use of e-cigarette: an intervention study. [<https://www.nature.com/articles/s41598-019-43324-1>]
2. Boizer et al. Heightened response to e-cigarettes in COPD. [<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6390269/>]
3. Ghosh et al. Chronic E-Cigarette Exposure **Alters the Human Bronchial Epithelial Proteome**. [<https://www.ncbi.nlm.nih.gov/pubmed/29481290>]
4. Clapp et al. Cinnamaldehyde in flavored e-cigarette liquids **temporarily suppresses bronchial epithelial cell ciliary** motility by dysregulation of mitochondrial function. <https://www.ncbi.nlm.nih.gov/pubmed/30604630>
5. Crotty Alexander et al. Chronic inhalation of e-cigarette vapor containing nicotine **disrupts airway barrier function and induces systemic inflammation** and multiorgan fibrosis in mice. <https://www.ncbi.nlm.nih.gov/pubmed/29384700>
6. Garcia-arcos et al. Chronic electronic cigarette exposure in mice **induces features of COPD** in a nicotine-dependent manner. [<https://www.ncbi.nlm.nih.gov/pubmed/27558745>]
7. Chaumont et al. Fourth generation e-cigarette vaping **induces transient lung inflammation and gas exchange disturbances** results from two randomized clinical trials. [<https://www.ncbi.nlm.nih.gov/pubmed/30724099>]
8. Higham et al. The effect of electronic cigarette and tobacco smoke exposure on COPD bronchial epithelial cell inflammatory responses. [<https://www.ncbi.nlm.nih.gov/pubmed/29615835>]
9. Lin et al. Vaporized E-Cigarette Liquids **Induce Ion Transport Dysfunction in Airway** Epithelia. [<https://www.ncbi.nlm.nih.gov/pubmed/30576219>]
10. Meo et al. Electronic Cigarettes **Impact on Lung Function and Fractional Exhaled Nitric Oxide** Among Healthy Adults. [<https://www.ncbi.nlm.nih.gov/pubmed/30318975>]
11. Miyashita et al. E-cigarette vapour **enhances pneumococcal adherence to airway epithelial cells**. [<https://www.ncbi.nlm.nih.gov/pubmed/29437942>]
12. Reidel et al. E-Cigarette Use **Causes a Unique Innate Immune Response in the Lung, Involving Increased Neutrophilic Activation and Altered Mucin Secretion**. [<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5821909/>]
13. Sohal et al. IQOS exposure **impairs human airway cell homeostasis** direct comparison with traditional cigarette and e-cigarette. [<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6368999/>]



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Preventive Medicine

journal homepage: [www.elsevier.com/locate/ypmed](http://www.elsevier.com/locate/ypmed)



Review Article

A conflict of interest is strongly associated with tobacco industry–favourable results, indicating no harm of e-cigarettes



Charlotta Pisinger<sup>a,b,\*</sup>, Nina Godtfredsen<sup>c,d</sup>, Anne Mette Bender<sup>e</sup>

Tobacco Induced Diseases

Research Paper

# Conflicts of interest in research on electronic cigarettes

*Cristina Martínez<sup>1,2,3,4</sup> and Marcela Fu<sup>1,2,5</sup>, Iñaki Galán<sup>6,7</sup>, Mónica Pérez-Ríos<sup>8,9,10</sup>, Jose M. Martínez-Sánchez<sup>11</sup>,  
María J. López<sup>10,12,13</sup>, Xisca Sureda<sup>14</sup>, Agustín Montes<sup>9,10</sup>, Esteve Fernández<sup>1,2,5</sup>*

Tob. Induc. Dis. 2018;16(June):28  
<https://doi.org/10.18332/tid/90668>

## JUUL Labs' sponsorship and the scientific integrity of vaping research

Andy S L Tan ✉ · Samir Soneji · Meghan Bridgid Moran · Kelvin Choi

Published: August 03, 2019 · DOI: [https://doi.org/10.1016/S0140-6736\(19\)31718-0](https://doi.org/10.1016/S0140-6736(19)31718-0)

### Critique of investigator-sponsored research application guidelines

Transparency and independence	Lack of transparency of scientific criteria for evaluation and selection of proposals, review committee members' qualifications, and independence
Competitive funding process	The review process, selection criteria for determining funding, and expertise of reviewers are not fully described
Ownership of data and freedom to publish	The extent to which the investigator owns the data and has the freedom to publish without interference from JUUL Labs irrespective of the findings is unclear
Independent research agenda	Research agenda is not determined independently of the company; meetings with investigators before submitting a proposal might pose a conflict with achieving an independent research agenda
Governance	Composition of the governance team, qualifications and independence of members, and by-laws are not described; there is no description of an independent research committee of experts
Protection against conflicts of interest	There is no stated policy, protections against conflicts of interest, or mechanisms in place to enforce policies related to conflicts of interest
Industry public relations gains that counteract public health	JUUL Labs promoted research findings favourable to the company's interests at scientific meetings and in press releases and the news media
Feasibility	The growing number of sponsored research studies suggest this is being implemented and thus is a feasible funding model

These eight evaluation criteria were adapted from Cohen and colleagues.<sup>17</sup>

**Table: Summary of JUUL Labs funding of research studies using criteria for evaluating tobacco industry funding of research**

**Opracowano 8 kryteriów podważających wiarygodność badań naukowych nad e-papierosami, które był sponsorowane przez przemysł tytoniowy**

## Knowledge and Beliefs of E-Cigarettes Among Physicians in Poland.

Zgliczyński WS<sup>1</sup>, Jankowski M<sup>1</sup>, Rostkowska O<sup>2</sup>, Gujski M<sup>3</sup>, Wierzba W<sup>4</sup>, Pinkas J<sup>1</sup>.

### Author information

#### Abstract

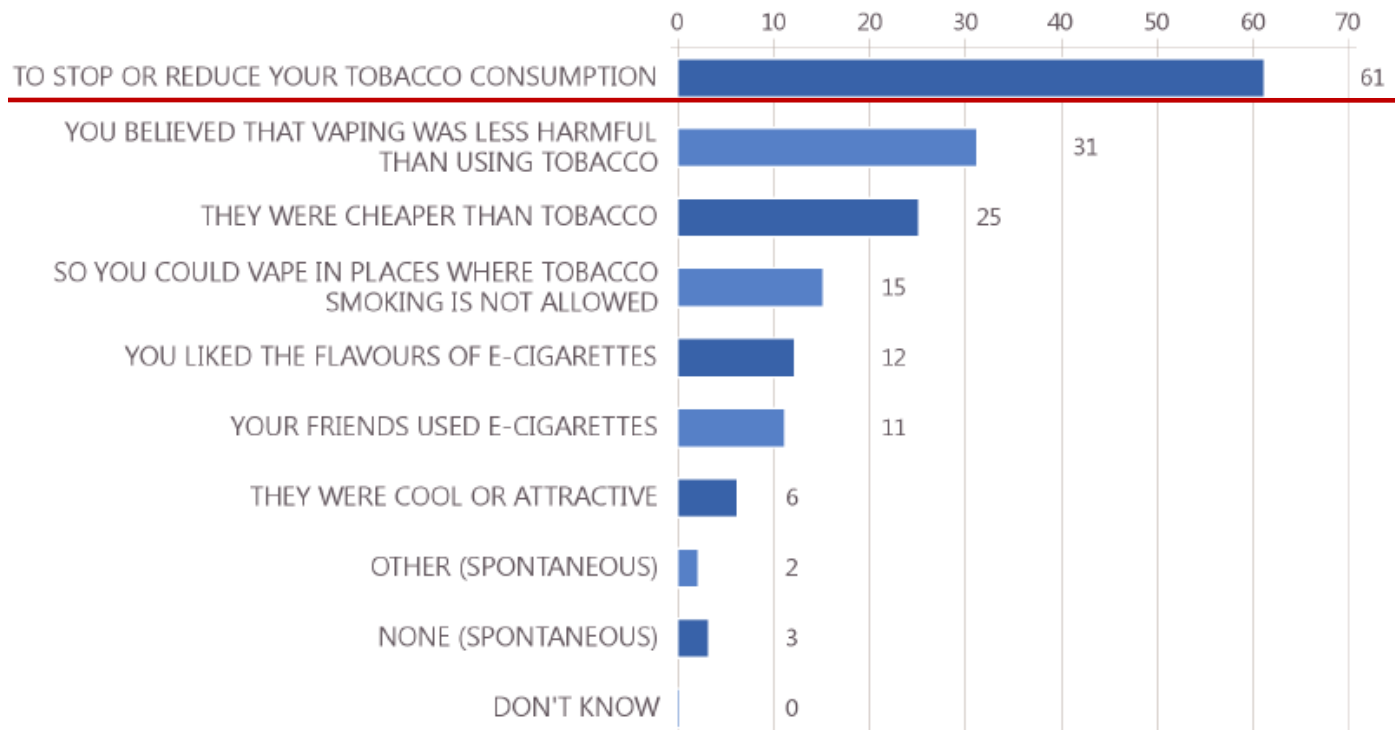
**BACKGROUND** Electronic nicotine delivery systems, including electronic cigarettes (e-cigarettes) are gaining popularity. The objectives of this study were to assess the knowledge and beliefs about e-cigarettes among physicians in Poland. **MATERIAL AND METHODS** A questionnaire-based survey was conducted among physicians attending mandatory courses delivered at the School of Public Health, Centre of Postgraduate Medical Education (Warsaw, Poland). The questionnaire included 24 questions concerning beliefs and attitudes about e-cigarettes. **RESULTS** Data were obtained from 412 physicians (64.3% females; aged 31.9±5.7 years) with a response rate of 82.4%. Among participants, 99.8% were aware of e-cigarettes. The main sources of information about e-cigarettes were: news stories (67.2%) or points of sale of e-cigarettes (67.6%). Approximately half of respondents (50.2%) declared moderate knowledge about e-cigarettes, and over three-quarters (78.1%) declared willingness to learn more about e-cigarettes. The majority (96.5%) of participants agreed with the statement that e-cigarette use is harmful to the user's health, and most (80.5%) agreed that exhaled e-cigarette aerosol is harmful to bystanders. The statement that e-cigarettes could be "gateway" to conventional smoking was supported by 87% of participants. Only 11.5% of physicians agreed that e-cigarettes should be recommended as a smoking cessation method. **CONCLUSIONS** Physicians in Poland perceive e-cigarettes as harmful and addictive. Physicians' knowledge about e-cigarettes is mostly based on non-scientific sources, which points out the urgent need to develop national smoking cessation guidelines regulating the issue of e-cigarettes based on scientific evidence.

# MIT 3

**E-papierosy to skuteczne narzędzie  
w rzucaniu palenia**

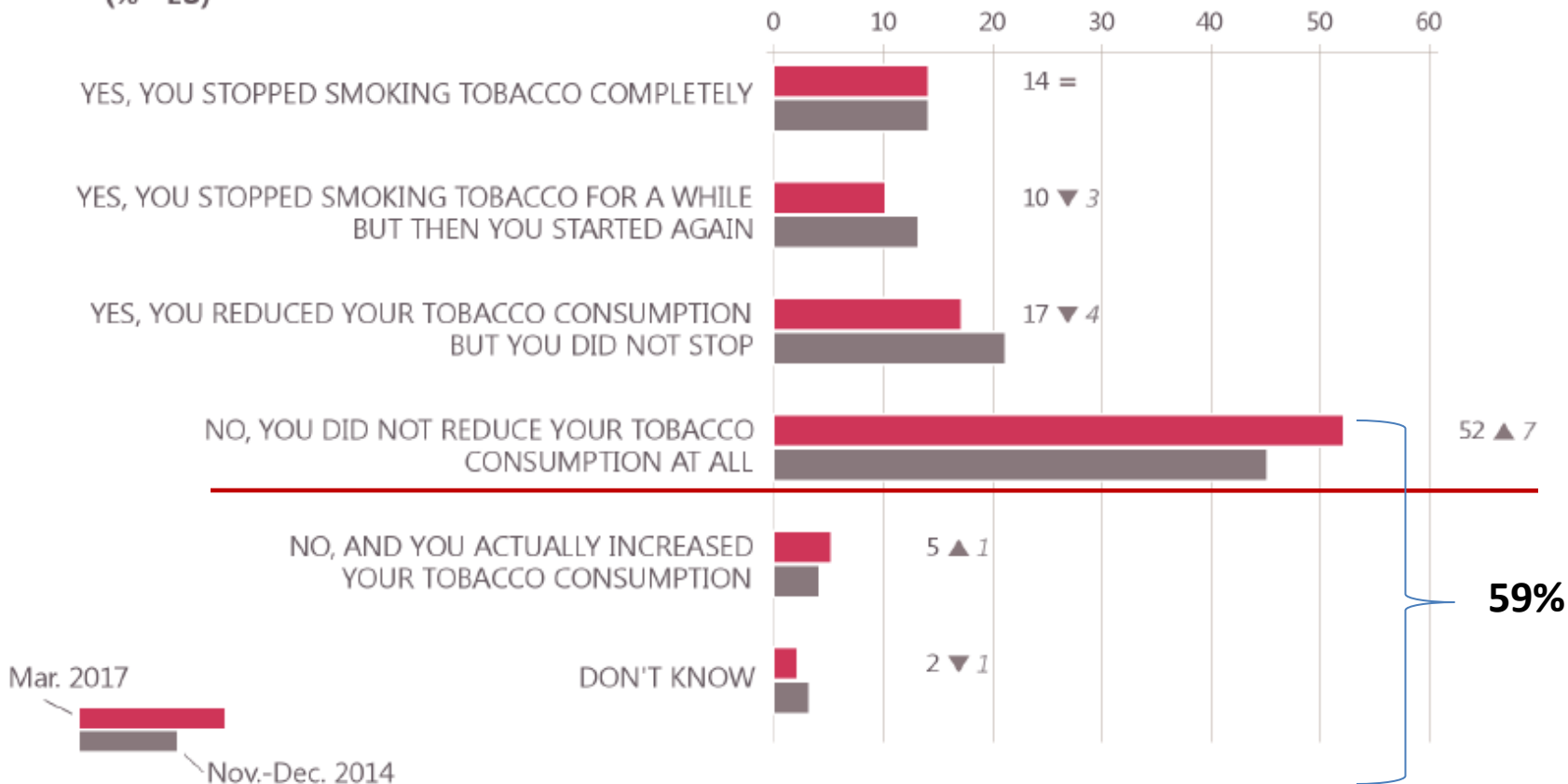
# E-papieros a rzucanie palenia

**QB14** Which of the following factors, if any, were important in your decision to start using e-cigarettes? (MAX. 3 ANSWERS)  
(% - EU)



*Base: respondents who currently use or used e-cigarettes, N=1,565*

**QB15** You said that you smoke or used to smoke tobacco but also use, used or tried electronic cigarettes or a similar device. Did the use of electronic cigarettes or any similar device help you to stop or reduce your tobacco consumption?  
 (% - EU)

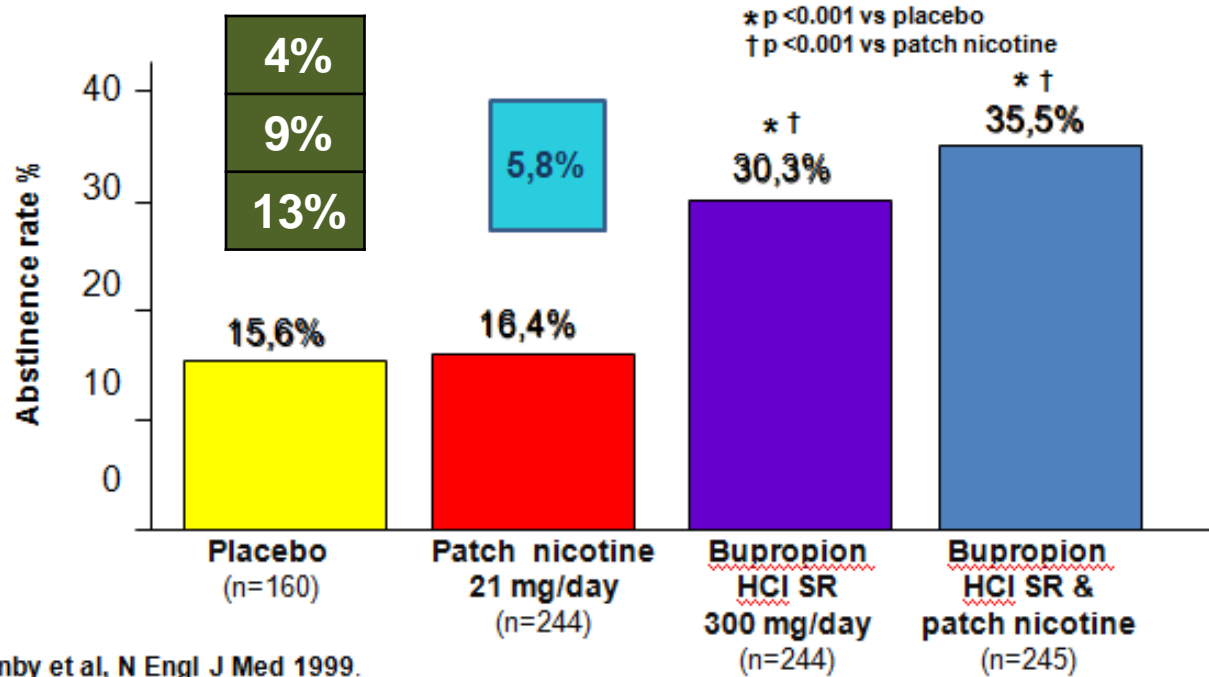


Base: respondents who smoke or used to smoke and have at least tried e-cigarettes, N=3,612



*Bullen et al.:* Odsetek osób, które rzuciły palenie wynosił od 5.8% (NTZ) do 7.3% (e-papieros)

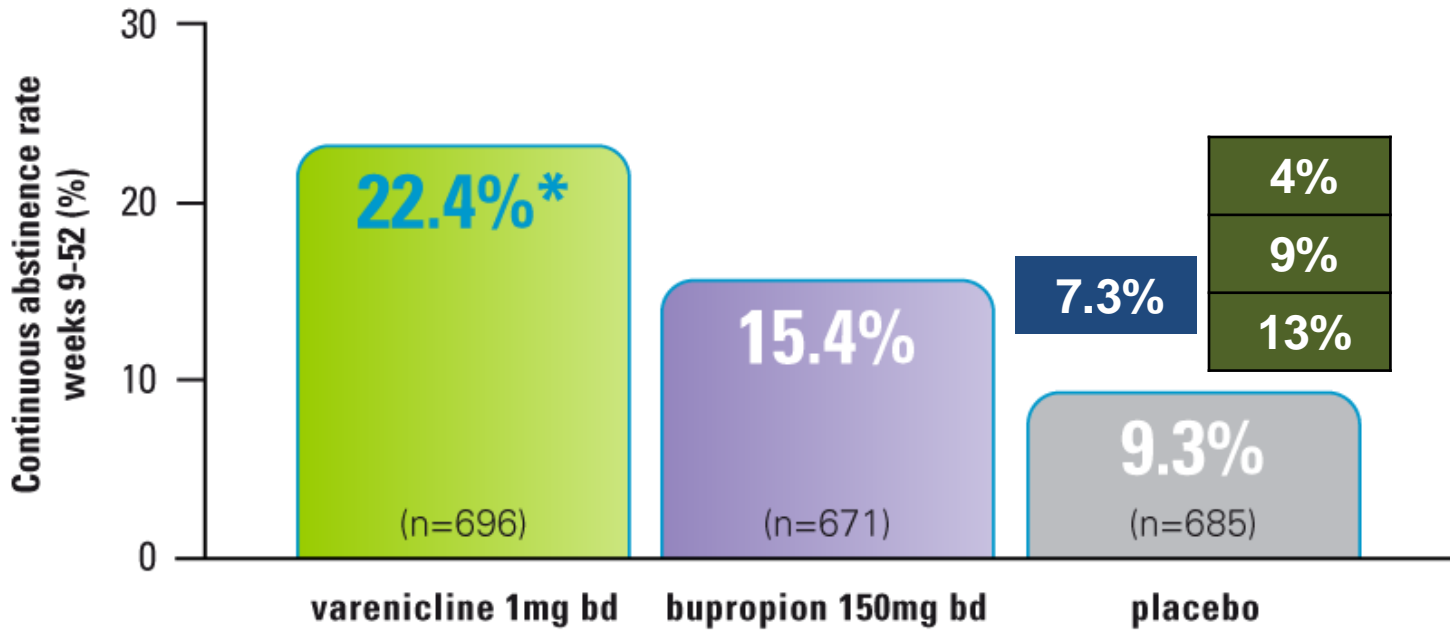
*Caponnetto et al.:* W trakcie 52-tygodniowej wskaźnik zaprzestania palenia wynosił od 4% do 13%



Jorenby et al, N Engl J Med 1999.

European Respiratory Society every breath counts

Źródło: Katsaounou P. E-cigarettes for smoking cessation. ERS International Congress Amsterdam 2015.



Varenicline vs. bupropion OR = 1.59 (95% CI 1.21, 2.10), \*p<0.0008

Varenicline vs. placebo OR = 2.80 (95% CI 2.05, 3.83), \*p<0.0001

Nides et al. Am J Health Behav 2008;32:664–675.

## Are long-term vapers interested in vaping cessation support?

Etter JF<sup>1</sup>.

### Author information

1 Institute of Global Health, Faculty of Medicine, University of Geneva, Geneva, Switzerland.

### Abstract

**AIMS:** We investigated whether long-term vapers were interested in vaping cessation support.

**DESIGN, SETTING AND PARTICIPANTS:** Online survey in 2017 of long-term vapers (n = 347), mainly in France, Switzerland and Belgium, enrolled through e-cigarette and smoking cessation websites.

**MEASUREMENTS:** Opinions on potential vaping cessation services.

**FINDINGS:** Participants had been vaping for 4 years on average (standard deviation 1 year), most were daily vapers (96%, n = 333), former smokers (88%, n = 303), vaped nicotine-containing liquids (88%, n = 305), reported being dependent on e-cigarettes (89%, n = 308) and had no intention to stop vaping (66%, n = 229). Few (10%, n = 34) had already tried to stop vaping. Among those (n = 118, 34% of 347) who intended to stop vaping, 27% (n = 32) thought that a health professional could help them stop vaping, 33% (n = 39) would visit a vaping cessation service if available in their neighbourhood, 23% (n = 27) would use nicotine medications to stop vaping, and if a vaping cessation website or smartphone app. were available, 46% (n = 54) would use them. In open-ended comments (n = 94), participants reported that they did not see why they should stop vaping (n = 37), in particular because vaping helped them quit smoking (n = 17) and was less toxic than smoking (n = 9), that smoking cessation aids had not worked for them and neither would similar aids help them stop vaping (n = 6), and that they would stop vaping by gradually decreasing the nicotine content in their e-liquids (n = 12).

**CONCLUSIONS:** Most long-term vapers in this 2017 European online survey had no intention of stopping vaping, but one-quarter to one-half of those who intended to stop were interested in using vaping cessation support.



Article

# E-Cigarettes are More Addictive than Traditional Cigarettes – A Study in Highly Educated Young People

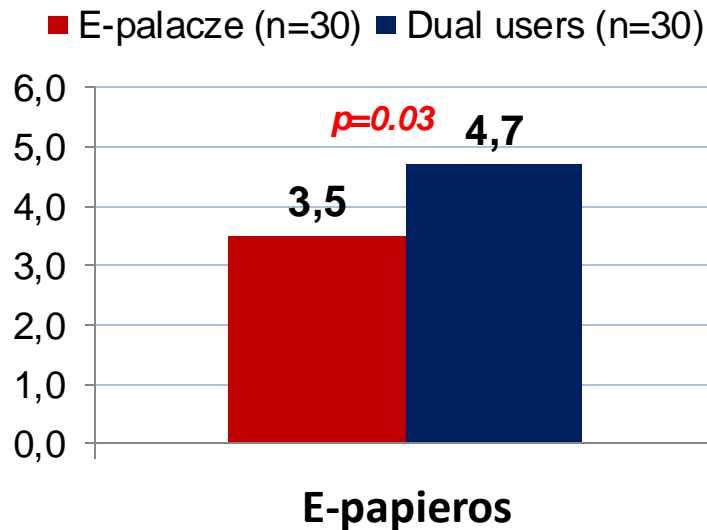
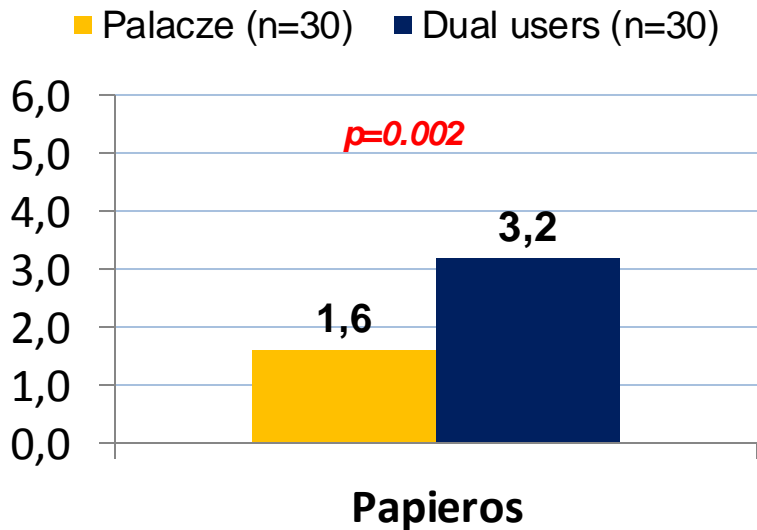
Mateusz Jankowski <sup>1,\*</sup>, Marek Krzystanek <sup>2</sup>, Jan Eugeniusz Zejda <sup>1</sup>, Paulina Majek <sup>1</sup>, Jakub Lubanski <sup>1</sup>, Joshua Allan Lawson <sup>3,4</sup> and Grzegorz Brozek <sup>1</sup>

*Int. J. Environ. Res. Public Health* **2019**, *16*, 2279; doi:10.3390/ijerph16132279

## 3. Results

Of the adults included (39.8% female; mean age  $22.4 \pm 2.2$  years old), the mean smoking duration was  $50.0 \pm 32.0$  months among smokers and  $67.3 \pm 30.5$  months among dual users ( $p=0.03$ ). Duration of e-cigarette use was comparable between exclusive e-cigarette users and dual users being  $29.0 \pm 24.1$  and  $27.7 \pm 17.4$  months, respectively ( $p=0.6$ ). There were no statistically significant differences in sex, age, or the daily number of cigarettes or e-cigarette smoking sessions between groups ( $p>0.05$ ).

Średnia liczba punktów uzyskana w kwestionariuszu uzależnienia od nikotyny według Fagerströma



# Adolescents' E-Cigarette Use: Increases in Frequency, Dependence, and Nicotine Exposure Over 12 Months

Erin A. Vogel, Ph.D.<sup>a</sup>, Judith J. Prochaska, Ph.D., M.P.H.<sup>b</sup>, Danielle E. Ramo, Ph.D.<sup>a</sup>, Jerome Andres<sup>c</sup>, and Mark L. Rubinstein, M.D.<sup>d,\*</sup>

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Article history: Received December 3, 2018; Accepted February 20, 2019

Keywords: Adolescent; E-cigarette; ENDS; Nicotine; Dependence; Addiction; Cigarettes

Journal of Adolescent Health 64 (2019) 770–775

**Purpose:** This study examined changes in e-cigarette and dual-use frequency, levels of nicotine exposure and e-cigarette dependence, and device and e-liquid preferences over 12 months.

**Methods:** Adolescents (N = 173, aged 13–18 years) who reported past-month e-cigarette use and at least 10 lifetime uses were recruited from the San Francisco Bay Area. The sample was 75.1% male, 54.9% non-Hispanic White, mean age 16.6 years (standard deviation = 1.2); 26.6% reported past-month cigarette smoking at baseline (i.e., dual use). At baseline, 6-month, and 12-month follow-up, participants provided saliva samples for cotinine testing and self-reported e-cigarette use frequency, dependence, past-month smoking, product preference, and flavor preference.

**Results:** Most (80.3%) were still using e-cigarettes at 12 months, and daily use increased from 14.5% to 29.8%. Model testing indicated an overall increase from baseline to 12 months in frequency of e-cigarette use ( $F(2, 166) = 5.69, p = .004$ ), dependence ( $F(2, 164) = 5.49, p = .005$ ), and cotinine levels ( $F(2, 103) = 4.40, p = .038$ ). Among those reporting only e-cigarette use at baseline, 28.8% reported combustible cigarette use during follow-up. Among those reporting dual use at baseline, 57.1% were still dual using at 12 months, 31.4% reported e-cigarette use only, and none abstained from both products. Higher nicotine delivering e-cigarette devices (i.e., Juul, mods) became more popular over time, whereas flavor preferences (i.e., fruit, mint/menthol, and candy) remained stable.

**Conclusions:** Adolescents' e-cigarette use persisted over a 12-month period with significant increases in frequency of use, nicotine exposure, and e-cigarette dependence. Transitions from single to dual and dual to single nicotine product use were observed in approximately one in three users over the study period.

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## W trakcie 12-mies obserwacji zaobserwowano istotny wzrost:

- częstości używania e-papierosa;
- poziomu uzależnienia od e-papierosa;
- stężenia metabolitów nikotyiny.



## **E-papierosy w grupie nastolatków i młodych dorosłych:**

















- 1) Źródło uzależniającej nikotyny**
- 2) Przyczyna inicjacji nikotynowej**
- 3) Furtka do tradycyjnego palenia**



# E-papieros jako „furtka” do tradycyjnego palenia

**Używanie e-papierosa zwiększa ryzyko sięgnięcia po tradycyjne papierosy!**

**Istnieje szereg publikacji potwierdzających tzw. „gateway effect”.**

-  Auf et al. E-cigarette use is associated with other tobacco use among US adolescents.
-  Barrington-Trimis et al. E-cigarette Use and Subsequent Smoking Frequency Among Adolescents.
-  Berry et al. Association of Electronic Cigarette Use With Subsequent Initiation of Tobacco Cigarettes in US Youths
-  Best et al. Relationship between trying an electronic cigarette and subsequent cigarette experimentation in Scottish adolescents a cohort study
-  Chien et al. Electronic Cigarette Use and Smoking Initiation in Taiwan Evidence from the First Prospective Study in Asia.
-  Conner et al. Do electronic cigarettes increase cigarette smoking in UK adolescents Evidence from a 12-month prospective study
-  East et al. The Association Between Smoking and Electronic Cigarette Use in a Cohort of Young People.
-  Leventhal et al. Association of Electronic Cigarette Use With Initiation of Combustible Tobacco Product Smoking in Early Adolescence.
-  Loukas et al. Exclusive e-cigarette use predicts cigarette initiation among
-  McCabe et al. Initiation Sequence of E-Cigarette and Cigarette Smoking among US Adolescents A National Study.
-  Miech et al. E-cigarette use as a predictor of cigarette smoking results from a 1-year follow-up of a national sample of 12th grade students
-  Soneji et al. Association Between Initial Use of e-Cigarettes and Subsequent Cigarette Smoking Among Adolescents and Young Adults A Systematic Review and Meta-analysis.
-  Treur et al. E-cigarette and waterpipe use in two adolescent cohorts cross-sectional and longitudinal associations with conventional cigarette smoking
-  Watkins et al. Association of Noncigarette Tobacco Product Use With Future Cigarette Smoking Among Youth in the Population Assessment of Tobacco and Health (PATH) Study, 2013-2015
-  Wills et al. E-cigarette use is differentially related to smoking onset among lower-risk adolescents
-  Zhong et al. Electronic Cigarettes Use and Intention to Cigarette Smoking among Never-Smoking Adolescents and Young Adults A Meta-Analysis.





# Pulmonary Illness Related to E-Cigarette Use in Illinois and Wisconsin — Preliminary Report

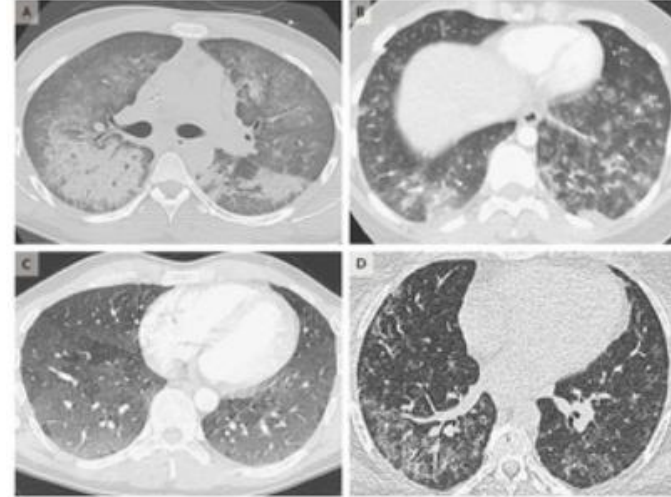


Centers for Disease Control and Prevention  
CDC 24/7: Saving Lives. Protecting People™

- There are 380\* cases of lung illness reported from 36 states and 1 U.S. territory. Six deaths have been reported from 6 states.
- All reported cases have a history of e-cigarette product use or vaping.

## RESULTS

There were 53 case patients, 83% of whom were male; the median age of the patients was 19 years. The majority of patients presented with respiratory symptoms (98%), gastrointestinal symptoms (81%), and constitutional symptoms (100%). All case patients had bilateral infiltrates on chest imaging (which was part of the case definition). A total of 94% of the patients were hospitalized, 32% underwent intubation and mechanical ventilation, and one death was reported. A total of 84% of the patients reported having used tetrahydrocannabinol products in e-cigarette devices, although a wide variety of products and devices was reported. Syndromic surveillance data from Illinois showed that the mean monthly rate of visits related to severe respiratory illness in June through August of 2019 was twice the rate that was observed in the same months in 2018.



Computed Tomographic Scans of the Chest Obtained from Patients with Vaping-Associated Lung Injury.



Podaję/aś dalej



**Melania Trump**  @FLOTUS · 9 wrz

I am deeply concerned about the growing epidemic of e-cigarette use in our children. We need to do all we can to protect the public from tobacco-related disease and death, and prevent e-cigarettes from becoming an on-ramp to nicotine addiction for a generation of youth. [@HHSGov](#)

 14,6 tys.  14,1 tys.  74,6 tys. 



**Secretary Alex Azar** 

@SecAzar

I just announced with [@POTUS](#) and [@FDACommissioner](#) that we will be finalizing policies that will clear flavored e-cigarettes from the market. New provisional data show that youth use continues to rise rapidly, and we will not stand idly by.

# American Lung Association: Do Not Use E-Cigarettes

## Nation's leading lung health organization warns of irreversible lung damage and disease associated with e-cigarette use

(September 10, 2019) - CHICAGO American Lung Association National President and CEO Harold Wimmer issued the following statement in response to an increase in reported vaping-related illnesses and deaths:

"E-cigarettes are not safe and can cause irreversible lung damage and lung disease. No one should use e-cigarettes or any other tobacco product. This message is even more urgent today following the increasing reports of vaping-related illnesses and deaths nationwide.

"E-cigarettes contain chemicals harmful to lung health such as heavy metals, carcinogens, vegetable glycerin and propylene glycol. The developing lungs of youth may be more at risk, making what the Surgeon General refers to as a youth e-cigarette epidemic even more alarming.



# PROTECT FIGHT FLAVORED E-CIGS KIDS.



**Mike Bloomberg**  @MikeBloomberg · 10 wrz

More than 3.6 million kids in the U.S. use e-cigarettes. E-cig makers & the tobacco companies that back them are preying on America's youth. Today, we're launching [@noflavoredecigs](#) – a \$160M initiative to protect young Americans from the dangers of flavored e-cigarettes.



**Protect Kids: Fight Flavored E-Cigarettes** @noflavoredecigs · 10 wrz

Bloomberg Philanthropies and the Campaign for Tobacco-Free Kids are joining forces against the epidemic of youth e-cigarette use spreading across the country.

We won't rest until this public health threat is history.

**78%**

Increase in e-cigarette use among high schoolers, 2018

**70%**

Youth e-cigarette users who say flavors are the reason for their use

**97%**

Youth e-cigarette users who use flavored products

# Podsumowanie

- E-papierosy to nowe źródło uzależniającej nikotyny, szczególnie popularne wśród nastolatków i młodych dorosłych.
- Wzrost świadomości społecznej na temat wpływu e-papierosa na zdrowie jest jednym z kluczowych działań pozwalających ograniczyć liczbę użytkowników e-papierosów.
- Istnieje pilna potrzeba edukacji młodzieży w wieku szkolnym na temat uzależniającego potencjału e-papierosów i skutków zdrowotnych wynikających z vapowania.



**Dziękuję  
za uwagę!**



**Mateusz Jankowski**

@MateJankowski



# Stan prawny e-papierosów

Na mocy „Nowelizacji Ustawy Antytytoniowej” e-papierosy w świetle Polskiego prawa są traktowane w ten sam sposób, jak tradycyjne papierosy. Obowiązujący stan prawny zakłada:

- całkowity zakaz używania e-papierosów w miejscach publicznych (pod groźbą mandatu karnego w wysokości 500 zł);
- zakaz sprzedaży papierosów elektronicznych i płynu do e-papierosa (e-liquidu) osobom poniżej 18 roku życia;
- ograniczenie maksymalnej objętości pojemnika z e-liquidem do 10 ml, konieczność wprowadzenia zabezpieczenia przed użyciem przez dzieci, przypadkowym otwarciem, rozbiciem bądź przeciekaniem;
- ograniczenie zawartości nikotyny w e-liquidzie maksymalnie do 20 mg/ml;
- przedstawienie na opakowaniu e-liquidów wykazu wszystkich składników płynu w porządku malejącym według masy;
- obowiązkowe zgłoszenie każdego produktu (e-papierosy, e-liquidy) do Inspektora ds. Substancji Chemicznych oraz coroczne sprawozdania dotyczące preferencji konsumentów (wielkość sprzedaży z uwzględnieniem marki i rodzaju produktu), form sprzedaży oraz streszczeń prowadzonych badań rynkowych;
- zobligowanie producentów i importerów płynów do e-papierosa do przeprowadzania szczegółowych analiz chemicznych, oraz podawania danych toksykologicznych składników e-liquidu, jak również substancji wydzielanych podczas użycia e-papierosa (po podgrzaniu e-liquidu);
- całkowity zakaz obrotu e-papierosami, akcesoriami do e-papierosa oraz e-liquidami na odległość;
- zakaz handlu e-papierosami w szkołach, placówkach oświatowo-wychowawczych, obiektach sportowo-rekreacyjnych, podmiotach leczniczych, punktach samoobsługowych (z wyjątkiem sklepów wolnoćlowych) oraz wszelakich automatach;
- ograniczenie promocji i reklamy: całkowity zakaz reklamy e-papierosów w punktach sprzedaży, zakaz publicznego rozdawania e-papierosów i e-liquidów, organizowania degustacji, premiowanej sprzedaży, konkursów i promocji;
- zakaz rozpowszechniania materiałów reklamowych z wizerunkiem marki papierosów elektronicznych, e-liquidów i ich producentów oraz symboli z nimi związanych, zakaz sponsorowania wydarzeń kulturalnych, oświatowych, zdrowotnych i sportowych.