전자담배와 호흡기질환

경희의료원

호흡기내과

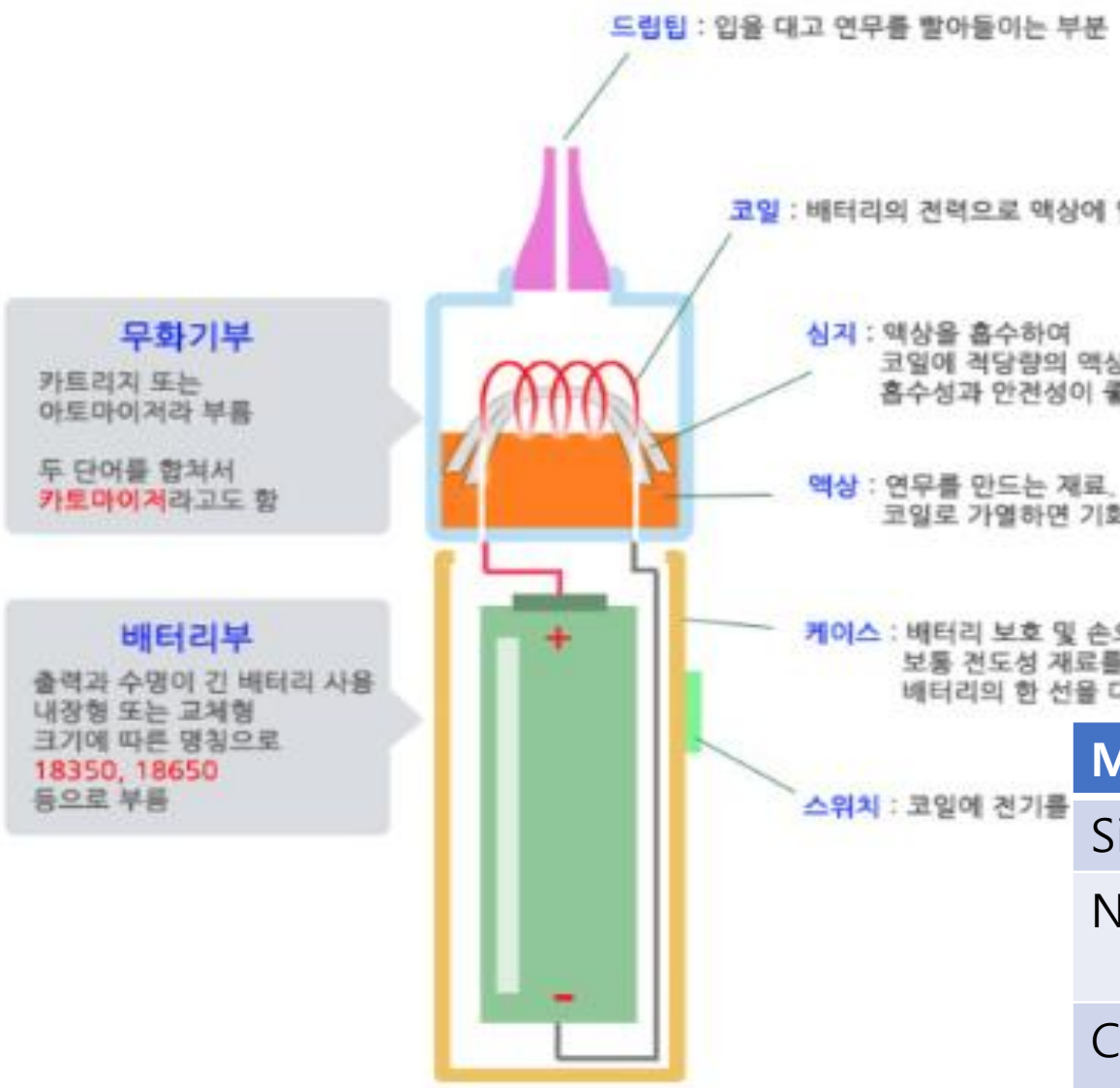
최혜숙

강의 순서

- 전자담배
- 전자담배와 금연
- 전자담배의 호흡기영향

구분	일반궐련담배	궐련형 전자담배	(액상형) 전자담배
흡입방식	**직접연소**를 통해 배출물 흡입 **Burn**	전자기기를 통해 전용스틱을 고열로 **가열**하여 배출물 흡입 **Heat-not-burn**	니코틴이 함유되거나 혹은 특정한 향을 갖춘 액체를 **가열**하여 배출물 흡입
가열온도	650~850 ℃	250~350 ℃	250~350 ℃

액상형 전자담배



NiChrome, kanthal….

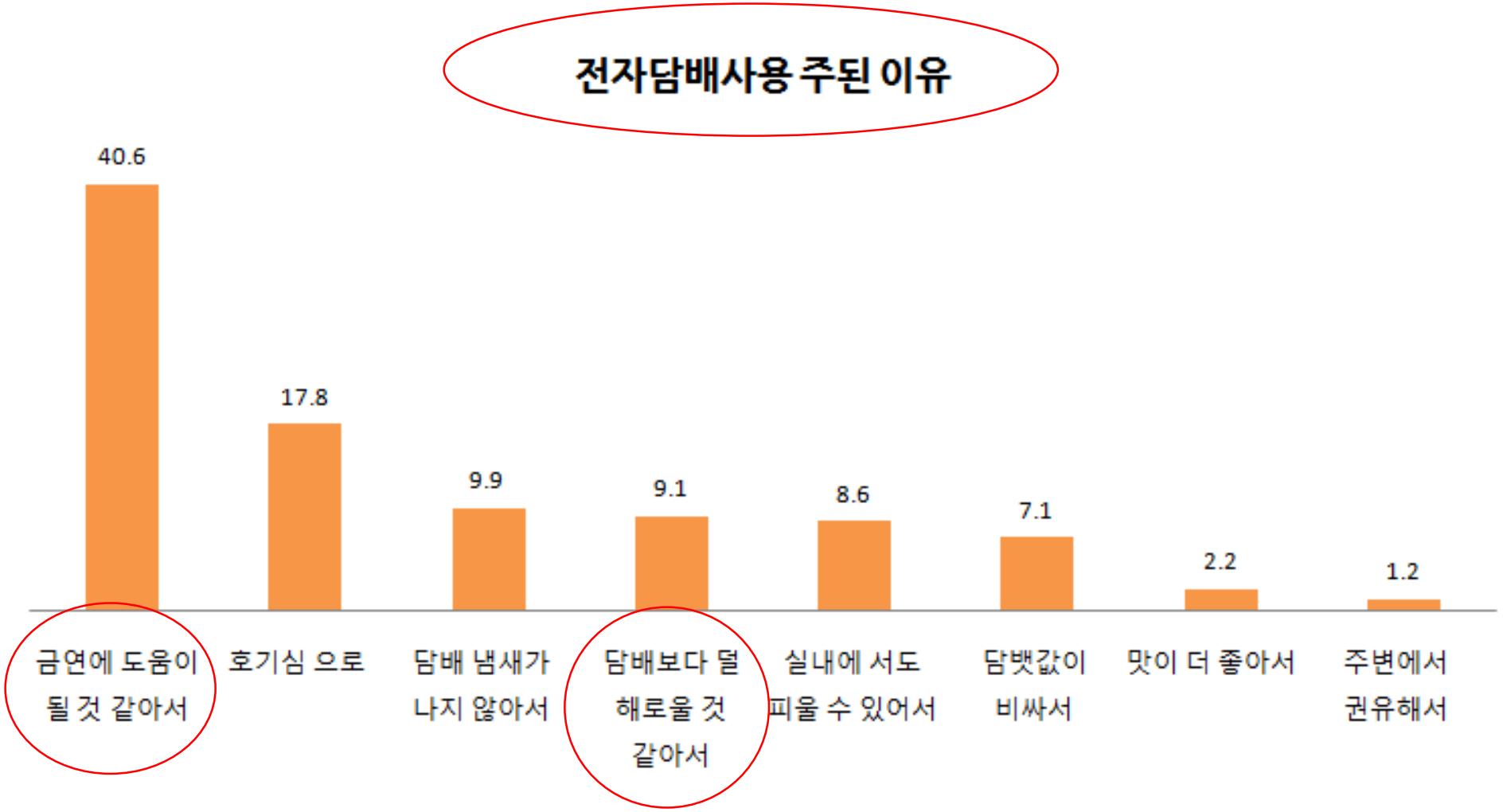
Cotton, silica, ceramic

Propylene glycol and Vegetable glycerin, nicotine, flavoring agents

Materials	Known risks
Silica	Silicosis
Nickel	Carcinogenesis, lung injury, immune suppression
Chromium	Carcinogenesis, lung injury, immune suppression, reproductive toxicity

궐련형 전자담배

2015 흡연실태 수시조사 (질병관리본부)



강의 순서

- 전자담배
- **전자담배와 금연**
- 전자담배의 호흡기영향

전자담배는 금연에 도움이 될까?

Cochrane Library

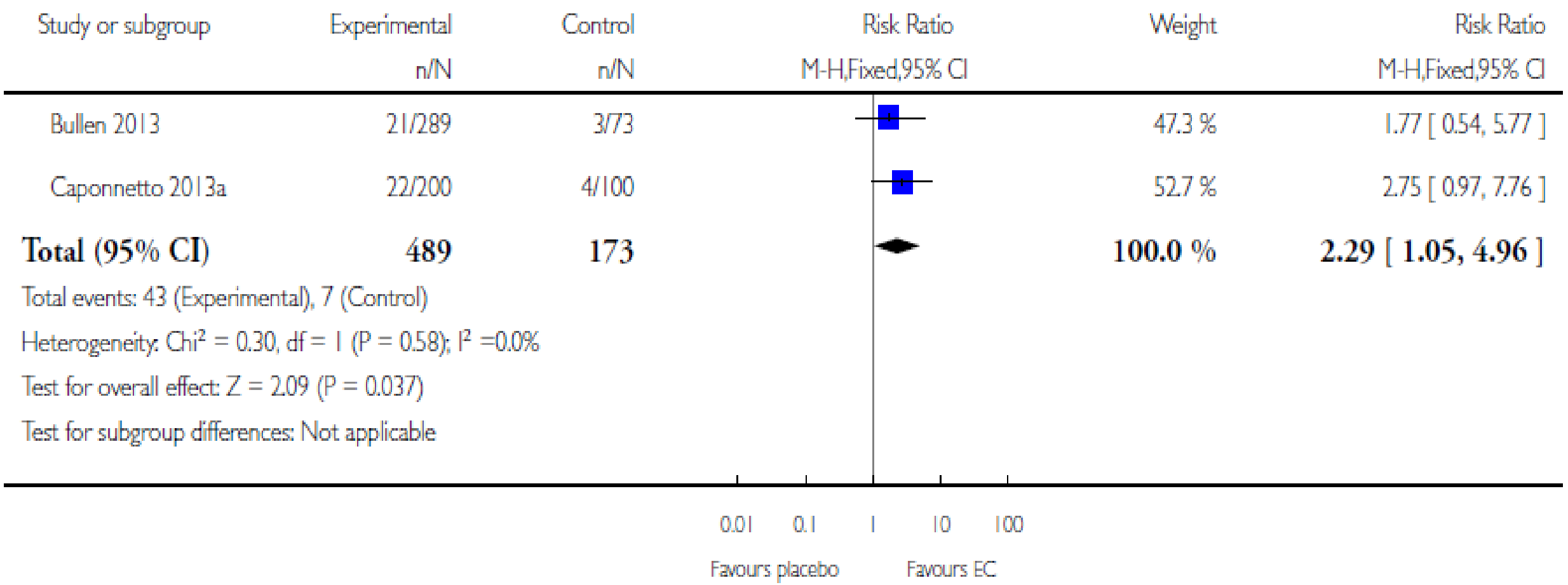
Cochrane Database of Systematic Reviews

Electronic cigarettes for smoking cessation (Review)

Hartmann-Boyce J, McRobbie H, Bullen C, Begh R, Stead LF, Hajek P

Cochrane Database Syst Rev. 2016 Sep 14;9:CD010216

Smoking cessation
Nicotine EC vs. placebo EC



Cochrane Database Syst Rev. 2016 Sep 14;9:CD010216

Published in final edited form as:

Addict Behav. 2018 January ; 76: 129–134. doi:10.1016/j.addbeh.2017.08.002.

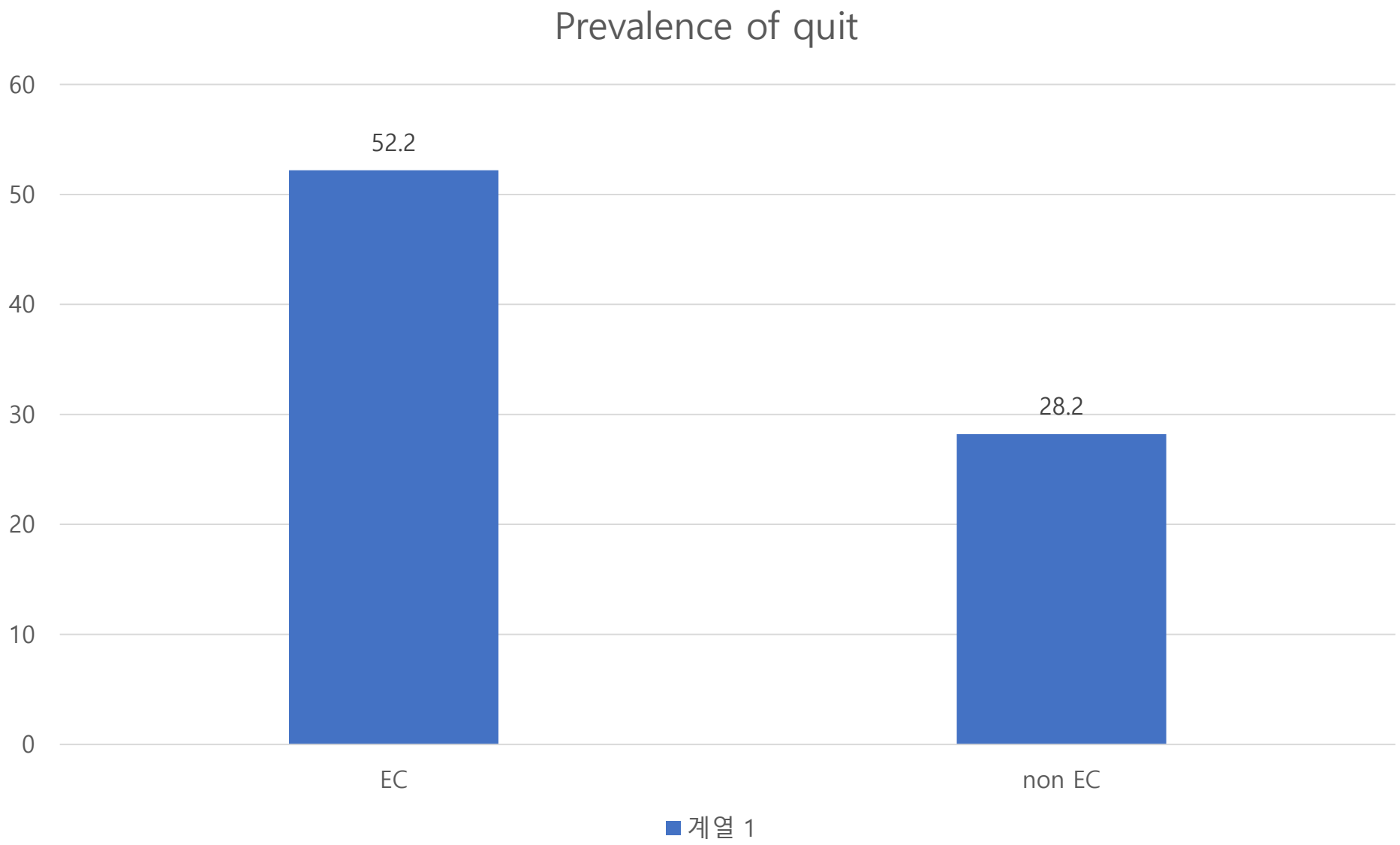
Prevalence of population smoking cessation by electronic cigarette use status in a national sample of recent smokers

Daniel P. Giovenco, PhD, MPH[1] and **Cristine D. Delnevo, PhD, MPH**[2]

[1]Columbia University Mailman School of Public Health, Department of Sociomedical Sciences, 722 W. 168th St., New York, NY, USA 10032

[2]Rutgers School of Public Health, Center for Tobacco Studies, 683 Hoes Ln West, Piscataway, NJ, USA 08854

Addict Behav . 2018 January ; 76: 129–134



Addict Behav . 2018 January ; 76: 129–134

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

A Randomized Trial of E-Cigarettes versus Nicotine-Replacement Therapy

Peter Hajek, Ph.D., Anna Phillips-Waller, B.Sc., Dunja Przulj, Ph.D., Francesca Pesola, Ph.D., Katie Myers Smith, D.Psych., Natalie Bisal, M.Sc., Jinshuo Li, M.Phil., Steve Parrott, M.Sc., Peter Sasieni, Ph.D., Lynne Dawkins, Ph.D., Louise Ross, Maciej Goniewicz, Ph.D., Pharm.D., Qi Wu, M.Sc., and Hayden J. McRobbie, Ph.D.

N Engl J Med. 2019 Feb 14;380(7):629-637

Table 2. Abstinence Rates at Different Time Points and Smoking Reduction at 52 Weeks.*

Outcome	E-Cigarettes (N=438)	Nicotine Replacement (N=446)	Primary Analysis: Relative Risk (95% CI)†	Sensitivity Analysis: Adjusted Relative Risk (95% CI)
Primary outcome: abstinence at 52 wk — no. (%)	79 (18.0)	44 (9.9)	1.83 (1.30–2.58)	1.75 (1.24–2.46)‡
Secondary outcomes				
Abstinence between wk 26 and wk 52 — no. (%)	93 (21.2)	53 (11.9)	1.79 (1.32–2.44)	1.82 (1.34–2.47)§
Abstinence at 4 wk after target quit date — no. (%)	192 (43.8)	134 (30.0)	1.45 (1.22–1.74)	1.43 (1.20–1.71)¶
Abstinence at 26 wk after target quit date — no. (%)	155 (35.4)	112 (25.1)	1.40 (1.14–1.72)	1.36 (1.15–1.67)‡
Carbon monoxide–validated reduction in smoking of ≥50% in participants without abstinence between wk 26 and wk 52 — no./total no. (%)	44/345 (12.8)	29/393 (7.4)	1.75 (1.12–2.72)	1.73 (1.11–2.69)‖

N Engl J Med. 2019 Feb 14;380(7):629-637

강의 순서

- 전자담배
- 전자담배와 금연
- **전자담배의 호흡기영향**

The Role of Nicotine in the Effects of Maternal Smoking during Pregnancy on Lung Development and Childhood Respiratory Disease

Implications for Dangers of E-Cigarettes

Am J Respir Crit Care Med Vol: 193, 5, 486–494, 2016

α7 nicotinic acetylcholine receptors (nAChRs)

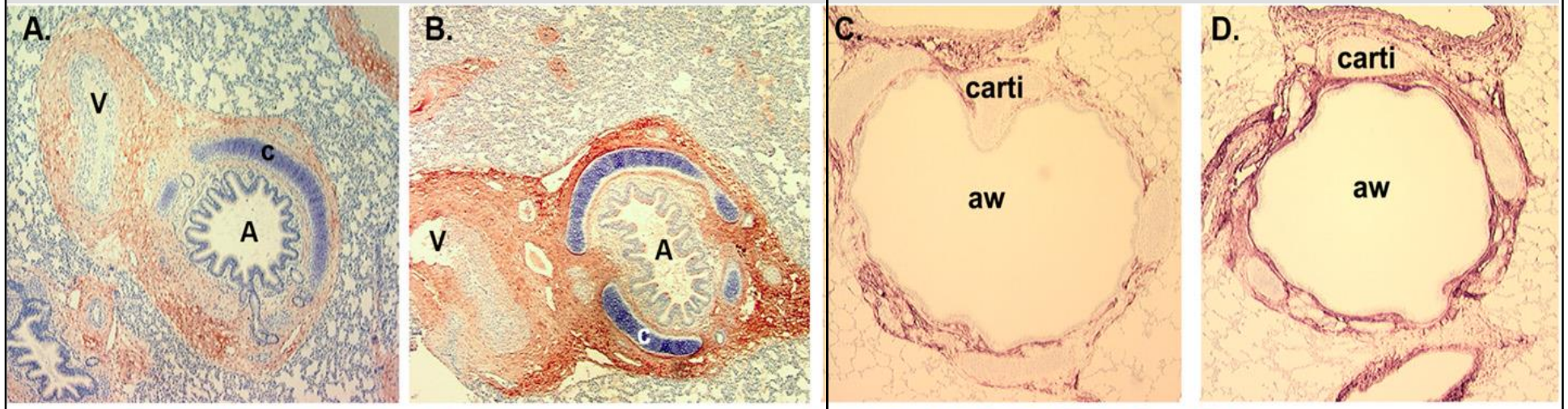
control

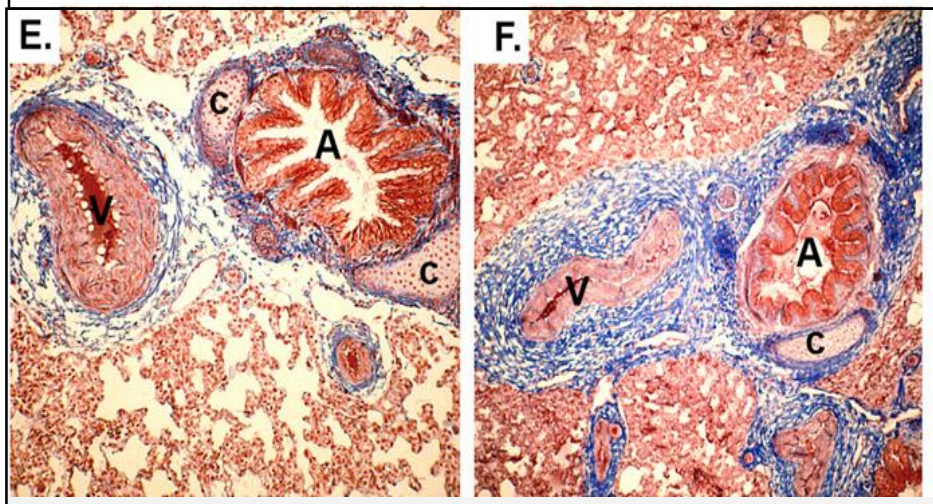
Nicotine-exposed

collagen

control

Nicotine-exposed

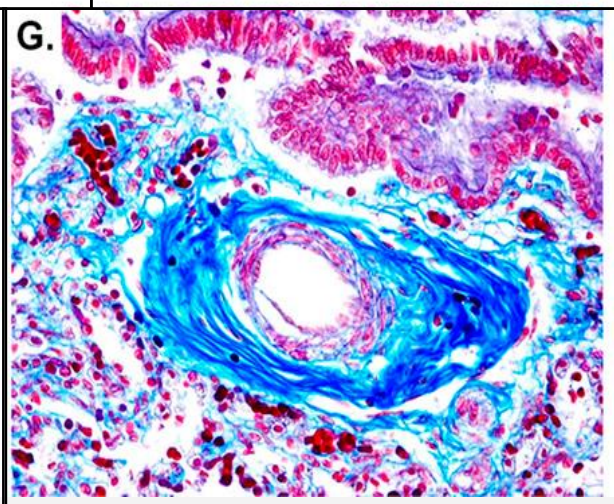




control

Nicotine-exposed

Masson trichrome–stained



Trichrome-stained human lung infant death syndrome whose mother smoked during pregnancy

Perivascular blue collagen fibers

J Clin Invest. 1999 Mar;103(5):637-47

Am J Respir Cell Mol Biol. 2002 Jan;26(1):31-41

Am J Respir Crit Care Med Vol: 193, 5, 486–494, 2016

(액상형) 전자담배 유해성

구분	성분명	액상 중 함량(μg/g)	기체상 중	
			함량(μg/g)	함량(μg/cig*)
니코틴		7000 - 13500	6500 - 12400	330 - 670
카르보닐류	포름알데히드	NQ - 26.1	NQ - 85.7	NQ - 4.2
	아세트알데히드	NQ - 14.7	NQ - 49.1	NQ - 2.4
	아세톤	NQ - 8.3	NQ - 30.9	NQ - 1.5
	아크롤레인	NQ	NQ	NQ
	프로피오알데히드	NQ - 8.3	NQ - 144.9	NQ - 7.1
	크로톤알데히드	NQ - 55.3	NQ	NQ

궐련담배와 유사

Propylene glycol and glycerol

식품의약품안전처 2017.4

전자담배 액상 및 기체상 카르보닐류 분석결과 (μg/g)

구분	제품	액상 카르보닐류 검출량(μg/g)						기체상 카르보닐류 검출량(μg/g)					
		FA*	AA*	AC*	AL*	PA*	CA*	FA	AA	AC	AL	PA	CA
전체	범위	NQ~ 26.1	NQ~ 14.7	NQ~ 8.3	NQ	NQ~ 8.3	NQ~ 55.3	NQ~ 85.7	NQ ~ 49.1	NQ~ 30.9	NQ	NQ~ 144.9	NQ

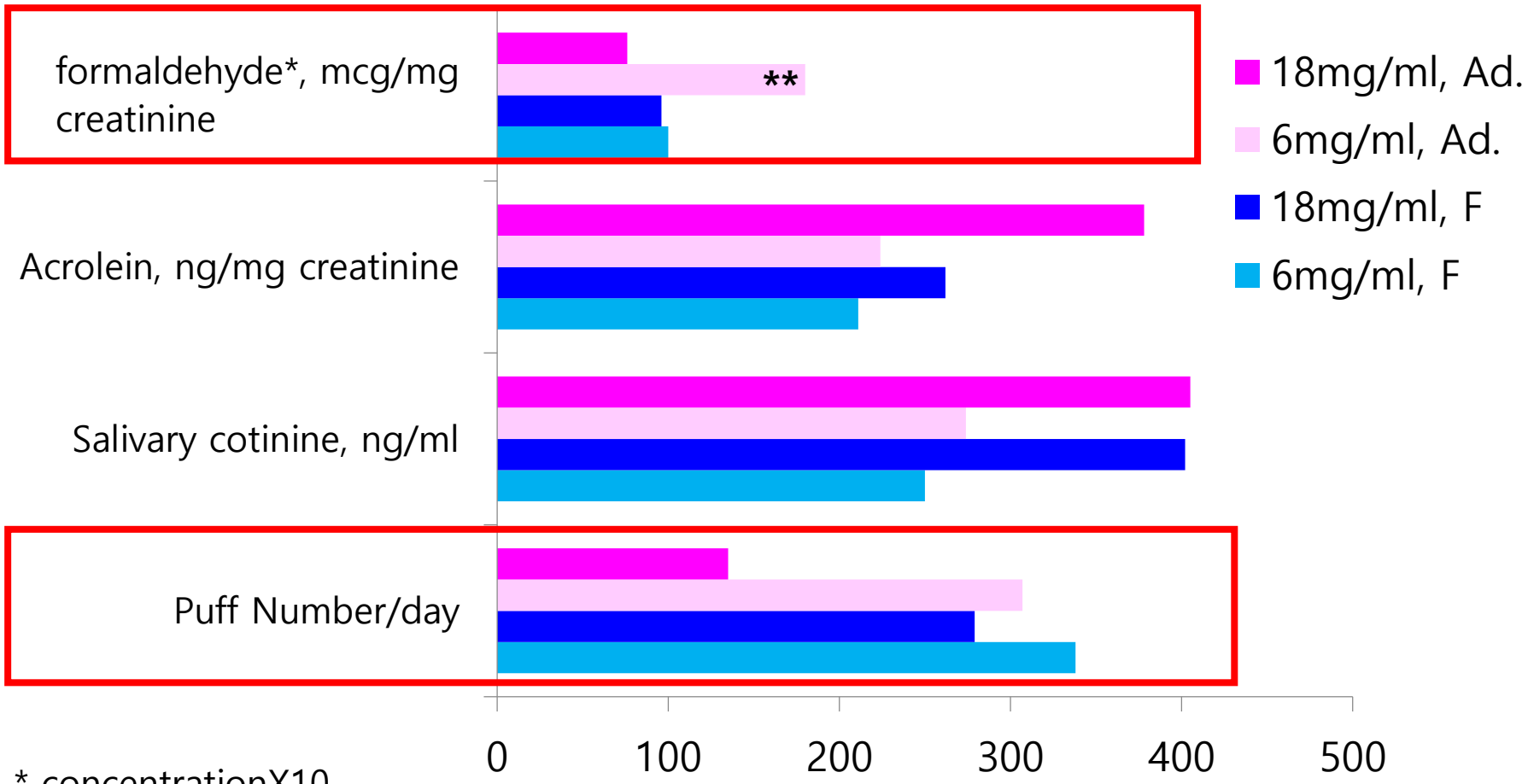
FA: 포름알데히드, AA: 아세트알데히드, AC: 아세톤, AL: 아크롤레인,
PA: 프로피온알데히드, CA: 크로톤알데히드

가열되는 코일: 크롬과 납, 니켈

식품의약품안전처 2017.4

ADDICTION
SSA SOCIETY FOR THE STUDY OF ADDICTION
RESEARCH REPORT
doi:10.1111/add.14271

'Real-world' compensatory behaviour with low nicotine concentration e-liquid: subjective effects and nicotine, acrolein and formaldehyde exposure



* concentrationX10
** p <0.05 compare to all groups

Addiction. 2018 Oct;113(10):1874-1882

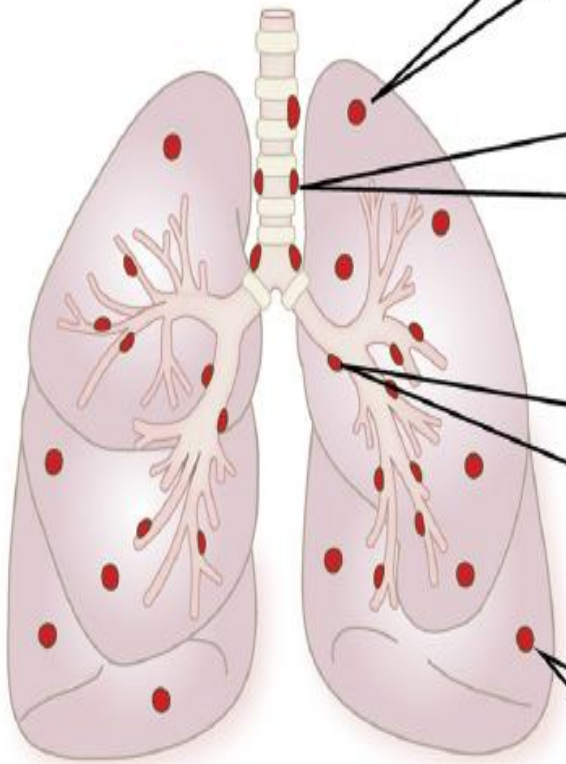
	Chemical	Detected Concentration Range	Biological System Affected
	Nicotine	ND to 36.6 mg/mL[10,62,63]	Lung tumor promoter[67] Addiction[67] Gastrointestinal carcinogen[67] Raises blood pressure and heart rate[68] Reduce brain development in adolescents[37]
	Cotinine	ND*	Reduce fertility and reproduction[69]
Aldehydes	Acetaldehyde	0.11 to 2.94 μg/15 puffs[53,64,65]	Carcinogen[70] Aggravation of alcohol-induced liver damage[71]
	Acrolein	0.044 to 6.74 μg/15 puffs[53,64,65]	Ocular irritation[72] Respiratory irritation[72] Gastrointestinal irritation[72]
	Formaldehyde	0.2 to 27.1 μg/15 puffs[53,64,65]	Carcinogen[68] Bronchitis, pneumonia, and increase asthma risk in children[73,74] Ocular, nasal, and throat irritant[74]
	o-Methyl benzaldehyde	ND to 7.1 μg/15 puffs[7]	Unknown
	Acetone	ND to 91.2[7]	Gastric distress[75] Weakness of extremities and headache[75] Ocular irritation[75]
Volatile organic compounds	Propylene glycol	0 to 82.875 mg/15 puffs[7]	Throat and airways irritation.[76] Carcinogen[68] Gastric distress[68] Increase asthma risk in children[68] Ocular irritation[68]
	Glycerin	75 to 225 μg/15 puffs[57]	Lipoid pneumonia[77] Ocular, dermal, and pulmonary irritant[78]

Potential Effects of e-Cigarettes on Biological Systems

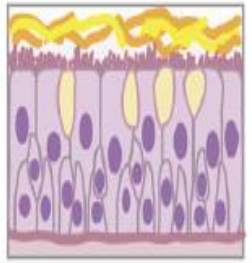
System	Effects of e-Cigarettes
Pulmonary system	Upper and lower respiratory tract irritation[9,26,27] Bronchitis, cough, and emphysema[9,26,27]

Lung injury, lung cancer……

J Am Heart Assoc. 2017 Sep; 6(9): e006353.



Overall Effects on the Lung:
- Decreased exhaled nitric oxide (89, 127)
- Development of respiratory symptoms in adolescents (30, 93, 130)
- Cytotoxicity and increased lung weight (26, 61, 113)



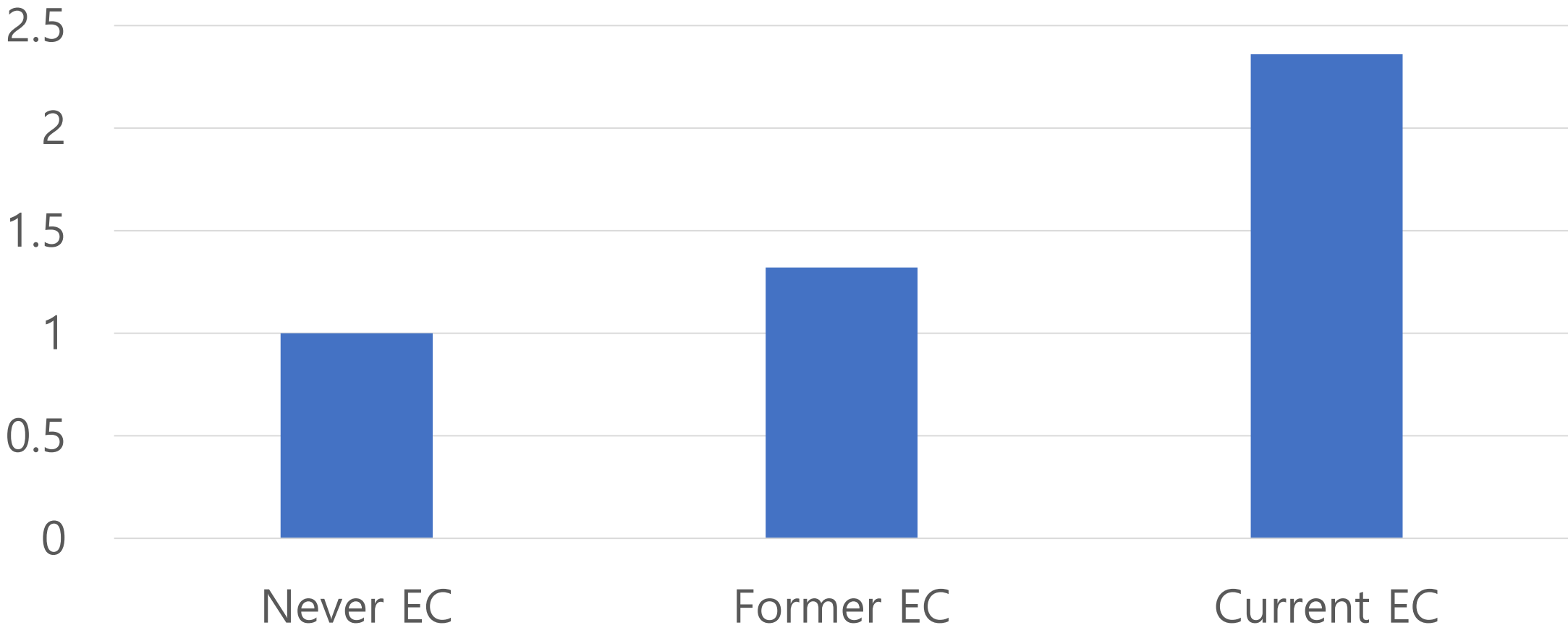
Effects on Airway Physiology:
- Airway hyperreactivity (81)
- Increased airway resistance (49, 127)

Effects on Host-Defense:
- Downregulation of host-defense genes (91)
- Decreased antimicrobial activity (121, 137)
- Increased resistance of bacteria to host antimicrobial factors (62)

Effects on Alveolar Compartment:
- Decreased alveolar development (94)
- High levels of particle deposition (84)
- Increased levels of necrosis and cytotoxicity (26, 62, 97)

Am J Physiol Lung Cell Mol Physiol. 2017 Aug 1;313(2):L193-L206

Prevalence rates of athma in high school students of south Korea



PLoS One 11: e0151022, 2016

RR in multivariate model for Chronic Pulmonary Disorder

Hawaii BRFSS, Telephone survey

Variable	AOR	CI	p
E-cigarette use	2.58	1.36 - 4.89	.004
Cigarette smoking	2.98	2.34 - 3.78	< .0001
E-cig X smoking	0.51	0.26 - 1.00	.05
Pairwise comparisons			
Dual vs. none	3.92	2.82 - 5.44	< .0001
Smok vs. none	2.98	2.34- 3.78	< .0001
E-cig vs. none	2.58	1.36 - 4.89	.004
Dual vs. e-cig	1.52	0.81 - 2.87	.20
Smok vs. e-cig	1.16	0.62 - 2.17	.65
Dual vs. smok	1.32	0.98 - 1.77	.07
Gender (male)	0.71	0.58 - 0.88	.001
Education	0.88	0.79 - 0.98	.03
Financial stress	1.19	1.08 - 1.31	.0006
Overweight status	1.11	0.96 - 1.27	.15
Secondhand smoke	1.37	1.15 - 1.63	.0003
Native Hawaiian[A]	1.11	0.84 - 1.48	.47
Filipino	0.82	0.58 - 1.17	.27
Japanese	0.62	0.46 - 0.83	.001
Chinese	0.58	0.30 - 1.12	.11
Pacific Islander	1.16	0.56 - 2.40	.69
Other Asian	0.56	0.21 - 1.51	.25

Drug Alcohol Depend. 2019 Jan 1;194:363-370

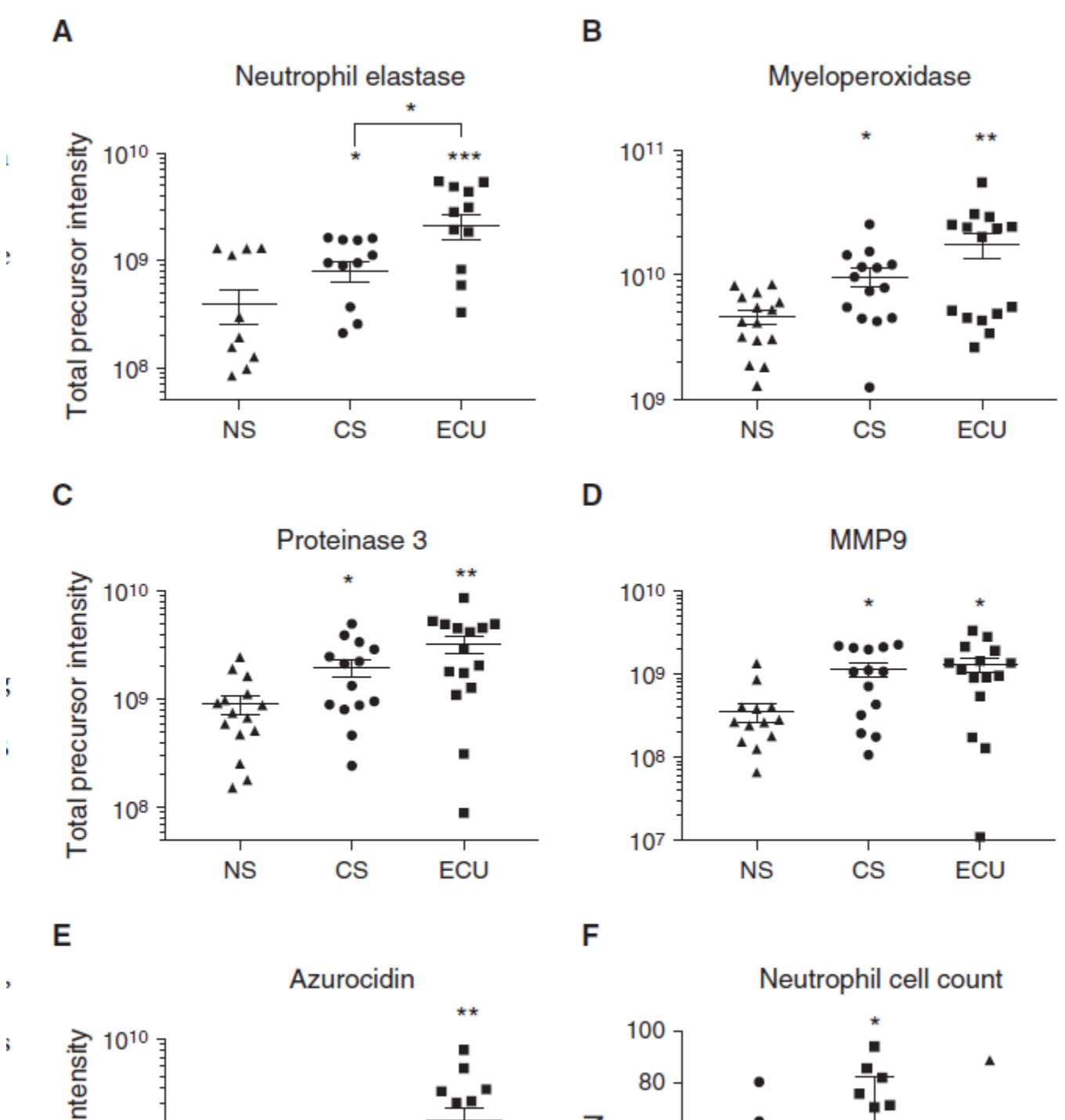
ORIGINAL ARTICLE

E-Cigarette Use Causes a Unique Innate Immune Response in the Lung, Involving Increased Neutrophilic Activation and Altered Mucin Secretion

Boris Reidel[1,2], Giorgia Radicioni[1,2], Phillip W. Clapp[3], Amina A. Ford[1,2], Sabri Abdelwahab[1,2], Meghan E. Rebuli[3], Prashamsha Haridass[1,2], Neil E. Alexis[3], Ilona Jaspers[3], and Mehmet Kesimer[1,2]

[1]Marsico Lung Institute, [2]Department of Pathology and Laboratory Medicine, and [3]Department of Pediatrics, The University of North Carolina at Chapel Hill, Chapel Hill, North Carolina

Am J Respir Crit Care Med 492–501,2018



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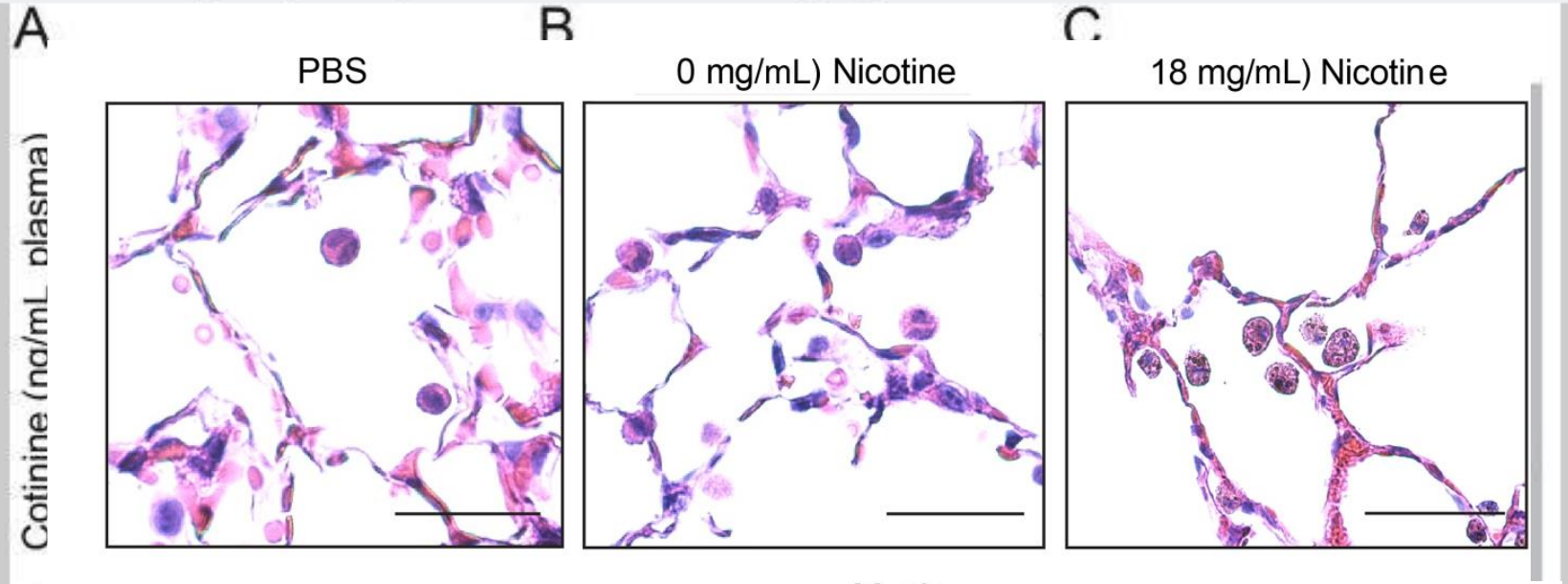
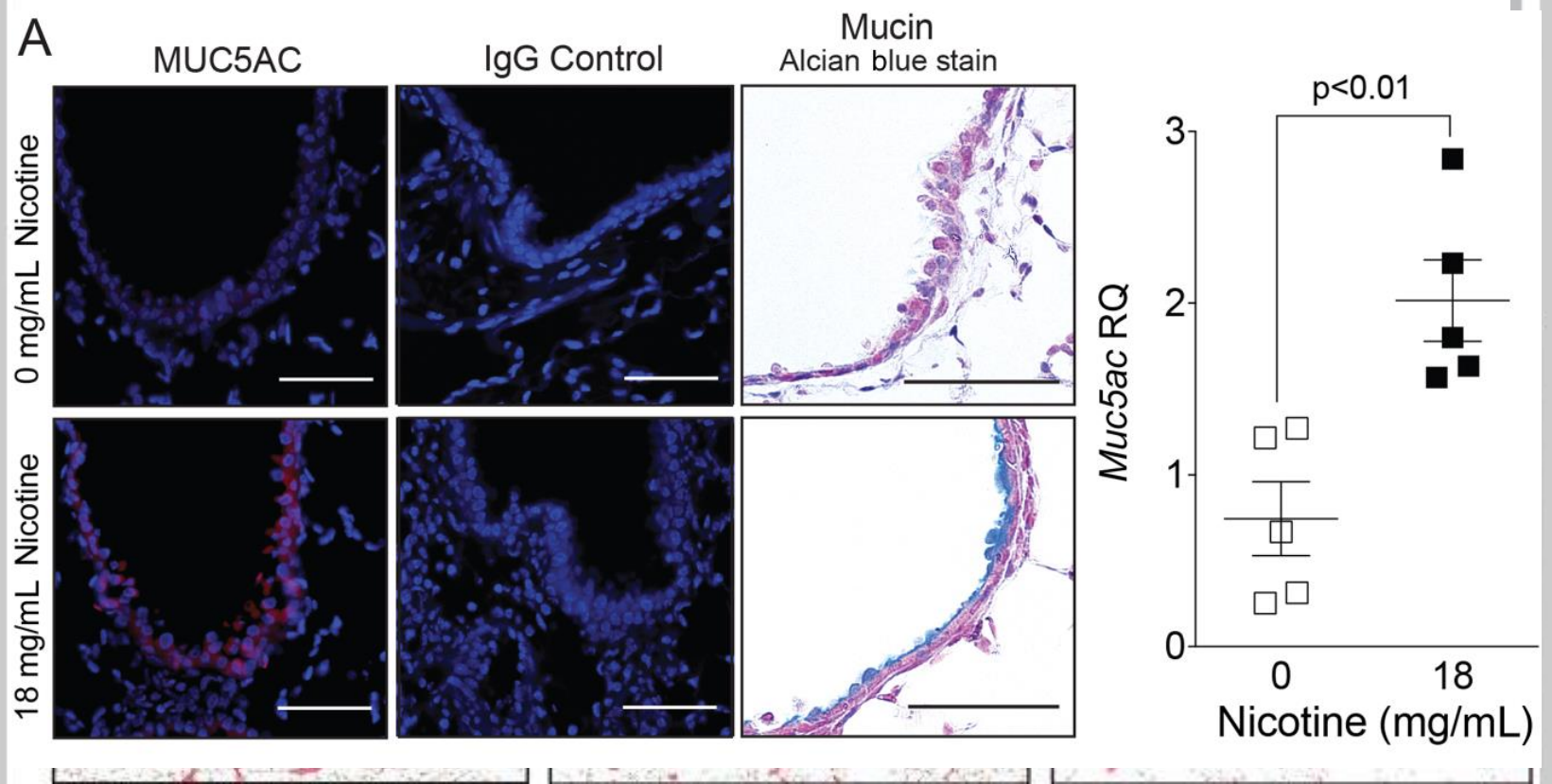
ab[1,2], Meghan E. Rebuli[3],

liatrics, The University of North

Care Med 492–501,2018





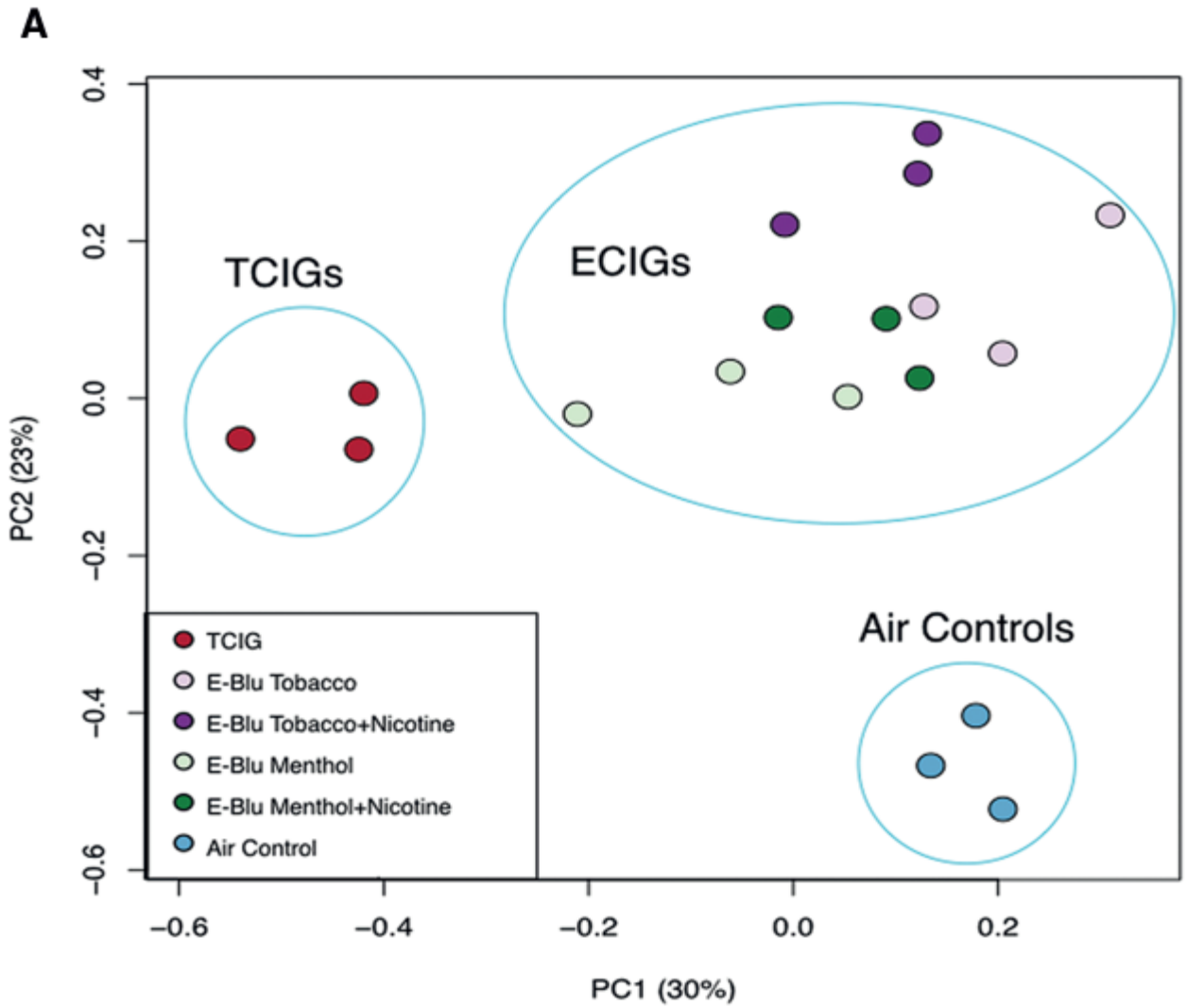
Respiratory research

osure in mice induces lependent manner

Baumlin,[3] Michael Campos,[3]
mins,[5] Edward Eden,[5]
,2

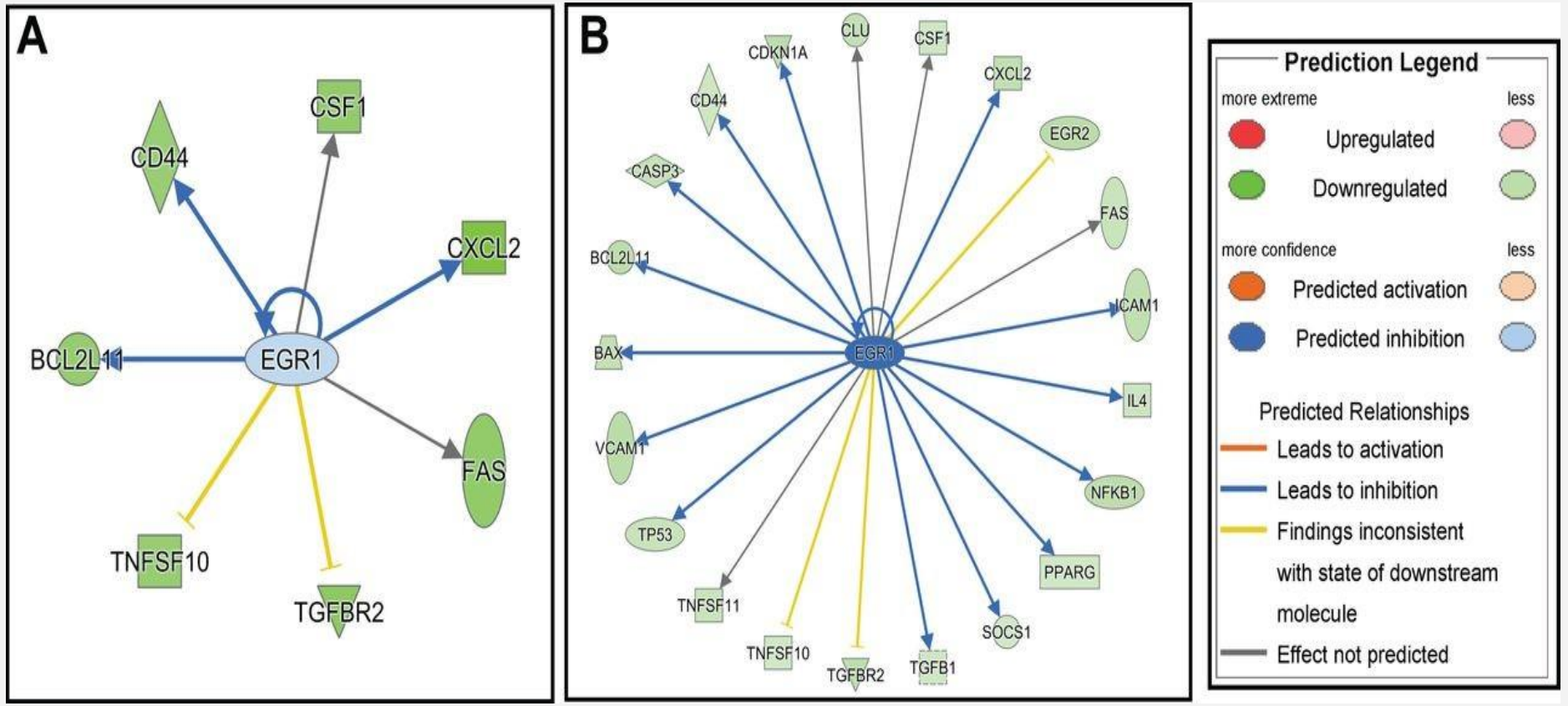
Thorax. 2016 Dec;71(12):1119-1129.

Genes differentially expressed in human bronchial epithelial cells exposed to traditional tobacco cigarette (TCIG) smoke or electronic cigarette (ECIG) aerosol.



TOXICOLOGICAL SCIENCES, 155(1), 2017, 248–257

EGR reduced expression



5 target genes in cigarette smokers

18 target genes in e-cigarette users

Am J Physiol Lung Cell Mol Physiol 311: L135–L144, 2016

Electronic cigarettes: a task force report from the European Respiratory Society

Experiments in cell cultures and animal studies show that ECIGs can have multiple negative effects.
The long-term effects of ECIG use are unknown, and there is therefore no evidence that ECIGs are safer than tobacco in the long term.
Based on current knowledge, negative health effects cannot be ruled out.

Eur Respir J. 2019 Jan 31;53(2).

Infectious Disease
Breaking News

감염병 뉴스속보

수시 3호, 2019. 9. 20.

“미국 내 전자담배(액상형) 관련 중증 폐질환 발생에 대한 정부 대책 안내”

□ 미국 발생 현황 및 관리

○ 미국 질병통제센터(CDC)는 **2019년 9월 24일** 기준으로 미국 전역에서 **액상형**

(KCDC, KATRD 9.30)

증례

Pulmonary illness: EC-nicotine containing liquids

18-year-old woman➔ live

Hypersensitivity Pneumonitis and Acute Respiratory Distress Syndrome From E-Cigarette Use

Casey G. Sommerfeld, MD, Daniel J. Weiner, MD, Andrew Nowalk, MD, PhD, Allyson Larkin, MD

Pediatrics 2018; 141(6): e20163927

CASE REPORT

40-year-old female ➔ live

WILEY

Organizing pneumonia related to electronic cigarette use: A case report and review of literature

Clin Respir J 2018; 12:1295

Contents lists available at ScienceDirect

Respiratory Medicine Case Reports

journal homepage: www.elsevier.com/locate/rmcr

18-year-old female➔ live

Case report

Acute eosinophilic pneumonia following electronic cigarette use

Respir Med Case Rep 2019; 27: 100825.

TABLE 1 Case reports of pulmonary toxicity caused by e cigarettes

Age/sex	Preexisting medical conditions	Smoking history	Duration of e cigarette use before diagnosis	Presentation/sign and symptoms	Diagnosis	Treatment/outcome
42/F[11]	Asthma, Rheumatoid arthritis, Fibromyalgia, Schizoaffective disorder, Hypertension	Not specified	7 months	Dyspnoea, cough, fever	Exogenous lipoid pneumonia	Recovery with abstinence from e cigarette
20/M[14]	None	Not specified	3 days	Dyspnoea and cough	Acute eosinophilic pneumonia	Recovery with abstinence from e cigarette and systemic steroids
43/M[13]	Lung adenocarcinoma with isolated brain metastasis	Smoker, 45 pack year	4 weeks	Dyspnoea and cough	Subacute bronchial toxicity	Recovery with abstinence from e cigarette
31/F[12]	Not specified	Smoker, unspecified	3 months	Dyspnoea and cough	Exogenous lipoid pneumonia	Recovery with abstinence from e cigarette and systemic steroids
43/M[15]	Hypertension	Smoker, unspecified	3 days	Dyspnoea and pleuritic chest pain	Pneumonia and bilateral pleural effusions	Recovery with abstinence from e cigarette
60/M[16]	Not specified	Smoker, unspecified	Not specified	Weakness and cough	Suspected acute hypersensitivity pneumonitis	Recovery with abstinence from e cigarette
33/M[17]	Mixed Germ cell tumour with multiple pulmonary metastasis	Smoker, 10 pack years	3 months	Dyspnoea	Respiratory bronchiolitis interstitial lung disease	Recovery with abstinence from e cigarette
27/M[18]	None	Smoker, unspecified	7 months	Dyspnoea, cough, fever and hemoptysis	Bronchiolitis obliterans organizing pneumonia	Recovery with abstinence from e cigarette and systemic steroids
70/M[19]	Lung cancer with left upper lobectomy and COPD	Not specified	4 weeks	Dyspnoea and cough	Diffuse alveolar damage	Death

Clin Respir J 2018; 12:1295

Pulmonary illness: EC-cannabis ds (THC, CBD)

Case report 18-year-old female

Lung injury from inhaling butane hash oil mimics pneumonia

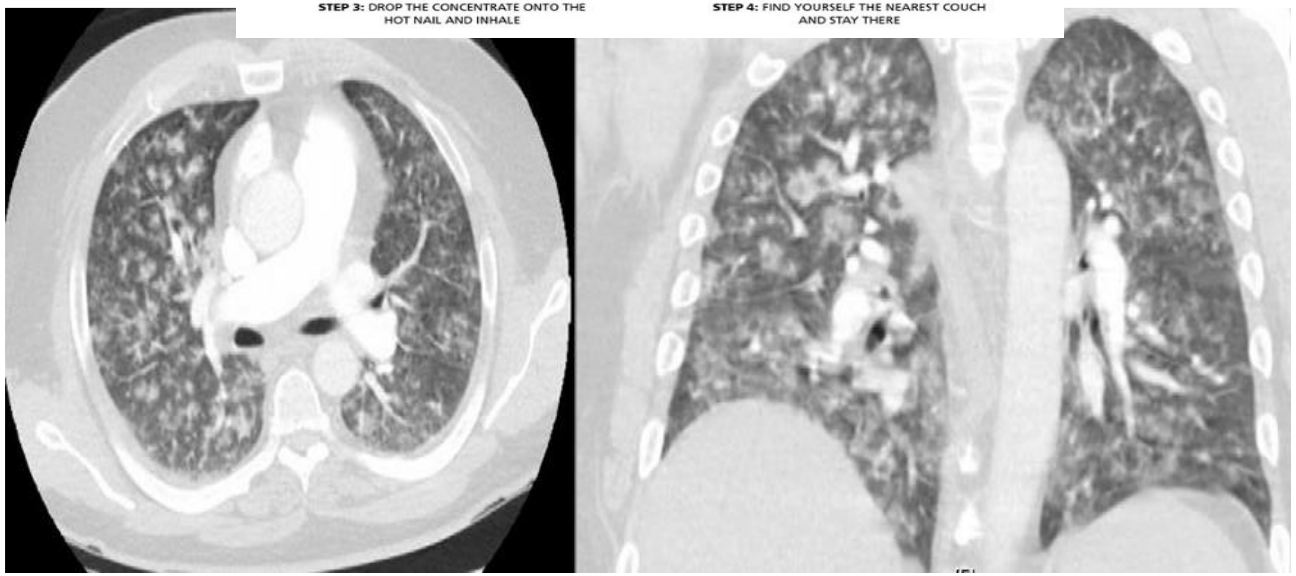
Respir Med Case Rep 2019;26: 171-3.

methacrolein and benzene

"Tree-in-Bloom": Severe Acute Lung Injury Induced by Vaping Cannabis Oil

54-year-old man

Ann Am Thorac Soc. 2017 Mar;14(3):468-470.



Severe Pulmonary Disease Associated with Electronic-Cigarette–Product Use — Interim Guidance

Weekly / September 13, 2019 / 68(36);787–790

On September 6, 2019, this report was posted online as an MMWR *Early Release.*

Please note: *An erratum has been published for this report. To view the erratum, please click here.*

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View suggested citation

Summary

What is already known about this topic?

Twenty-five states have reported more than 200 possible cases of severe pulmonary disease associated with the use of electronic cigarettes (e-cigarettes).

What is added by this report?

Based on available information, the disease is likely caused by an unknown chemical exposure; no single product or substance is conclusively linked to the disease.

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

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

Jennifer E. Layden, M.D., Ph.D., Isaac Ghinai, M.B., B.S., Ian Pray, Ph.D., Anne Kimball, M.D., Mark Layer, M.D., Mark Tenforde, M.D., Ph.D., Livia Navon, M.S., Brooke Hoots, Ph.D., Phillip P. Salvatore, Ph.D., Megan Elderbrook, M.P.H., Thomas Haupt, M.S., Jeffrey Kanne, M.D., Megan T. Patel, M.P.H., Lori Saathoff-Huber, M.P.H., Brian A. King, Ph.D., M.P.H., Josh G. Schier, M.D., Christina A. Mikosz, M.D., M.P.H., and Jonathan Meiman, M.D.

N Engl J Med. 2019 Sep 6

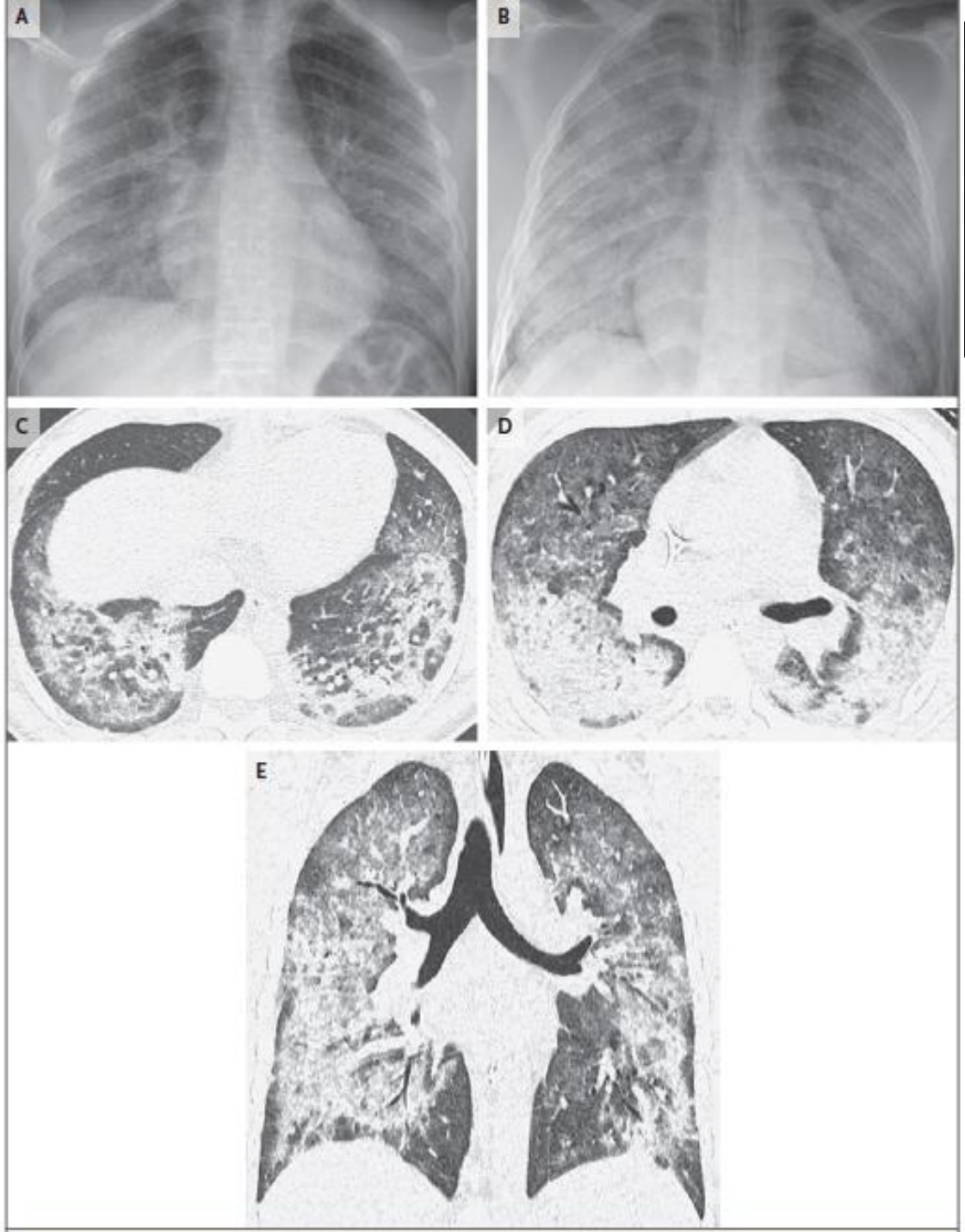


Table 2. Demographic Characteristics, Symptoms, Evaluation, and Clinical Course of 53 Case Patients.*

Characteristic	Values
Median age (range) — yr	19 (16–53)
Male sex — no./total no. (%)	44/53 (83)
Race or ethnic group — no./total no. (%)†	
White	37/45 (82)

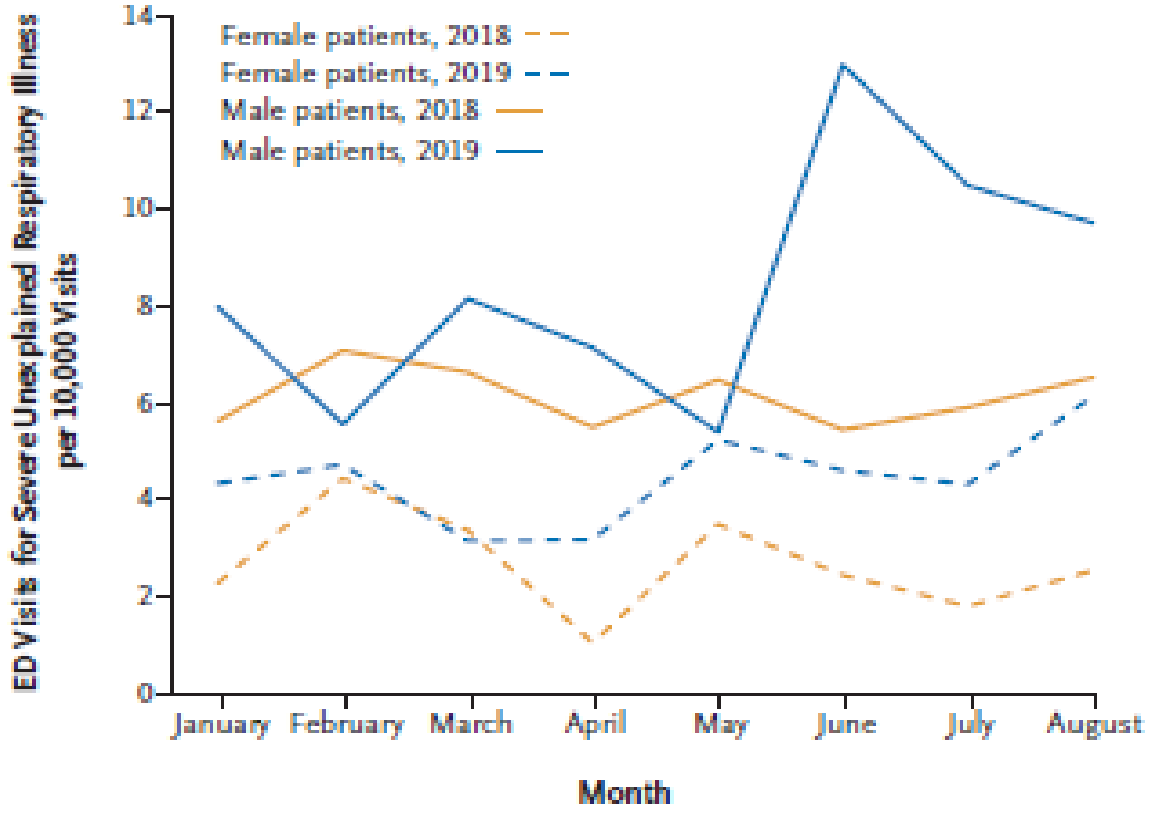
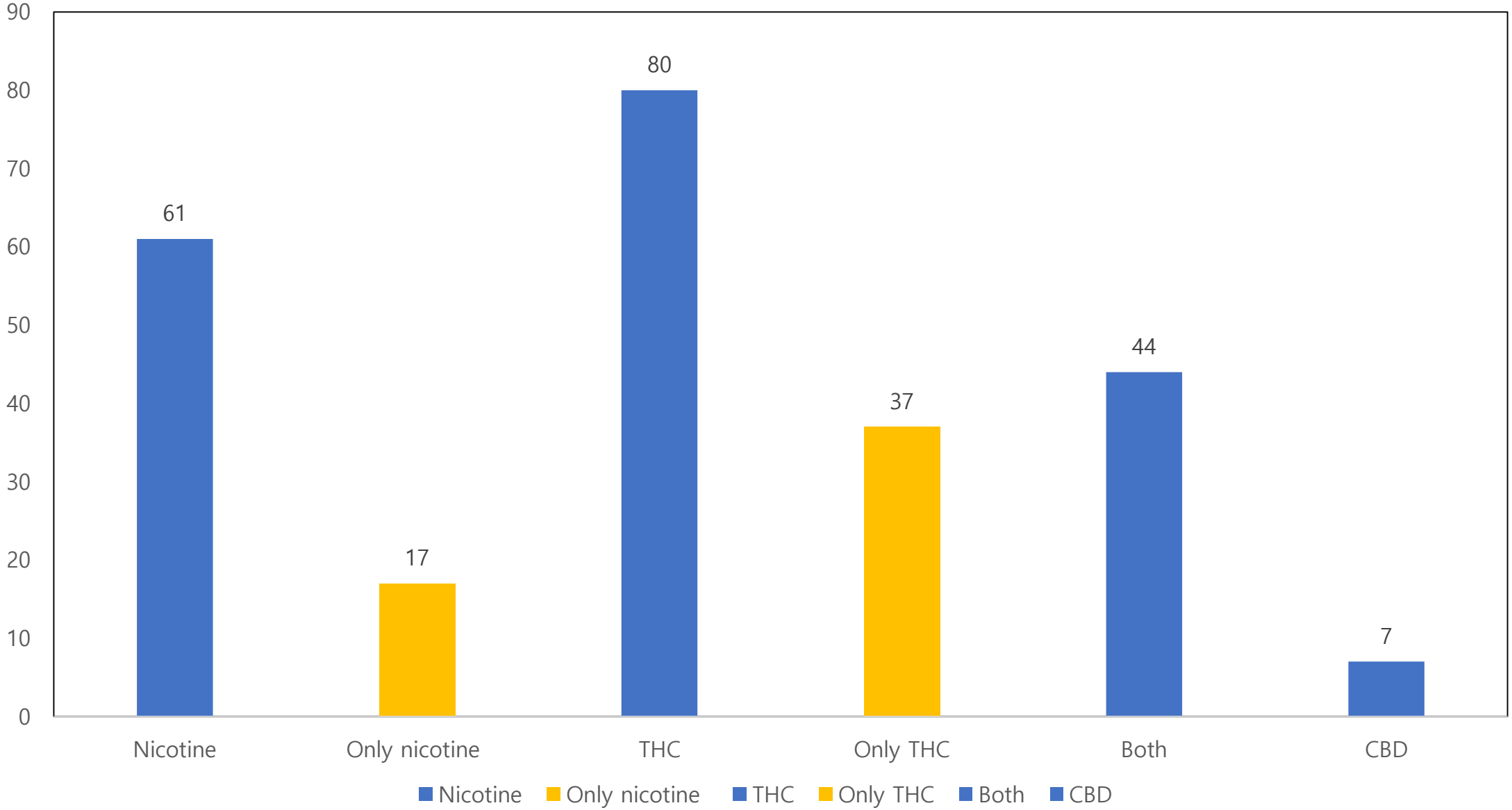


Figure 3. Emergency Department (ED) Visits for Severe Unexplained Respiratory Illness among Patients 14 to 30 Years of Age, According to Sex, in Illinois Counties in 2018 and 2019.

Receipt of noninvasive positive-pressure ventilation — no./total no. (%)	19/53 (36)
Intubation and mechanical ventilation — no./total no. (%)	17/53 (32)
Admission to intensive care unit — no./total no. (%)	31/53 (58)
Death — no./total no. (%)	1/53 (2)

N Engl J Med. 2019 Sep 6

전자담배 사용실태 (90일 이내)



N Engl J Med. 2019 Sep 6

- Tetrahydrocannabinol (THC): 대마초주성분
- Cannabidiol (CBD): 대마초성분
- Butane hash oil (dabs): 대마기름

Characteristics of a Multistate Outbreak of Lung Injury Associated with E-cigarette Use, or Vaping — United States, 2019

Weekly / October 4, 2019 / 68(39);860–864

On September 27, 2019, this report was posted online as an MMWR *Early Release.*

Cria G. Perrine, PhD[1]; Cassandra M. Pickens, PhD[2]; Tegan K. Boehmer, PhD[3]; Brian A. King, PhD[1]; Christopher M. Jones, DrPH[2]; Carla L. DeSisto, PhD[1,4]; Lindsey M. Duca, PhD[1,4]; Akaki Lekiachvili, MD[1]; Brandon Kenemer, MPH[1]; Mays Shamout, MD[1,4]; Michael G. Landen, MD[5]; Ruth Lynfield, MD[6]; Isaac Ghinai, MBBS[4,7]; Amy Heinzerling, MD[4,8]; Nathaniel Lewis, PhD[4,9]; Ian W. Pray, PhD[4,10]; Lauren J. Tanz, ScD[4,11]; Anita Patel, PharmD[12]; Peter A. Briss, MD[1]; Lung Injury Response Epidemiology/Surveillance Group (View author affiliations)

View suggested citation

Summary

What is already known about this topic?

Lung injury associated with e-cigarette use, or vaping, has recently been reported in most states. CDC, the Food and Drug Administration, and others are investigating this outbreak.

What is added by this report?

Among 805 cases reported as of September 24, 2019, 69% were in males; 62% of patients were aged 18–34 years. Among patients with data on substances used in e-cigarettes, or vaping products, tetrahydrocannabinol (THC)-containing product use was reported by 76.9% (36.0% reported exclusive THC-product use); 56.8% reported nicotine-containing product use (16.0% reported exclusive nicotine-product use).

What are the implications for public health practice?

Characteristic	No. (%)
Demographic (n = 771)*	
Sex	
Male	531 (68.9)
Female	234 (30.4)
Missing	6 (0.8)
Age group (yrs)	
<18	125 (16.2)
18–24	293 (38.0)
25–34	184 (23.9)
35–44	93 (12.1)
≥45	42 (5.5)
Missing	34 (4.4)

https://www.cdc.gov/mmwr/volumes/68/wr/pdfs/mm6839e1-H.pdf

Substances used in e-cigarette, or vaping, products (n = 514)†	
THC-containing products	
Yes	395 (76.9)
No	96 (18.7)
Unknown/Missing	23 (4.5)
Nicotine-containing products	
Yes	292 (56.8)
No	173(33.7)
Unknown/Missing	49 (9.5)
Cannabidiol (CBD)	
Yes	89 (17.3)
No	265 (51.6)
Unknown/Missing	160 (31.1)
Synthetic cannabinoids	
Yes	4 (0.8)
No	289 (56.2)
Unknown/Missing	221 (43.0)
Flavored e-liquids§	

and Prevention

Search

https://www.cdc.gov/tobacco/basic_information/e-cigarettes/severe-lung-disease.html

ttes

Outbreak of Lung Injury Associated with E-Cigarette Use, or Vaping

Español (Spanish)

Table of Contents

- For the Public
- For Healthcare
- For State and
- Resources

- October 8, 2019, 1,299* lung injury cases
- 26 deaths
- 70% male
- 80% <35 years old

Posted October 10, 2019 at 1:00pm ET

CDC, the U.S. Food and Drug Administration (FDA), state and local health departments, and other clinical and public health partners are investigating a multistate outbreak of lung injury associated with use of e-cigarette, or vaping, products.

On This Page

- What we know
- What we don't know
- What CDC recommends
- Key Facts about E-Cigarette Us

전자담배 관련 중증 폐질환 사례정의

확진자 (Confirmed)	· 질환 최초 발생 전 90일 동안 **전자담배**를 사용하고, · 흉부 이미지 영상에서 이상 소견이 있고, · 임상이나 분자적 진단검사(viral panel, PCR) 결과 감염성 폐질환 소견도 없으며, · 심장질환, 류머티스, 종양 등의 병력이 없는 경우
추정환자 (Probable)	· 질환 최초 발생 전 90일 동안 **전자담배**를 사용하고, · 흉부 이미지 영상에서 이상 소견이 있고, · **진단검사 결과 감염 소견이 있으나, 임상소견 상 감염이 단독원인이 아니라고 판단되며,** · 심장질환, 류머티스, 종양 등의 병력이 없는 경우

미국 CDC 2019년 9월 18일 (KCDC 9.20, KATRD 9.30)

Infectious Disease Breaking News

감염병 뉴스속보

붙임 3 전자담배(액상형) 관련 중증 폐질환 의심환자 발생보고서

신고의료기관명	000 의료기관	연락처		조사일	____년____월____일
작성자					

환자 인적사항	성명 :	성별 :□ 남 □ 여		연락처	핸드폰 : 의료기관 전화 :
	생년월일			거주지주소	
조사항목	전자담배사용력 (최근 90일 내 전자담배 사용력)	**사용 제품명** (많이 사용한 순서대로)	**사용 기간** **(단년도**		**사용 빈도**
		예시) A	년 월 ~ 년 월/ 년 월 ~ 년 월		(7회/ 1주일)
		예시) B	년 월 ~ 년 월/ 년 월 ~ 년 월		(1회/ 1주일)
		예시) C	년 월 ~ 년 월/ 년 월 ~ 년 월		(1회/ 1주일)
사례 정의	**□ 확진자 (Confirmed)**			**□ 추정환자 (Probable)**	
	· 질환 최초 발생 전 90일 동안 전자담배를 사용하고, · 흉부 이미지 영상에서 이상 소견이 있고, · 임상이나 진단검사 결과 어떤 감염성 폐질환 소견도 없으며, · 심장질환, 류머티스, 종양 등의 병력이 없는 경우			· 질환 최초 발생 전 90일 동안 전자담배를 사용하고, · 흉부 이미지 영상에서 이상 소견이 있고, · 진단검사 결과 감염 소견 있으나, 임상소견 상 감염이 단독원인이 아니라고 판단되며, · 심장질환, 류머티스, 종양 등의 병력이 없는 경우	
발병일	_____년 _____월 _____일				
주증상	□ 발열(°C) □ 기침 □ 피로감 □ 숨가쁨 □ 가슴통증 □ 구토 □ 설사 □ 기타 ( )				
참고사항	○ **(발생 보고)** 중증 폐질환자 내원 시, 역학적 연관성(발병 전 90일 내 액상형 전자담배 사용)을 확인하고 진단을 위한 검사를 시행하여 사례 정의에 부합하는 경우는 지체 없이 질병관리본부 건강영양조사과로 발생보고서를 작성하셔서 메일 또는 팩스로 제출하여 주시기 바랍니다 ☞ 보고방법 : 메일(kimsj0906@korea.kr)또는 팩스 (043-719-7527)/ 문의처 : 043-719-7461, 7463 ○ **(권고사항)** 병원 내원자 중 액상형 전자담배 사용자에게는 최근 90일 이내에 폐질환 증상유무에 대해 조사하여 과거력이 확인된 경우, 액상형 전자담배의 사용을 중단할 것을 권고하여 주시기 바랍니다 ○ **(사례조사 시 협조요청)** 향후 사례 조사가 진행될 경우, 추가 협조를 부탁드립니다				

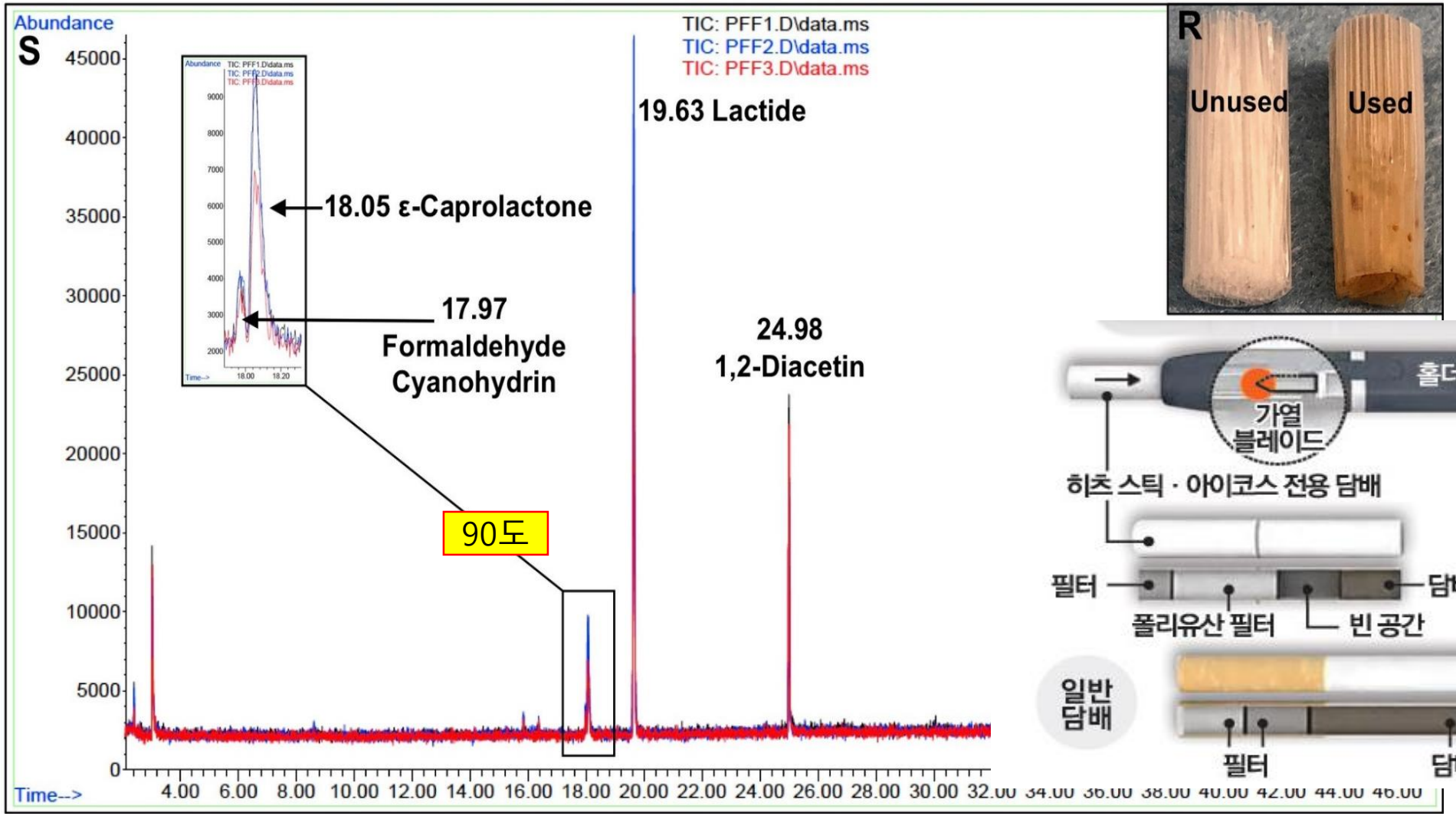
액상형 전자담배 THC, CBD vs nicotine ?

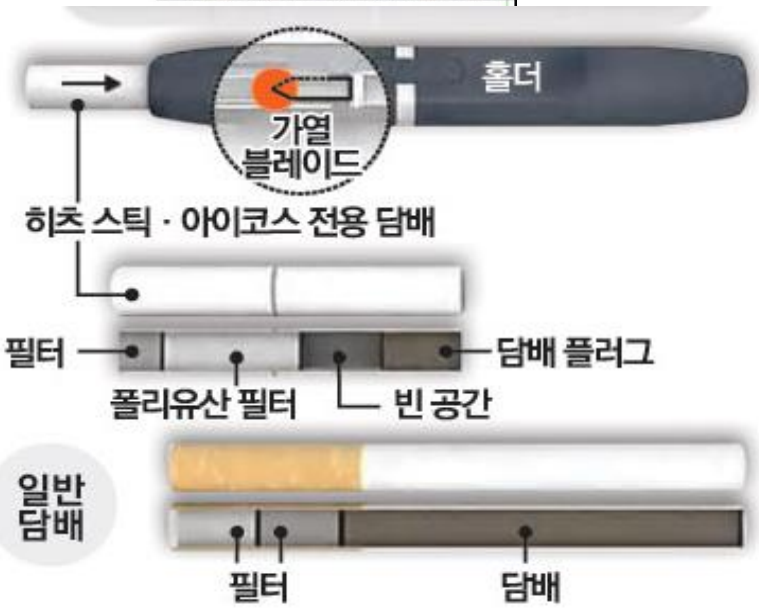
vs

궐련형 전자담배

iQOS: evidence of pyrolysis and release of a toxicant from plastic

Barbara Davis, Monique Williams, Prue Talbot





Tob Control 2019;28:34–41

맺음말

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  1. 금연에 도움을 주는가?

  2. 액상형 전자담배의 해로움
     니코틴, 마리화나, 가향성분, 액상성분

  3. 궐련형전자담배의 해로움

  4. 앞으로 해야할 일