

15th MADRID
on **Lung** CONGRESS
CANCER
23&24
November 2023

#15CongressGECP

Emerging Tobacco Exposure Products in the Context of Tobacco Pandemics

Dra. Cristina Martínez

Institut Català d'Oncologia



Are New Tobacco Products Just the Same Dog with a Different Collar?



DISCLOSURES

Deputy Director of the Tobacco Control Unit, Catalan Institute of Oncology

Associate Lecturer - Nursing Faculty, University of Barcelona

Tobacco control research funded by Spanish and European Agencies

No links with pharmaceutical, tobacco/e-cigarette companies

The Congress Lung Cancer 23-24 has invited me to this event



cmartinez@iconcologia.net



[@CrisMarMar](https://twitter.com/CrisMarMar)

Are New Tobacco Products Just the Same Dog with a Different Collar?



DESCRIPTION



FACTS



IMPLICATIONS



Are New Tobacco Products Just the Same Dog with a Different Collar?



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FACTS



IMPLICATIONS

Unveiling new tobacco products

E-cigarettes

Heated tobacco products



Unveiling new tobacco products

Types of e-cigarettes



Cigalike
1st generation



Vape Pen/E-go
2nd generation



MODs
3rd generation



Pod / Vape Pod
4th generation



Nicotine: 0, 8, 11, 16, 20 mg/ml (EU)
Additives: 200 flavors including cannabis

Unveiling new tobacco products

Heated Tobacco Products





Tobacco products profile

	Cigarettes, Cigars, Pipes,	Electronic Cigarettes	Heated Tobacco Products
Combustion	Yes	No	No
Previous heating	-	No	Yes
Nicotine	Yes	Yes/No	Yes
Tobacco	Yes	No	Yes
Solid Waste	External	Intern	Intern
Mainstream smoke	Yes	Yes	Yes
Sidestream smoke	Yes	No	No
Produce/sustain addiction	Yes	Yes	Yes

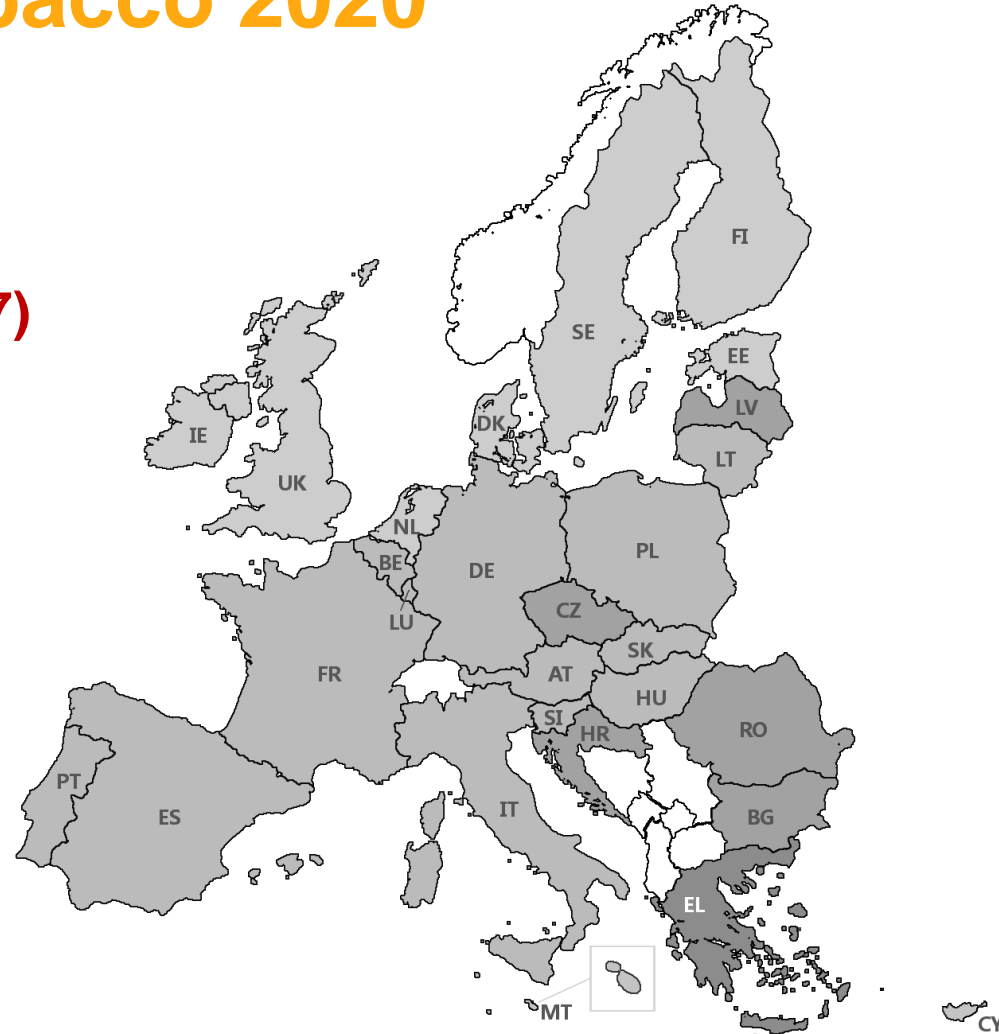
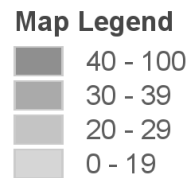
Prevalence of smoking tobacco 2020

Cigarettes, cigars, cigarillos, pipes

23% smoke (3% points less than 2017)

22% used to smoke

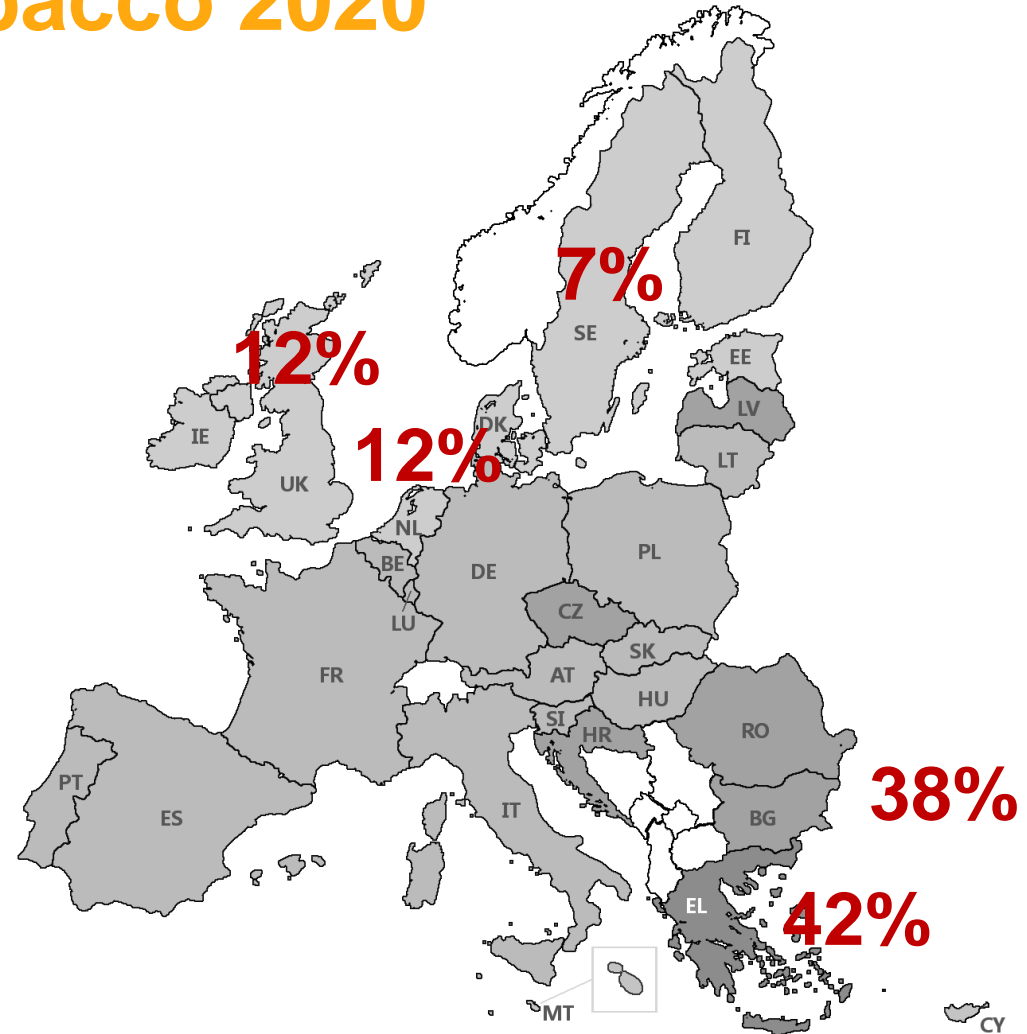
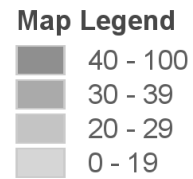
55% have never smoked





Prevalence of smoking tobacco 2020

Cigarettes, cigars, cigarillos, pipes

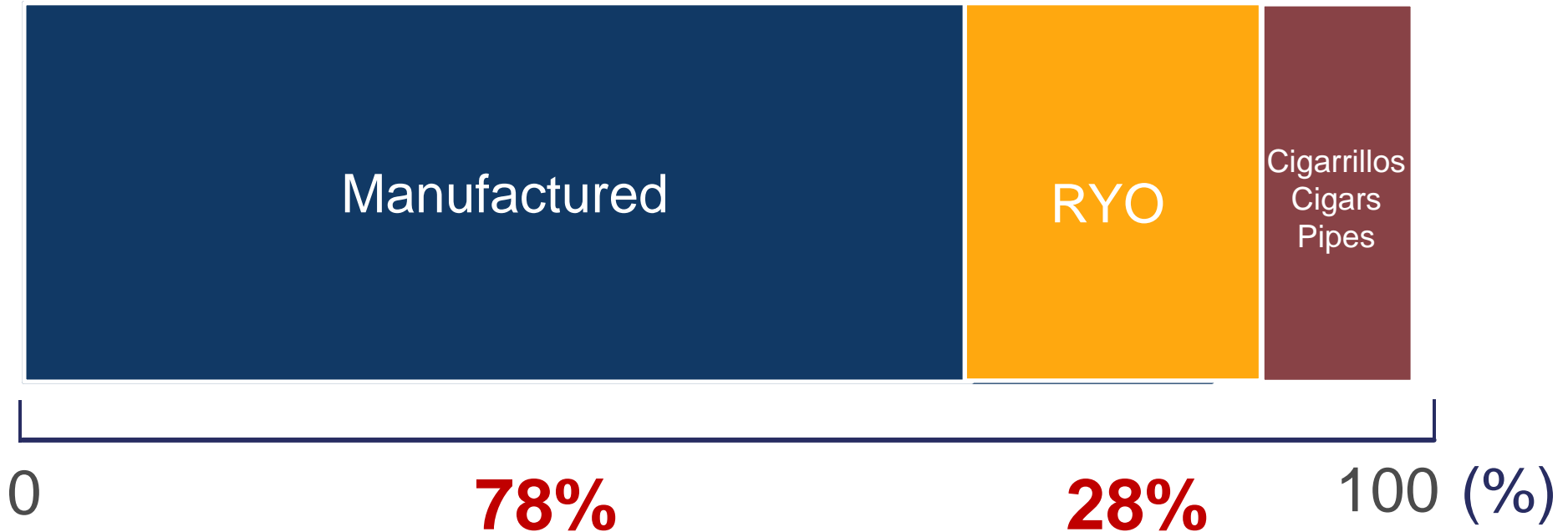




Types of tobacco (%) used monthly

4, 3, 2%

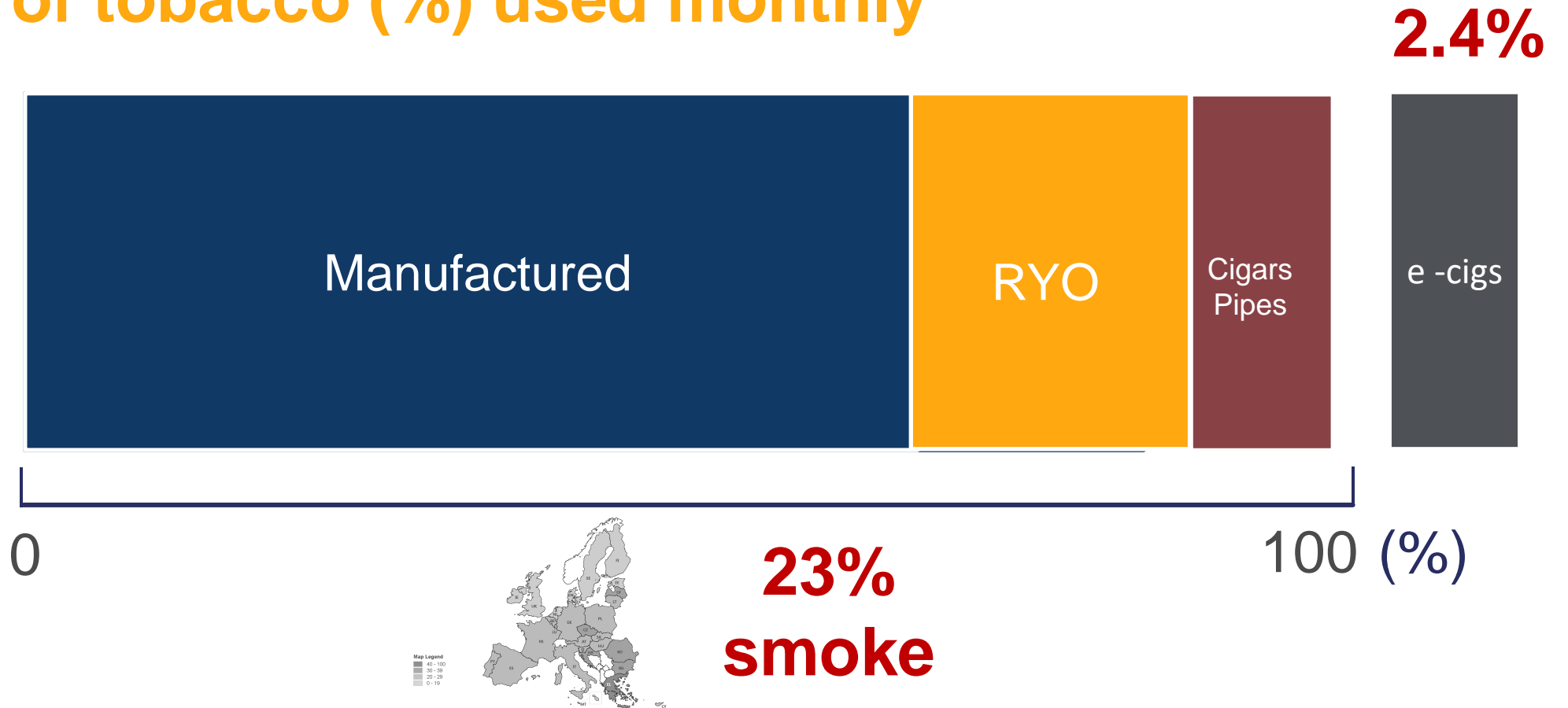
**23%
smoke**



POLY-TOBACCO
USERS



Types of tobacco (%) used monthly



Journal of Epidemiology

Electronic Cigarette Use in 12 European Countries: Results From the TackSHS Survey

Silvano Gallus¹, Alessandra Lugo¹, Chiara Stival¹, Sonia Cerrai², Luke Clancy³, Filippos T. Filippidis⁴, Giuseppe Gorini⁵, Maria José Lopez^{6,7,8,9}, Ángel López-Nicolás¹⁰, Sabrina Molinaro², Anna Odone^{11,12}, Joan B. Soriano^{13,14}, Olena Tigova^{14,15,16,17}, Piet A. van den Brandt^{18,19}, Constantine I. Vardavas^{20,21}, Esteve Fernandez^{14,15,16,17}, and the TackSHS Project Investigators*

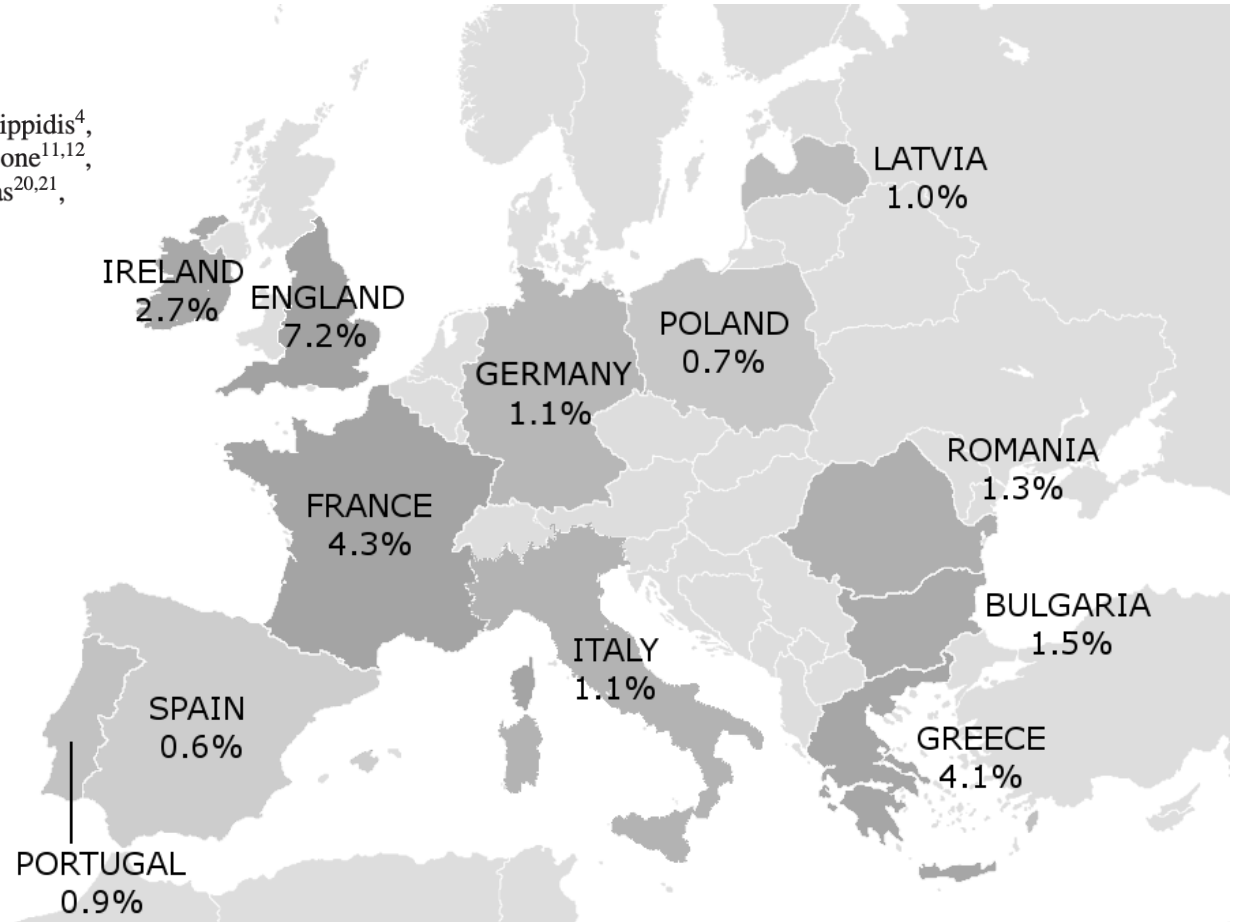
Prevalence of use of e-cigs:

2.4% overall

2.5% in men and 2.3% in women

Ranged from:

0.6% in Spain to 7.2% in England



Pattern of use of e-cigs (%) used among current former users

59% of e-cig users and 79% of HTP users consume conventional products



Current smokers of conventional cigarettes have a higher prevalence of ever use of e-cigarettes ever use from 20.4% to 83.1%

DUAL or POLY-TOBACCO
USERS

Drug and Alcohol Dependence 139 (2014) 60–70



Poly-tobacco use among adults in 44 countries during 2008–2012: Evidence for an integrative and comprehensive approach in tobacco control

Israel T. Agaku^{a,*}, Filippos T. Filippidis^a, Constantine I. Vardavas^a,
Oluwakemi O. Odukoya^b, Ayodeji J. Awopegba^c, Olalekan A. Ayo-Yusuf^{a,d},
Gregory N. Connolly^a

Poly-tobacco users ...

- have an altered risk for tobacco-related morbidity and mortality
- are more likely to show stronger signs of nicotine dependence
- have higher cotinine levels and other toxicants (i.e., “dual use” of electronic cigarettes and traditional cigarettes)
- less likely to remain abstinent from tobacco after having attempted quitting

Are New Tobacco Products Just the Same Dog with a Different Collar?



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Some questions to consider regarding new tobacco products:

- Are they effective for quitting tobacco?
- Do they serve as a gateway to tobacco use, particularly among the youth?
- Are they safe, and what are the known health effects?”



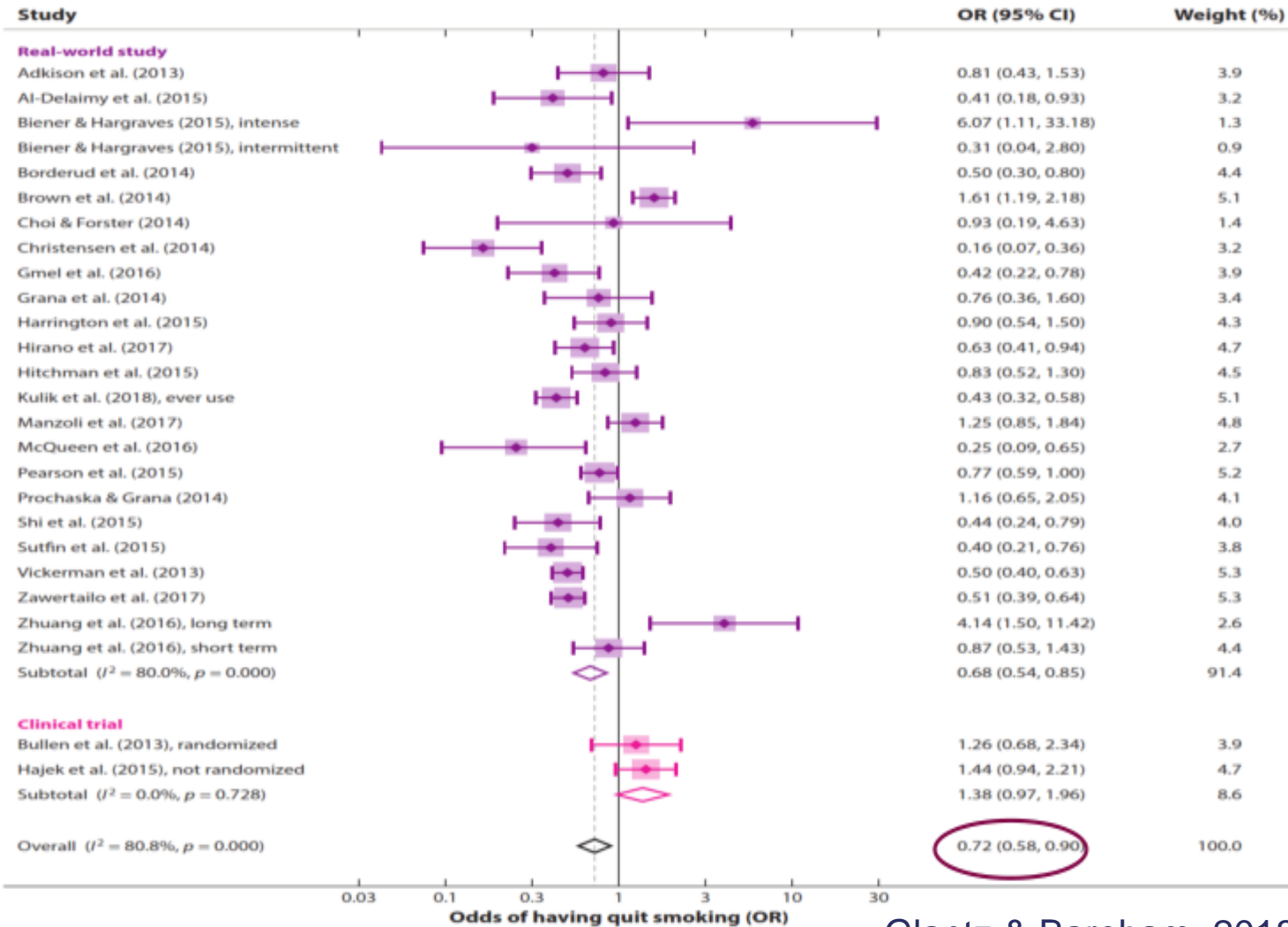
Some questions to consider regarding new tobacco products:

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Meta-analysis association between e-cigarette use and quitting smoking

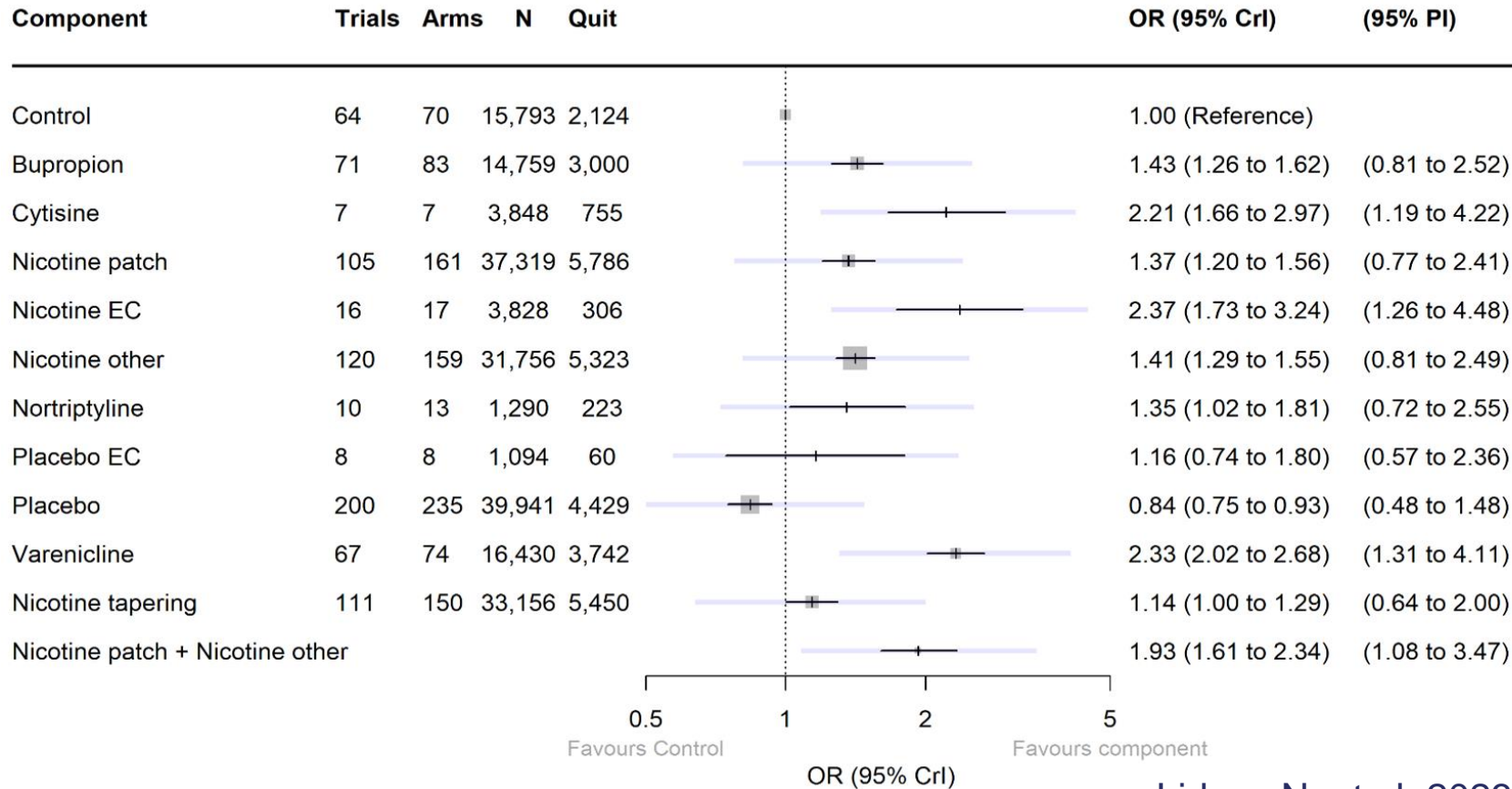


FACT

Smokers of e cigs
 quit **28% less** than
 non e cigs users



Meta-analysis pharmacotherapies and e-cigs (≥ 6 months abstinence)



FACT

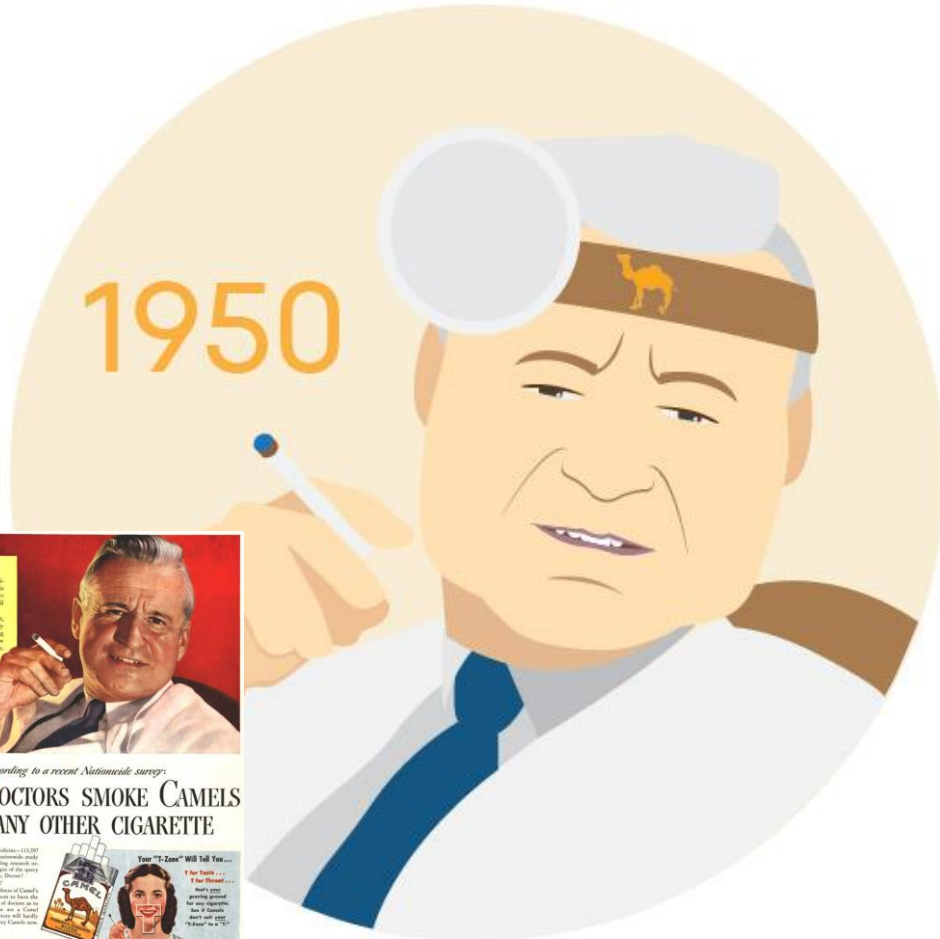
ECs multiply by **2.4** the possibility of quitting traditional tobacco but help to maintain the addiction

Lidson N. et.al, 2023

Note, darker intervals represent CrI and lighter intervals represent PI. Control: no pharmacological or EC intervention. Abbreviations CrI: credibility interval; EC: e-cigarette; N: number of participants; OR: odds ratio; PI: prediction interval



Does this mean that we might recommend e-cigs to our patients who smoke?



According to a recent Nationwide survey:
**MORE DOCTORS SMOKE CAMELS
THAN ANY OTHER CIGARETTE**

Doctors in every branch of medicine—113,007 in all—were named in our nationwide survey of cigarette preferences. These leading research scientists made the survey. The gist of the survey was: "What cigarette do you smoke, Doctor?"

The only, full flavor and mild nicotine of Camels' smooth blend of choice tobacco was chosen by the millions of other smokers. If you are a Camel smoker, this preference means doctors will be helpful to you. If you're not—well, try Camels now.

Your "I-Zone" Will Tell You...

I for Health ...
I for Heart ...
I for Taste ...
I for Blood ...

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CAMELS *Catlike Tobacco*

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Why are they used among the youth?



**CURIOSITY AND
FLAVORS**



**ACCEPTANCE AND
MARKETING**



**PERCEIVED HEALTH
BENEFITS**

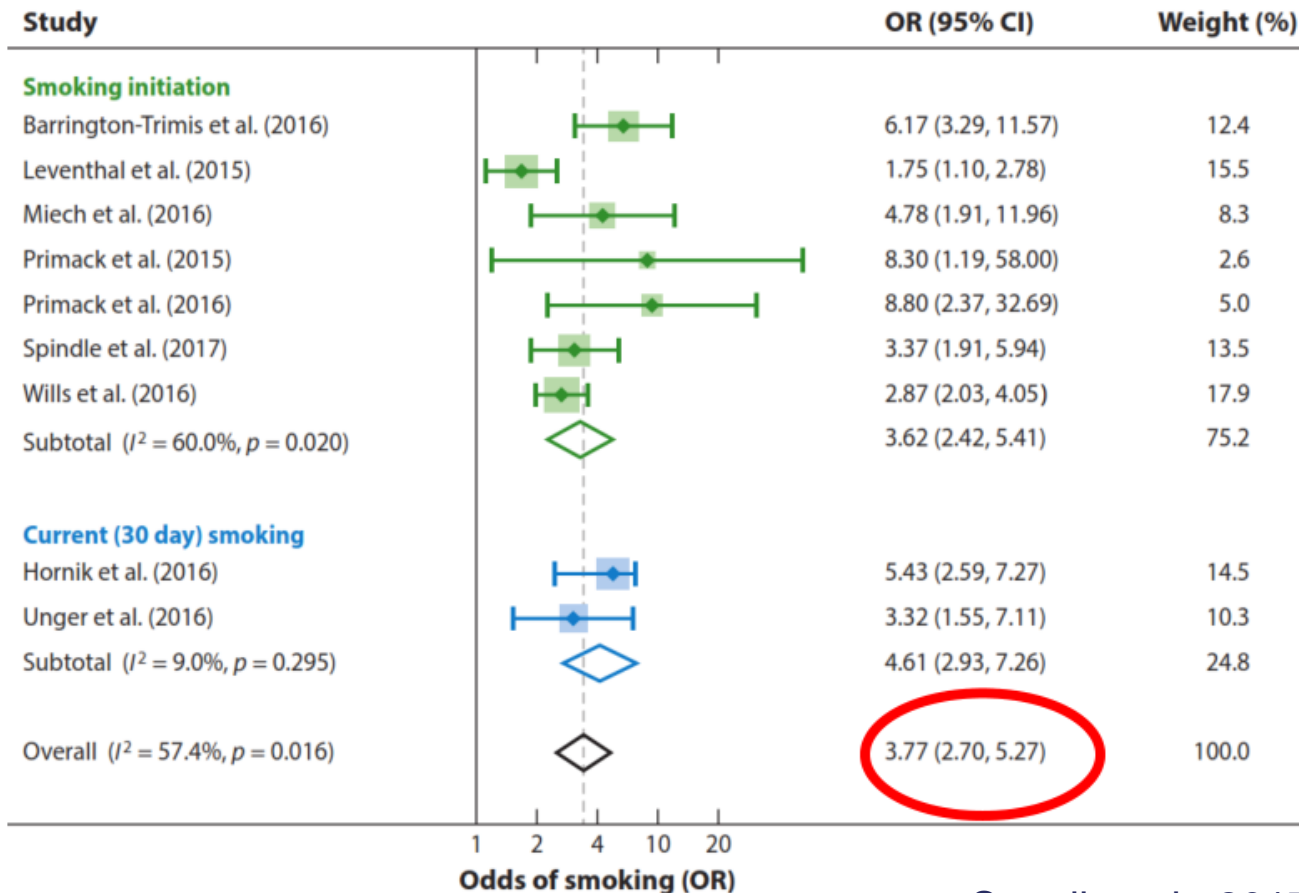


**CONVENIENCE AND
STEALTH**





Meta-analysis of longitudinal studies Risk of becoming smokers among e-cigarette young users



FACT
 Electronic cigarettes multiply by 3.7 the risk of starting to smoke and becoming a daily smoker (young adults)

Some questions to consider regarding new tobacco products:

- Are they effective for quitting tobacco?
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Content of liquids

Substance	Liquid 1	Liquid 2	Liquid 3	Liquid 4
Propylene glycol	85%	80%	90%	80%
Nicotine	1.6%	2.4%	3.2%	0.1%
Glycerol	2%	5%	-	5%
Tobacco essence	-	4%	4.5%	1%
Essence	2%	-	1%	1%
Organic acid	1%	-	-	2%
Anti-oxidation agent	1%	-	-	-
Butyl valerate	-	1%	-	-
Isopentyl hexonate	-	1%	-	-
Lauryl laurate	-	0.6%	-	-
Benzyl benzoate	-	0.4%	-	-
Methyl octynicate	-	0–5%	-	-
Ethyl heptylate	-	0.2%	-	-
Hexyl hexanoate	-	0.3%	-	-
Geranyl butyrate	-	2%	-	-
Menthol	-	0.5%	-	-
Citric acid	-	0.5%	2.5%	-
Water	-	-	-	2.9%
Alcohol	-	-	-	8%



Nicotine in EC and HTP aerosols compared to conventional cigarettes

	N of studies	Nicotine (mg) range
Conventional cigarette	8	0,361 – 2,02
HTP IQOS	7	0,30 - 1,41
Glo	1	0,462
iFuse	1	0,358
E-cigarettes. 1st EC generation	1	0,86
2nd EC generation	2	0,50 – 1,73
3rd EC generation	1	1,84

FACT
Nicotine concentration of some e-cigs and HTP are similar than in Conventional Cigarettes




Toxic levels (%) and compounds in HTP aerosols compared to a conventional cigarette.

Compounds	Heated Tobacco Products		
	IQOS (n=8)	Glo (n=3)	iFuse (n=1)
Acetaldehyde	12-22%	5%	<1%
Acrolein	6-82%	1-2%	5%
Ammonia	33-38%	12-15%	<50%
Benzopyrene	5-9%	2-3%	<7%
Crotonaldehyde	4-6%	1-2%	<3%
Formaldehyde	8-74%	6-7%	13%
Nicotine	57-84%	18-23%	139%
Glycerol	163-203%	101-129%	--
Total Particular Matter	89-135%	54-56%	--
Tar	33-79%	46-48%	--

FACT
 HTP contain harmful compounds with a high prevalence of glycerol

propylene glycol, carbonyls, metals

Adapted from Simonavicius et al. Tob. Control. 2019.

An illustration of a person from the chest up, wearing a black t-shirt. The person's face is obscured by a large, light blue, stylized shape. They are holding a black smartphone in their right hand, which is raised towards their face. The background is a solid light blue color.

**Can we conclude
that they are safe?**



FACTS: E-cigs and HTP release toxic components

Important aspects in the study of causality:

- Difficult to establish causality due to several patterns of use (dual, poly-use)
- Stronger inhalation than conventional cigarettes
- Several toxic components in the aerosol (propylene glycol, carbonyls, metals)

Main adverse effects:

- In 2019 a new group of respiratory symptoms was reported: the vaping-associated lung injury (VALI) epidemic (wheezing, difficulty to breath, acute pneumonia in some cases)
- More frequent Irritation of the mouth and throat, dry mouth
- Increase in heart rate and blood vessel damage (risk of cardiovascular disease)

Specific in the lungs:

- Lung disease: VALI, chronic bronchitis, and asthma symptoms (double the risk).
- Unknown effect in the long term. Cancer? We don't know yet



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Arguments in favor:

Harm reduction	Favorable risk balance compared to smoking tobacco	Preferable to nicotine replacement therapy	Stimulates cessation
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Arguments against:

Doubts about its safety	Delays /prevents cessation	Gateway to nicotine addiction	Undermines achievements gained (e.g., smoke-free laws)	Aggressive marketing /unregulated market
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Arguments in favor:

Harm reduction	Favorable risk balance compared to smoking tobacco	Preferable to nicotine replacement therapy	Stimulates cessation
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BIASED

Arguments against:

Doubts about its safety	Delays/prevents cessation	Gateway to nicotine addiction	Undermines achievements gained (e.g., smoke-free laws)	Aggressive marketing/unregulated market
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FACTS

TAKE
HOME

- The ways to consume **tobacco and nicotine** have evolved and **diversified**.
- **More different products** mean **more complications** for the study – poly-use.
- New tobacco products try to initiate (**gateway**) and maintain consumption
- Their **usefulness for quitting smoking** has been recently proven , *but* **maintain addiction** to nicotine and we do not know the consequences in the long term.
- The aerosols produced by new tobacco products **constitute a new source of pollution** (inflammatory effect on the lungs and risk of asthma exacerbation: VALI)
- Their **long-term health effects are still unknown**.

Does this mean that we might recommend e-cigs to our patients who smoke?



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Muchas Gracias