

REPORT

2021

RESEARCH MAP:

Health risks associated with the use
of electronic cigarettes: an
interactive research map

Publisher Norwegian Institute of Public Health
Division of Infection Control and Environmental Health,
Division for Health Services

Title Health risks associated with the use of electronic cigarettes: an interactive research map

Norwegian title Helserisiko ved bruk av elektroniske sigaretter: et interaktivt forskningskart

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ISBN 978-82-8406-236-5

Type of report Research map

No. of pages 39 (178 including attachments)

Commissioner The Norwegian Ministry of Health and Care Services

Subject heading(MeSH) electronic cigarettes, e-cigarettes, vaping, steaming, research maps

Citation Valen H, Vist GE, Becher R, Brinchmann BC, Holme JA, Grimsrud TK, Ørjasæter Elvsaas I-K, Underland V, Bakkeli M, Alexander J. Health risks associated with the use of electronic cigarettes: an interactive research map. [Helserisiko ved bruk av elektroniske sigaretter: et interaktivt forskningskart] –2021. Oslo: Norwegian Institute of Public Health, 2021.

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Key messages

We have systematically surveyed and created an interactive research map of existing literature on health risks associated with use of e-cigarettes. We included 1482 publications in the report. Since several of these may have reported to have more than one study design, such as both a publication with a human study and an animal experiment, the number of study designs included are in total 1760. Respiratory, cardiovascular as well as other adverse events (outcome not given under other code) were the health outcomes most often reported.

Very few human studies were published the first years after the introduction of e-cigarettes in 2007, but from 2013 there was an increase. Case reports and case series led the way, followed by cross-sectional studies. We identified 41 randomised controlled trials (RCT). This study design is the most rigorous way of determining if a cause-effect relation exists between intervention (here use of e-cigarettes) and outcome. Only one of the RCTs had a follow-up time of six months or more. Among the other 105 studies with a control group, only six had a follow-up time of more than 2 years. Thus, any adverse impact of e-cigarette use on health which may take long time to develop, may remain undetected.

Overall, the interactive research map gives a visual presentation of the broad variety of health consequences linked to the use of e-cigarettes and may be used to identify potential human health risks and possible research gaps. Identification of the latter can be useful for the discussion of focus of future research. The map shows what research is available, it does not assess the quality of the studies or size or severity of the health risk from using e-cigarettes.

Title:

Health risks associated with the use of electronic cigarettes: an interactive research map

Publisher

Norwegian Institute of Public Health

Updated

Last search for studies: December 2020

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Hovedbudskap

Vi har på en systematisk og vitenskapelig måte undersøkt og laget et interaktivt forskningskart over eksisterende litteratur om helserisiko knyttet til bruk av e-sigaretter. Vi inkluderte 1482 publikasjoner. Siden flere av disse kan ha rapportert fra mer enn et studiedesign, for eksempel både resultater fra studier med mennesker og dyreforsøk, er antall studiedesign inkludert i alt 1760. Effekter på luftveier og lunge, hjerte- og kar-systemet samt andre utfall (ikke angitt i annen kode) var det som oftest ble rapportert.

Svært få studier på mennesker ble publisert årene etter introduksjonen av e-sigaretter i 2007, men fra 2013 var det en økning. Innledningsvis var kasus-rapporter etterfulgt av tverrsnittstudier de vanligste studietypene. Vi identifiserte 41 randomiserte kontrollerte studier (RCT). Dette studiedesignet er den «stengeste» metoden for å påvise en årsakssammenheng mellom intervensjon (her bruk av e-sigaretter) og utfall. Bare en av RCT-ene hadde en oppfølgingstid på seks måneder eller mer. Av de 105 andre studiene med kontrollgruppe var det bare seks studier med oppfølgingstid lenger på over 2 år. I hvilken grad e-sigaretter kan forårsake helseskader som utvikles etter lengre tids bruk er dermed uavklart.

Det interaktive forskningskartet gir en visuell oversikt over områder med mange, noen eller ikke-eksisterende vitenskapelig dokumentasjon. De identifiserte kunnskapshullene kan indikere hvor fremtidig forskning bør settes inn.

Forskningskartet synliggjør hvilken forskning som finnes, det viser ikke kvaliteten på studiene, størrelsen eller alvorlighetsgraden på helserisikoen ved bruk av elektroniske sigaretter.

Tittel:

Helserisiko ved bruk av elektroniske sigaretter: et interaktivt forskningskart

Publisher

Folkehelseinstituttet

Oppdatert

Seneste søk:
desember 2020

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Preface

In 2020, the Ministry of Health and Care Services requested the Norwegian Institute of Public Health (NIPH) to update and expand the report «Health risks from the use of e-cigarettes» published by the NIPH in 2015 (NIPH, 2015). The mandate for the assignment of a new report on health risks associated with the use of e-cigarettes was given in June 2020.

Since the report from NIPH in 2015, new products with changes in design and content have been introduced, and the scientific literature on health effects of e-cigarettes has increased significantly. This implies a need for updated information. The Ministry gave the NIPH a two-part assignment:

The first part of the assignment was to perform a systematic literature search and subsequently prepare an interactive map of research on health effects of e-cigarette use or exposure. This research map should include all studies (in vitro, in vivo, clinical, epidemiological, etc.) classified by type of publication and topic of the research. Areas where research is lacking or insufficient should be identified. The systematic literature search should be restricted to studies addressing health effects and not include other e-cigarette related issues such as harm reduction and "gateway" (here the possibility that use of e-cigarettes leads to use of other tobacco or nicotine containing products) or the use of e-cigarettes in smoking cessation.

In agreement with the established policy of leading scientific journals, research funded by or otherwise linked to the tobacco industry should not be included. Otherwise, NIPH was free to organize the work with the interactive map, as found appropriate, including consultation with any external expertise.

The present report with linked interactive research map is the result of the first part of the assignment. The report including its interactive research map provides an orientation on available research and knowledge gaps on the potential health effects from e-cigarettes.

The report and the interactive map will be an important base for the second part of the assignment; the preparation of a systematic review over selected possible health consequences of e-cigarettes use and exposure.

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We thank Johan Øvrevik, Gunnar Sæbø and Elisabeth Kvaavik who have commented and provided input to the report.

Conflict of interest

None of the contributing authors and reviewers have declared any conflict of interest.

The Norwegian Institute of Public Health is responsible for the content of this report.

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Introduction

E-cigarettes

Electronic cigarettes (e-cigarettes) are electronic devices, essentially consisting of a cartridge filled with a liquid (e-cigarette liquid), an evaporator unit/heating element associated with a battery, all together connected to a mouthpiece. When heated, the e-cigarette liquid will form an aerosol (vapour) meant to be inhaled. Other terms such as ENDS (electronic nicotine delivery system) and NVP (nicotine vaping products) are also used.

E-cigarettes were developed and patented in China in 2003, subsequently modified and launched on the American market in 2006. They can be disposable, rechargeable with a cartridge, or manually refillable with e-cigarette liquid. First-generation e-cigarettes were often cigarette imitations. Later, more advanced products have appeared. Some shaped like a pen, while others come with systems that may carry larger amounts of e-liquid than earlier models. Third generation e-cigarettes consists of a diverse range of products often termed "vaping" products. Their design often has even less resemblance to cigarettes, as the cartridge may be square or rectangular and they may have options for customizing and conversion. These products are often referred to as "mods", since the users can modify the device or build their own version (NASEM, 2018).

The e-cigarette liquid may contain nicotine or be nicotine free. The e-liquid usually contains a mixture of propylene glycol (PG), vegetable glycerine (VG), and various flavourings. The available number of these flavours/combination of flavours is exceedingly high.

The harmful potential of nicotine has been documented from studies in cell cultures, animals and, although less, in humans (US Surgeon General, 2014). For other constituents identified in e-liquids, such as PG/VG and flavours, the potential health risks have been evaluated following oral intake and are thus generally regarded as safe. However, the health risks associated with *inhalation* of these constituents have been less evaluated. Moreover, the heating process can lead to chemical decomposition of these constituents and the formation of new compounds of altered toxicity (pyrolysis). Other constituents found in aerosols including metals and silicate particles may add to the toxicity of the inhaled vapour (SCHEER, 2020).

Numerous *in-vitro*- and animal studies have been performed to elucidate the potential health consequences these inhalable constituents confer. Several of these studies

report cellular effects associated with potential impact on airways, inflammation, impairment of cardiovascular function and toxicity. In addition, some of the compounds identified in aerosol from e-liquid are known or potential carcinogens.

There is also an increasing number of studies addressing adverse impacts of e-cigarettes on human health, related to e-cigarette- or vaping use-associated lung injury (EVALI), ingestion by infants as well as explosions/burns. However, the composition of the inhaled vapour is affected by the e-cigarette device and e-liquid as well as the vaping pattern which all affect the dose of toxicants the user is exposed to. Any adverse outcomes will also depend on user specific (genetic) and environmental factors linked to the each vaper that may predispose for possible health effects (NASEM, 2018; SCHEER 2020). Thus, a more precise evaluation of the health risks linked to e-cigarettes use is complicated due to the large variation of products on the market and the heterogeneity of users (e.g. time of use, age of user, comorbidity). Furthermore, the potential long-term effects of e-cigarette use have so far only been scarcely investigated. It should also be noted that e-cigarettes may be used for vaping other liquids or compounds that may be illegal or produced for other purposes, and thus not provided commercially from the e-cigarette producer. However, this latter is beyond the scope of this report.

The need for an interactive research map

The previous report on health risks associated with the use of e-cigarettes from NIPH was published in 2015. In addition, the report "Public Health Consequences of E-Cigarettes" from the National Academies of Sciences, Engineering, and Medicine (NASEM) was published in 2018, with a literature search dated as of August, 2017 (NASEM, 2018). The European report from SCHEER published in April 2021 was based on a literature search dated as of April 2019 (SCHEER, 2020). This latter report did not include a clear description of the methods used for inclusion and evaluation of the scientific literature; and health consequences were only fully described for cardiovascular diseases. The rapid development and modification of e-cigarettes and e-liquids leading to diversification of the inhaled aerosols and habits, combined with a continuous stream of new research publications makes it relevant to update the literature search on this field to detect new data of importance for the assessment of health risks related to e-cigarette use.

The interactive map gives an overview over available research on health consequences from the use and exposure to e-cigarettes. The interactive map gives a visual overview of the amount and type of available research and allows the users to select themes and subgroups of special interest.

In addition to showing what research is available the map also shows where there are research gaps.

Aims

The aim of this work was to systematically search, identify and categorize published research linked to human health risks associated with the use of e-cigarettes and to present our findings in interactive maps which can be used for extracting references on self selected categories such as study design, age of participants in the studies and type of health consequences. In addition to human studies, the map includes relevant in-vitro- and animal studies.

Method

We have prepared this interactive research map in accordance with our pre-published protocol (<https://www.fhi.no/cristin-prosjekter/aktiv/health-risks-associated-with-the-use-of-electronic-cigarettes---a-protocol/>) and the Campbell Collaboration's framework for evidence and gap maps (<https://campbellcollaboration.org/evidence-gap-maps.html>).

Problem statement

Since the introduction of e-cigarettes on the market, a development and diversification of both the e-cigarette and e-liquids has followed. The amount of scientific literature on health effects of e-cigarettes is increasing steeply. Thus, there is a need for updated overview of the available scientific information on health consequences of e-cigarettes to be able to contribute to evidence based advices and regulations regarding e-cigarettes.

Inclusion criteria

We used the following inclusion criteria:

| | |
|--------------------------|--|
| Populations: | No restrictions: all human-, animal- and in-vitro studies |
| Measures: | All types of electronic cigarettes and additives |
| Comparison: | No restrictions: smoking, snuff or no use of tobacco product allowed as comparison |
| Outcomes: | All health outcomes as a result of the use of electronic cigarettes |
| Study design: | No restriction |
| Publlcation year: | No restriction |
| Language: | Danish, English, Norwegian, Swedish |

Exclusion criteria:

- Research funded by or otherwise linked to the tobacco industry
- Harm reduction publications without evidence of health outcomes
- Studies that only describe or discuss the pattern of use of tobacco products
- Primarily addiction focused research
- Discussion papers without primary data or secondary analysis

Literature search

Research librarian Miriam Bakkeli prepared, in collaboration with the project group, the search strategy. The strategy was peer reviewed by another research librarian before she conducted the searches. The following databases were searched:

- Ovid MEDLINE
- Embase
- PsycInfo
- Web of Science
- Cochrane Database of Systematic Reviews

The full search strategy is shown in Appendix 1.

Selection of studies

Two authors from the working group (RB, HV, BCB, JAH, GEV, TKG, JA and IKØE) read through and assessed each of the references identified in the literature searches. Relevant references were selected on the basis of our inclusion criteria. The selection was stepwise, first on the basis of title and summary/abstract, and then full-text versions of the publications. Any disagreements were resolved through discussion or contact with another researcher in the team. We used the software EPPI Reviewer 4.

Data collection and presentation

All categories were divided into subcategories, and the suggestions in the protocol were piloted and improved. Our final set of categories are presented in the code book in Appendix 2. EPPI Reviewer 4 software was used to code the included studies. At least two authors (RB, HV, BCB, JAH, GEV, and TKG) categorized each selected publication independently of each other. Disagreements were resolved by discussion.

Assessment of the risk of systematic biases and confidence in the results

Our research map provides an overview of the scope and type of research on the health effects of electronic cigarettes. This work does not include assessment of the risk of systematic biases in the included studies, analysis or assessment of confidence in the effect estimates.

We have deviated from the protocol by assessing the quality of the included systematic reviews using AMSTAR 2 (Shea et al., 2017). VU and GEV made these assessments independently, disagreements were solved by discussion.

Codebook

The development of a codebook was part of the project (Appendix 2). The purpose of the codebook was to give the project staff a common understanding of how the codes should be used. The codebook specifies which main and sub-categories are to be included in the research map's axes, filters and segments, with definitions and examples.

The project group at FHI first made a proposal for a codebook based on categories used in relevant publications that were already known to the group. A reference group consisting of the project's external experts reviewed and provided input to the proposal. The project group completed the codebook based on the input, and piloted it on a selection of systematic overviews.

Preparation of the interactive map

This NIPH report presents the different categories of the interactive research in tables and text describing the existence of available research. We extracted information from studies and sorted this into the various categories using frequency and cross table functions in EPPI-Reviewer.

The interactive research maps are available as html files which may be uploaded and freely available on a website. The maps show an interactive matrix that illustrates the landscape of evidence on health consequences from use of electronic cigarettes.

Results

Results from the literature search

Our literature searches in the databases Ovid MEDLINE, Embase, PsycInfo and Web of Science were conducted in December 2020, the literature search in Cochrane was conducted in February 2021. After removal of duplicates, we were left with 9969 references to be assessed on title and abstract against our inclusion criteria (Figure 1).

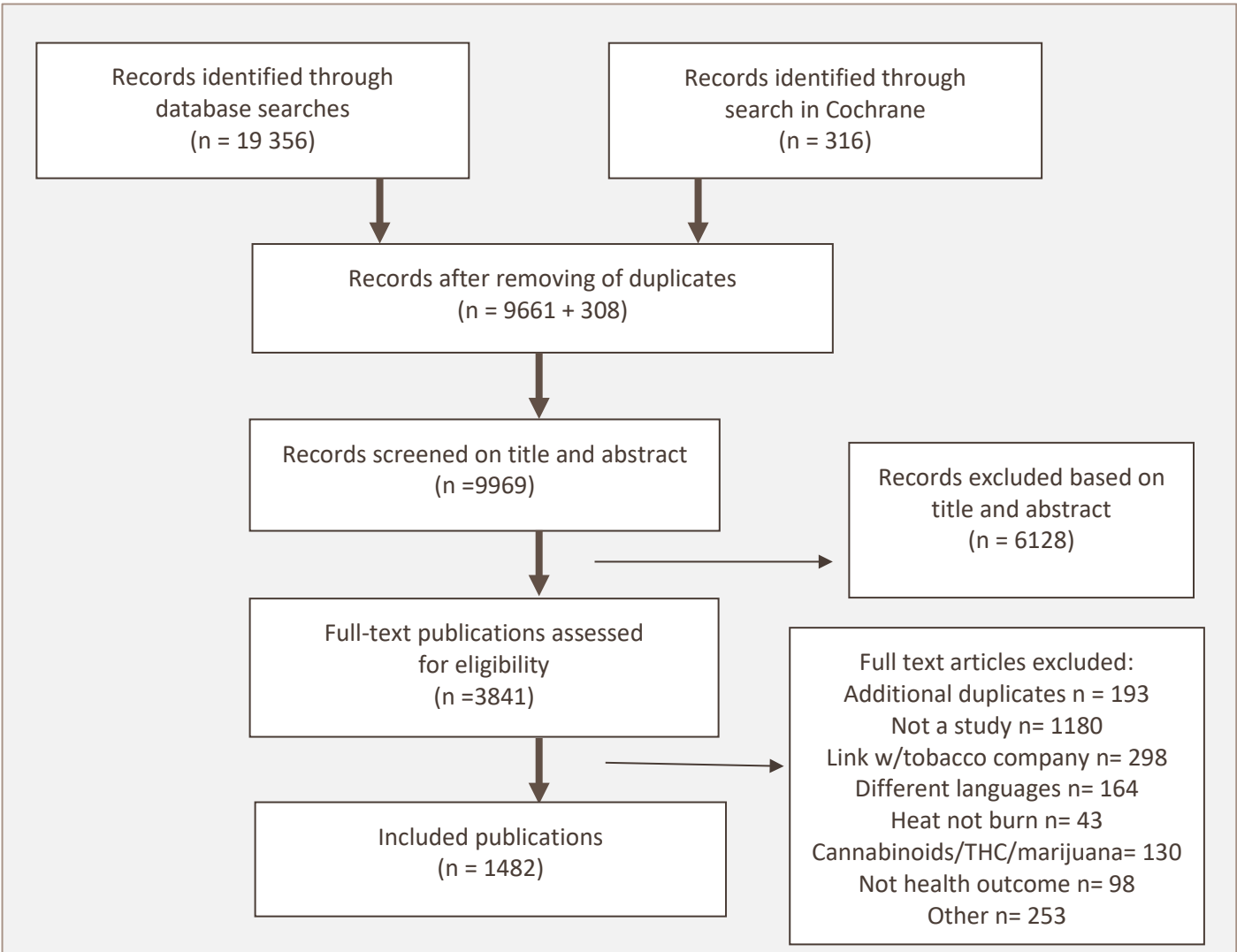


Figure 1. PRISMA flow diagram of the results of the literature search

Each of the 9969 identified references were assessed on title and abstract according to our inclusion criteria by two authors independently of each other. Disagreements were solved by a third reviewer. The 3841 references that were considered potentially relevant were assessed in full text, again according to the same inclusion criteria and by two people independently of each other. We did, however, code some references based only on abstract due to unavailable full texts.

Excluded studies

The reasons for exclusions are shown in figure 1. The most common reason for exclusion was that the publications did not actually present a study or systematic review, most of these 1180 excluded publications were commentaries, editorials and review articles without a literature search. The second most common reason for exclusion was that the publication was either sponsored by or written by authors with links to a tobacco company, which applied to 298 publications. There were still 193 duplicates unidentified before the full text assessment. One hundred and thirty publications reported either a study with the use of electronic cigarettes in combination with cannabinoids/THC/marijuana or on the health consequences or cases with adverse events resulting from such use. These studies and case reports where all the participants/cases had been using cannabinoids/THC/marijuana were excluded. Other studies or case reports involving one or more participants/cases who did not use these substances were included in the map.

Included studies

We included 1482 publications in the report, references are presented in Appendix 3. Since several of these may have one or more study design, such as a publication with both a human study and an animal experiment, the number of study designs included was in total 1760. Figure 2 shows that airway and pulmonary, cardiovascular and vascular as well as other adverse events were the health outcomes most often reported.

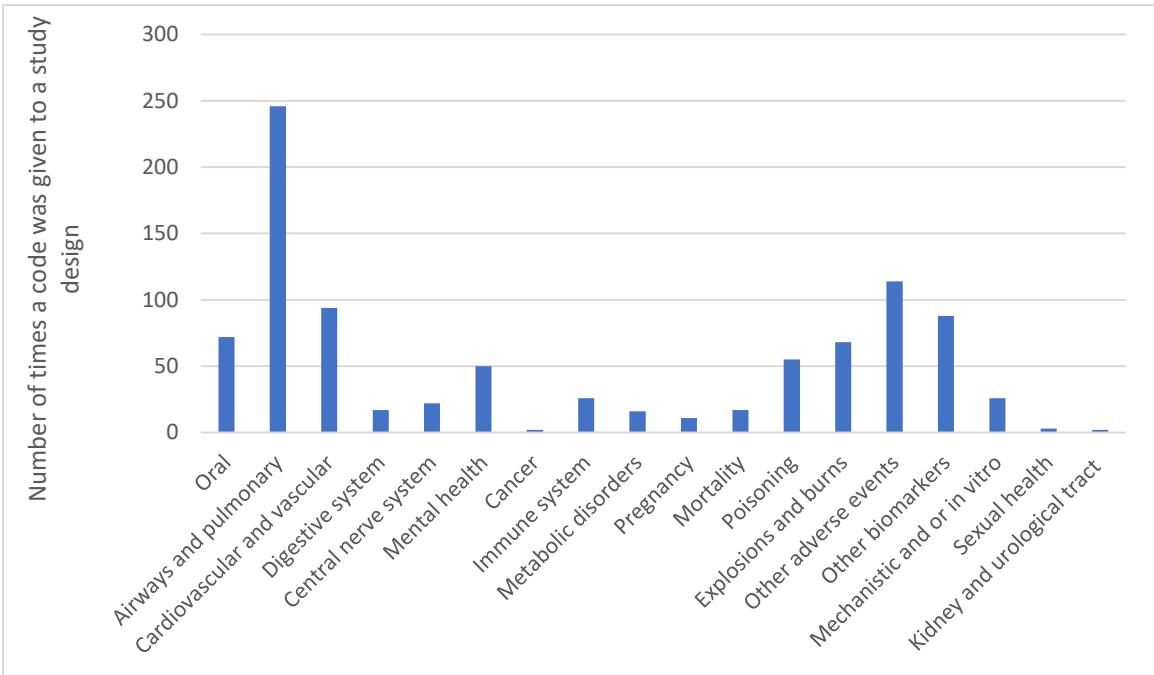


Figure 2. Proportion of health consequences studied in studies involving humans.

Since the invention of the electronic cigarette in 2003, there has been a rapid increase in publication of studies and case reports pertaining to the use of electronic cigarettes. The time distribution of publications is presented in Figure 3.

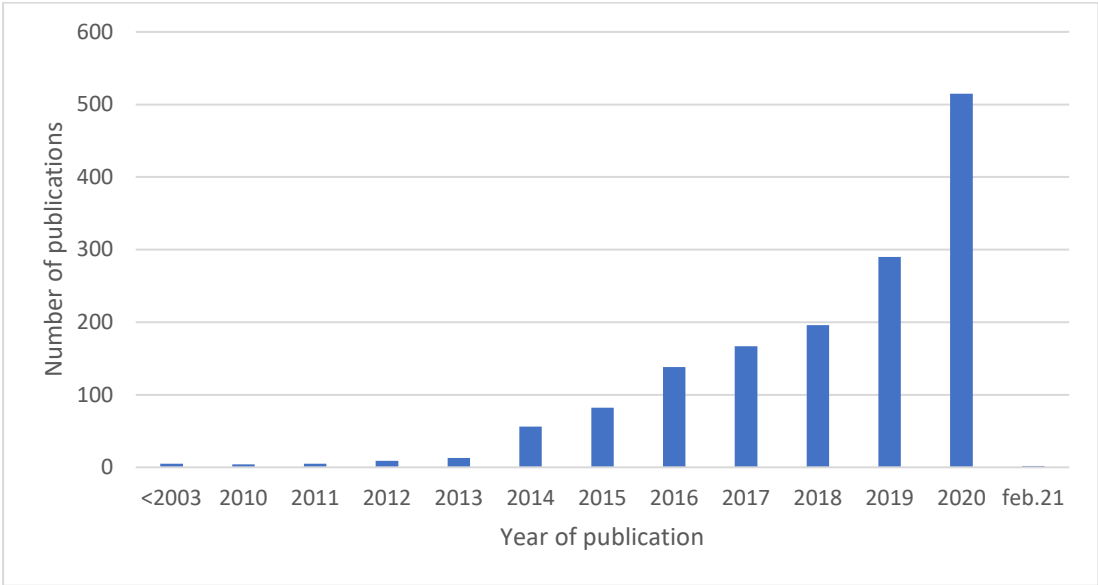


Figure 3. Time distribution of publications regarding health consequences of use of electronic cigarettes.

We show the distribution of study designs regarding the use of electronic cigarettes or their components and the reports of health consequences from its use in figure 4. We note that there are few human experimental studies regarding the health effects of use of electronic cigarettes.

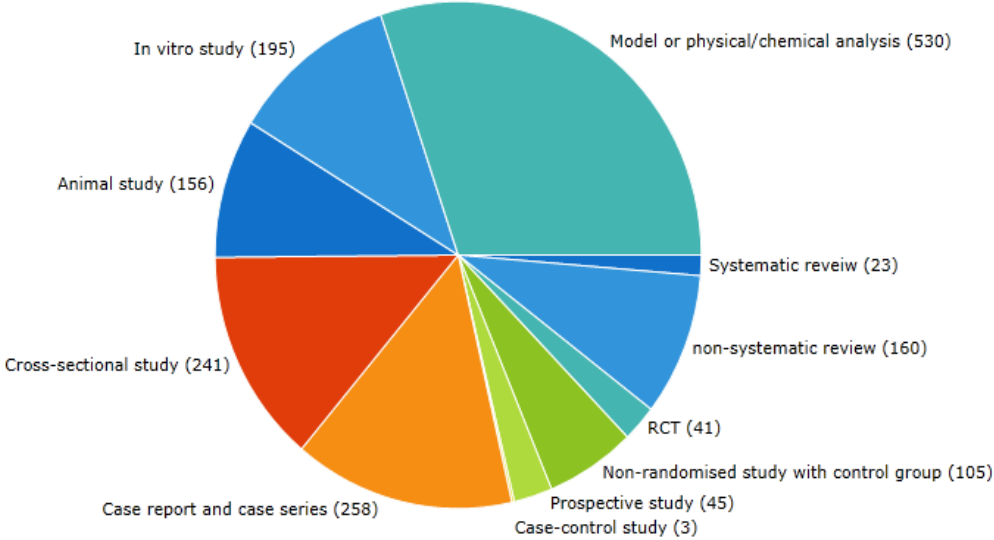


Figure 4. Study designs used to investigate the consequences of use of electronic cigarettes

Characteristics of the included studies: Systematic reviews

We identified 183 reviews with a literature search. However, only 23 of them had both a literature search and an assessment of the risk of bias (the internal validity) of the included studies. These 23 were included as systematic reviews and health consequences in humans were assessed in 15 of these. Three of the 23 studies assessed animal and in vitro/mechanistic data. The time trend for publication of systematic reviews and non-systematic reviews (with literature search) is shown in Figure 5.

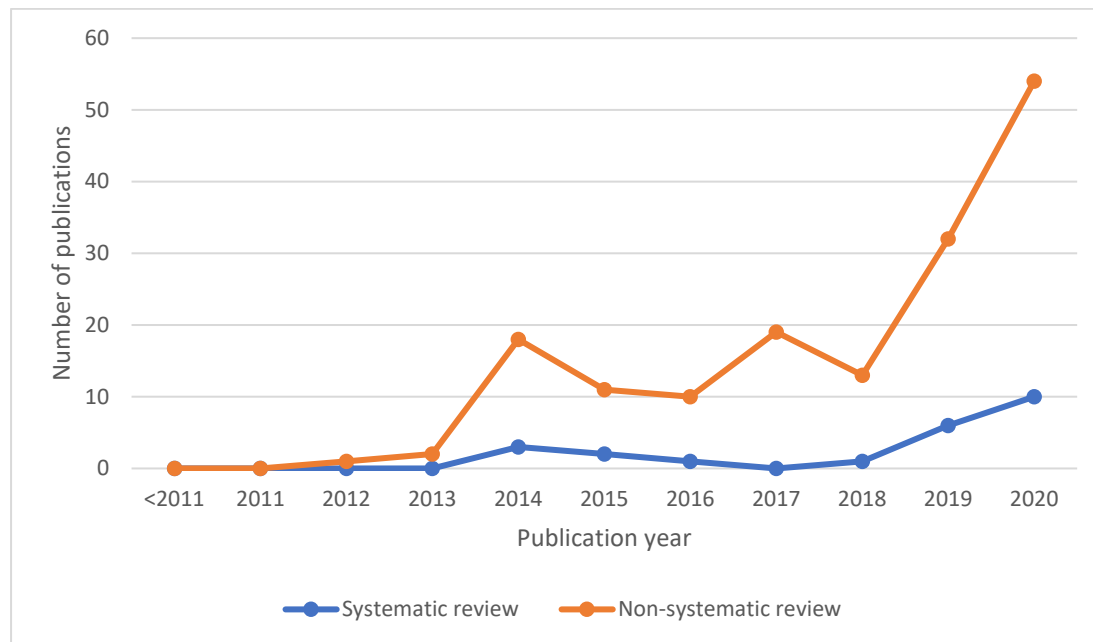


Figure 5. Time distribution of publications of systematic and non-systematic reviews regarding health consequences of use of electronic cigarettes

Critical appraisal of systematic reviews

We used the AMSTAR 2 critical appraisal tool (Shea et al 2017) to assess the quality of the included systematic reviews of health consequences. The 16 questions used for the AMSTAR 2 appraisal were:

1. Did the research questions and inclusion criteria for the review include the components of PICO (Population, Intervention/exposure, Comparison, Outcome)?
2. Did the report of the review contain an explicit statement that the review methods were established prior to the conduct of the review and did the report justify any significant deviations from the protocol?
3. Did the review authors explain their selection of the study designs for inclusion in the review?
4. Did the review authors use a comprehensive literature search strategy?
5. Did the review authors perform study selection in duplicate?
6. Did the review authors perform data extraction in duplicate?
7. Did the review authors provide a list of excluded studies and justify the exclusions?
8. Did the review authors describe the included studies in adequate detail?
9. Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review?

10. Did the review authors report on the sources of funding for the studies included in the review?
11. If meta-analysis was performed did the review authors use appropriate methods for statistical combination of results?
12. If meta-analysis was performed, did the review authors assess the potential impact of RoB in individual studies on the results of the meta-analysis or other evidence synthesis?
13. Did the review authors account for RoB in individual studies when interpreting/ discussing the results of the review?
14. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review?
15. If they performed quantitative synthesis did the review authors carry out an adequate investigation of publication bias (small study bias) and discuss its likely impact on the results of the review?
16. Did the review authors report any potential sources of conflict of interest, including any funding they received for conducting the review?

Each question was answered yes (Y), probably yes (PY), probably no (PN), no (N) or not applicable (NA). Question #9 is answered twice, first for RCT and then for observational studies. Two authors critically appraised each systematic review independently before they compared and discussed.

Our full AMSTAR 2 assessments of the 18 included systematic reviews pertaining to health consequences in humans of use of electronic cigarettes are presented in Appendix 4. An overview of our assessments is presented in Table 1. Only four of these reviews obtained a High quality score (H), nine were of Moderate quality (M) and four of Low quality (L), one scored Critically Low (CL).

In Table 2 the systematic reviews are presented according to which health consequences that were assessed in the review, marked as dark green in the box. Reviews are listed so that the one with the most recent literature search is presented first. It is clear from the table that the following health consequences measured in human studies had not been summarised in a systematic review by the time of our search (February 2021):

- Digestive system
- Central nerve system
- Cancer
- Immune system
- Metabolic disorders
- Mortality
- Explosions and burns
- Other biomarkers
- Kidney and urological tract

Table 1. AMSTAR 2 critical assessment of systematic reviews on the health consequences of use of electronic cigarettes

| Reference | Q1 | Q2 | Q3 | Q4 | Q5 | Q6 | Q7 | Q8 | Q9 | Q10 | Q11 | Q12 | Q13 | Q14 | Q15 | Q16 | Quality |
|-----------------------|----|----|----|----|----|----|----|----|----------|-----|-----|-----|-----|-----|-----|-----|---------|
| Becker et al 2021 | Y | PY | Y | PY | Y | Y | PY | PY | N PY | N | NM | NM | N | N | NM | Y | L |
| Claire et al 2020 | Y | Y | Y | Y | Y | Y | PY | Y | Y NA | Y | Y | Y | Y | Y | NA | Y | H |
| Drovandi et al 2020 | Y | N | Y | PY | Y | Y | PY | Y | PY NA | Y | Y | N | N | N | N | Y | M |
| Figueredo et al 2020 | Y | PY | Y | PY | Y | Y | PY | Y | Y Y | N | Y | N | Y | Y | NA | Y | H |
| Franck et al 2014 | Y | N | Y | PY | N | Y | PY | Y | Y N | N | NM | NM | Y | Y | NM | Y | M |
| Goniewicz et al 2020 | Y | N | Y | PY | Y | Y | PY | PY | NA Y | Y | NM | NM | Y | Y | NM | Y | M |
| Gualanao et al 2015 | Y | N | Y | PY | N | N | PY | PY | PY Y | Y | NM | NM | N | Y | NM | N | M |
| Hartmann-B et al 2020 | Y | Y | Y | Y | Y | Y | Y | Y | Y NA | Y | Y | Y | Y | Y | Y | Y | H |
| Holliday et al 2019 | Y | PY | Y | PY | Y | Y | Y | Y | PY PY | Y | NM | NM | Y | N | NM | Y | M |
| Kennedy et al 2019 | Y | N | Y | PY | N | N | PY | Y | Y Y | Y | NM | NM | Y | Y | NM | Y | M |
| Kwon et al 2019 | Y | N | N | PY | N | Y | PY | Y | NA PY | N | NM | NM | N | Y | NM | Y | L |
| Liu et al 2018 | Y | N | Y | PY | N | Y | PY | PY | Y Y | N | Y | N | N | N | NA | Y | M |
| Ralho et al 2019 | Y | PY | Y | PY | Y | N | PY | PY | NA Y | N | NM | NM | Y | N | NM | Y | M |
| Riley et al 2016 | Y | N | Y | PY | Y | N | N | Y | PY PY | Y | NM | NM | N | N | NM | Y | L |
| Scarpino et al 2020 | Y | N | Y | PY | N | Y | N | PY | NA PY | N | NM | NM | Y | NA | NM | Y | M |
| Skotsimara et al 2019 | Y | N | N | N | Y | Y | N | N | NA Y | N | N | N | N | N | N | Y | CL |
| Wang et al 2019 | Y | N | Y | PY | N | N | PY | PY | NA PY | N | NM | NM | Y | Y | NM | Y | L |
| Zhao et al 2016 | Y | Y | Y | PY | Y | Y | PY | PY | NA Y | N | Y | Y | Y | Y | Y | Y | H |

Table 2. Systematic reviews with the health consequences addressed in the review, newest search presented first.

| Reference Search date | Oral | Airways and pulmonary | Cardiovascular and vascular | Digestive system | Central nerve system | Mental health | Cancer | Immune system | Metabolic disorders | Pregnancy | Mortality | Poisoning | Explosions and burns | Other adverse events | Other biomarkers | Mechanistic and or in vitro | Sexual health | Kidney and urological tract |
|--|------|-----------------------|-----------------------------|------------------|----------------------|---------------|--------|---------------|---------------------|-----------|-----------|-----------|----------------------|----------------------|------------------|-----------------------------|---------------|-----------------------------|
| Goniewicz et al 2020 Sep 2020 | | | | | | | | | | | | | | | | | | |
| Scarpino et al 2020 May 2020 | | | | | | | | | | | | | | | | | | |
| Becker et al 2020 Mar 2020 | | | | | | | | | | | | | | | | | | |
| Figueredo et al 2020 Mar 2020 | | | | | | | | | | | | | | | | | | |
| Hartmann-Boyce et al 2020 Jan 2020 | | | | | | | | | | | | | | | | | | |
| Drovandi et al 2019 Aug 2019 | | | | | | | | | | | | | | | | | | |
| Kennedy et al 2019 Jun 2019 | | | | | | | | | | | | | | | | | | |
| Claire et al 2019 May 2019 | | | | | | | | | | | | | | | | | | |
| Ralho et al 2019 Nov 2018 | | | | | | | | | | | | | | | | | | |
| Kwon et al 2019 Sep 2018 | | | | | | | | | | | | | | | | | | |
| Skotsimara et al 2019 Nov 2017 | | | | | | | | | | | | | | | | | | |
| Liu et al 2018 Jul 2017 | | | | | | | | | | | | | | | | | | |
| Riley et al 2016 Jun 2015 | | | | | | | | | | | | | | | | | | |
| Gualano et al 2015 Apr 2014 | | | | | | | | | | | | | | | | | | |
| Franck et al 2014 Sep 2013 | | | | | | | | | | | | | | | | | | |
| Animal studies, in vitro and or mechanistic | | | | | | | | | | | | | | | | | | |
| Wang et al 2019 Nov 2018 | | | | | | | | | | | | | | | | | | |
| Zhao et al 2020 Nov 2018 | | | | | | | | | | | | | | | | | | |
| Holliday et al 2019 Oct 2018 | | | | | | | | | | | | | | | | | | |
| Physical and or chemical analysis | | | | | | | | | | | | | | | | | | |
| Miller et al 2020, Aug 2020 | | | | | | | | | | | | | | | | | | |
| Ward et al 2020, May 2020 | | | | | | | | | | | | | | | | | | |
| Fernandez et al 2015, Jan 2015 | | | | | | | | | | | | | | | | | | |
| Brown and C 2014, Oct 2013 | | | | | | | | | | | | | | | | | | |
| Burstyn 2014, Jul 2013 | | | | | | | | | | | | | | | | | | |

Oral health consequences: 2 systematic reviews, the newest search date was March 2020

Airways and pulmonary health consequences: 4 systematic reviews, the newest search date was September 2020

Cardiovascular and vascular: 5 systematic reviews, the newest search date was September 2020

Mental health consequences: 2 systematic reviews, the newest search date was March 2020

Pregnancy: 1 systematic review, search date was May 2019

Poisoning: 1 systematic review, search date was May 2020

Other adverse events: 6 systematic reviews, the newest search date was January 2020

Sexual health: 1 systematic review, search date was June 2015

Characteristics of the included studies: Human studies

Very few human studies were published the first ten years after the e-cigarette entered the market, but from 2013 there was an increase in publications. Figure 6 indicates that the publication of case reports and case series led the way, followed by cross-sectional studies. The number of case-control studies has remained low.

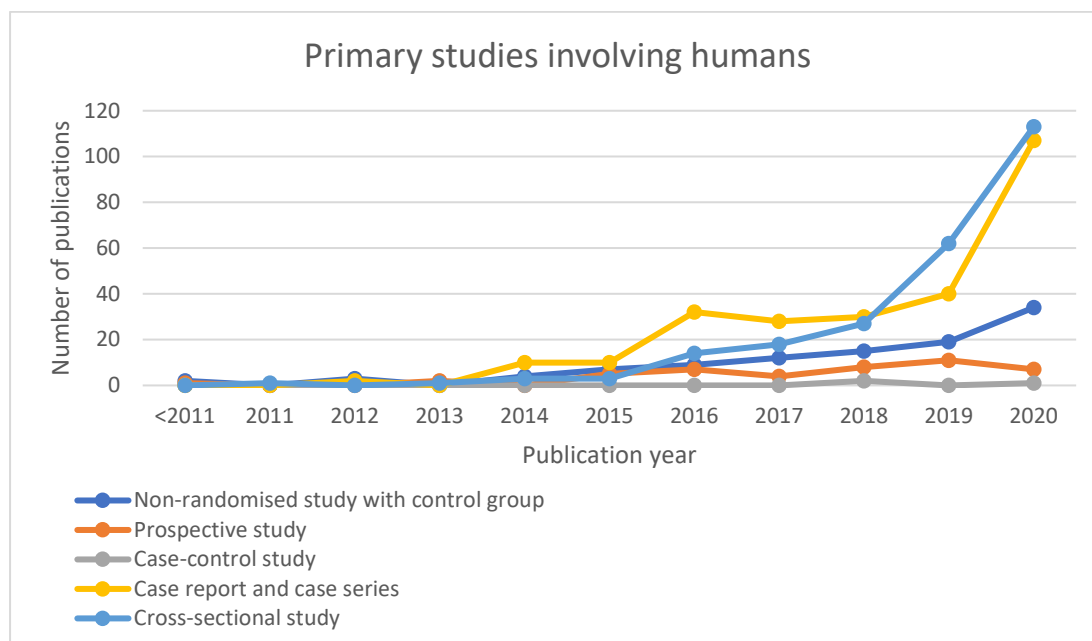


Figure 6. Time distribution of publications of human studies regarding health consequences of use of electronic cigarettes

In the following we present some more information about each of the different human study types:

Randomised controlled trials (RCTs)

We identified 41 randomised controlled trials involving the use of electronic cigarettes. In figure 7, the RCTs are presented according to the areas of health consequences covered by the trials. The numbers add up to more than 41 because some trials assessed several different outcome categories. Exposure characterisation and assessment and/or physical or chemical analysis was the aim in 5 of the randomised trials, providing no explicit measure of health consequences.

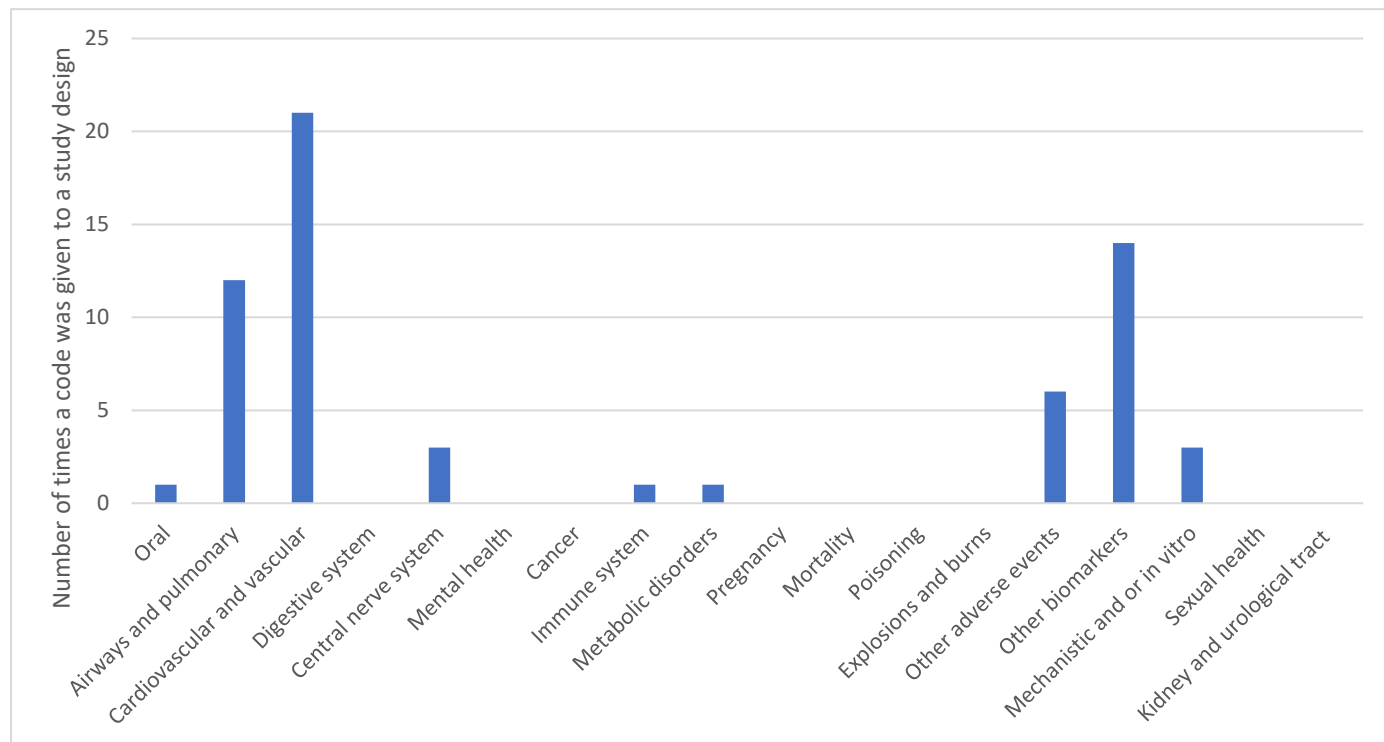


Figure 7. Health consequences addressed in the randomised controlled trials

Participants in these 41 RCTs were adolescents and young adults 16-24 years (27 trials) and adults > 25 years (33 trials). Two trials did not provide the age of the participants. These age groups were not exclusive, as several of the trials included participants from more than one age group.

Only one of the RCTs had a follow-up time of six months or more, which was an 8-week study with a follow-up telephone call at six months (Lee et al 2018). The other 40 RCTs had a follow-up time of < 6 months.

We coded publications involving humans according to what the use of e-cigarettes was compared with (figure 8). Multiple comparisons could be performed for each of the studies. Typically the use of e-cigarettes could be compared to an unexposed control group or to tobacco smoking. In addition we coded when comparisons were performed for different contents of e-liquid used, such as with or without nicotine as well as with or without flavours.

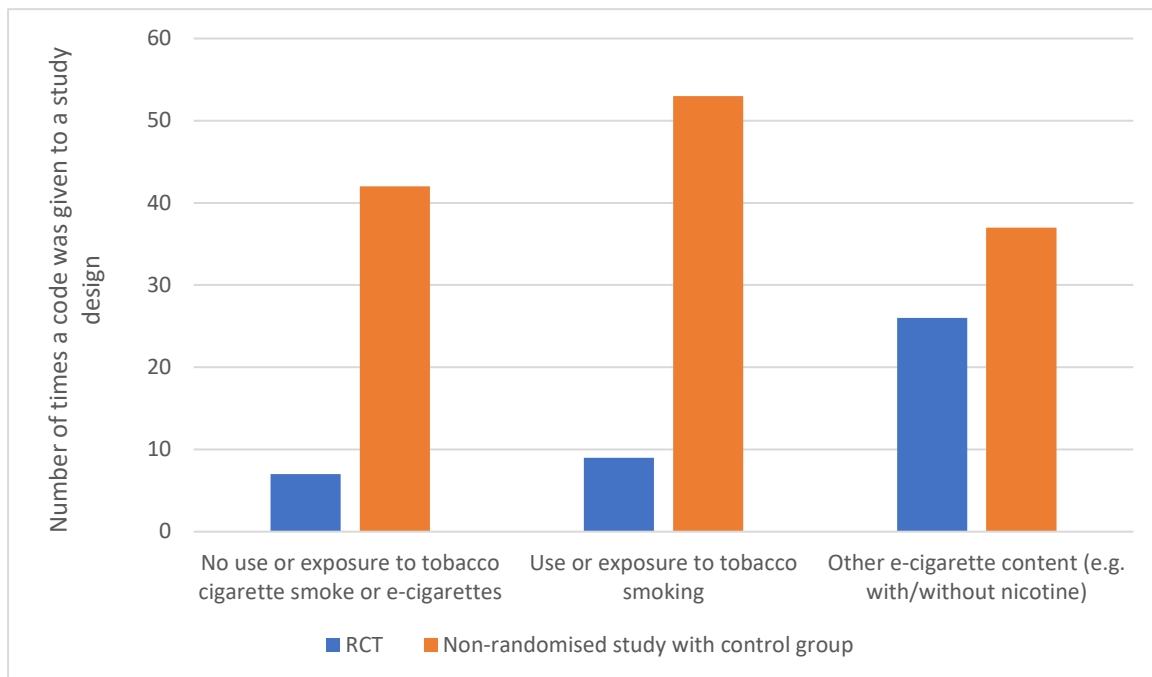


Figure 8. Shows the proportion between the different comparisons, exposures for randomised controlled trials and non-randomised studies with a control group

Non-randomised studies with a control group

We identified 105 non-randomised controlled studies involving the use of electronic cigarettes. In figure 9, these studies are presented according to the relevant areas of health consequences measured. The numbers add up to more than 105 because some studies measured several different health outcome categories.

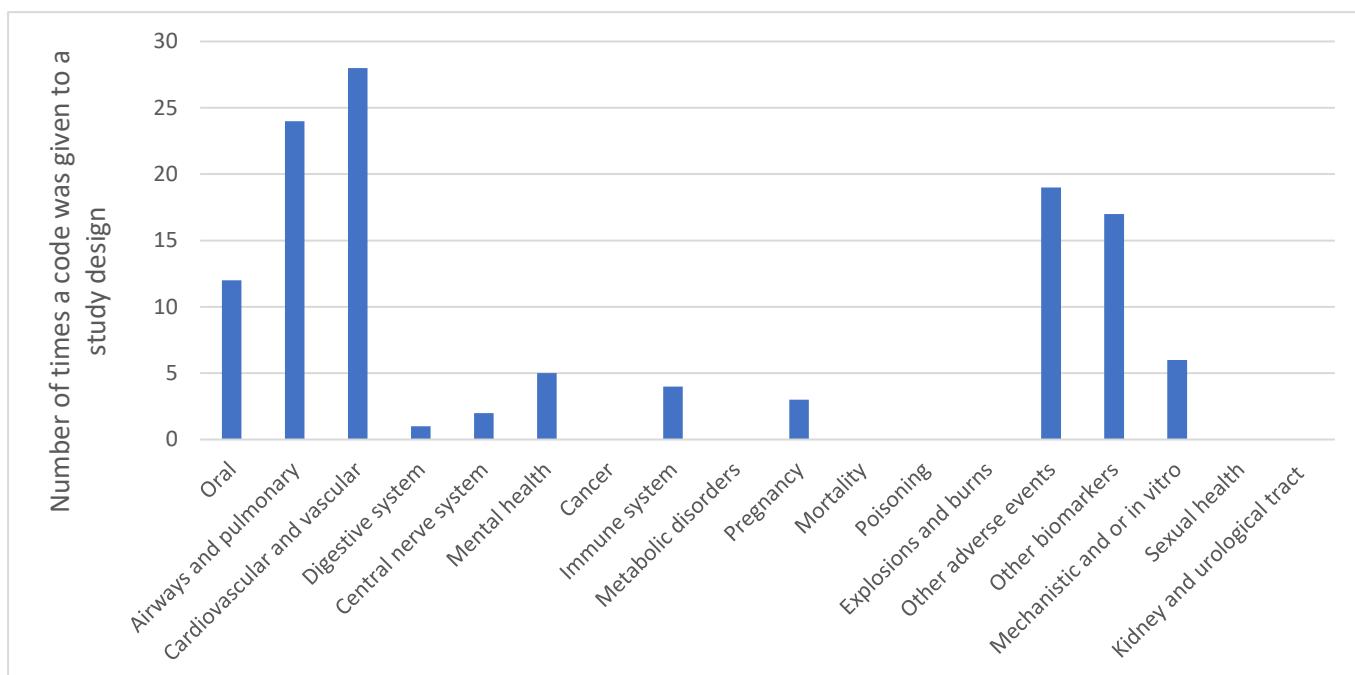


Figure 9. Health consequences addressed in the non-randomised controlled studies

Exposure characterisation and assessment and/or physical or chemical analysis was the aim in 34 of the non-randomised controlled studies, these studies did not measure health consequences and were therefore not included in the present report and interactive maps.

Participant characteristics in these 105 non-randomised controlled studies are shown in figure 10. Adolescents and young adults 16-24 years (69 studies) and adults > 25 years (85 studies) were well represented. Thirteen studies did not provide the age of the participants. These age groups were not exclusive, as many of the trials included participants from more than one age group.

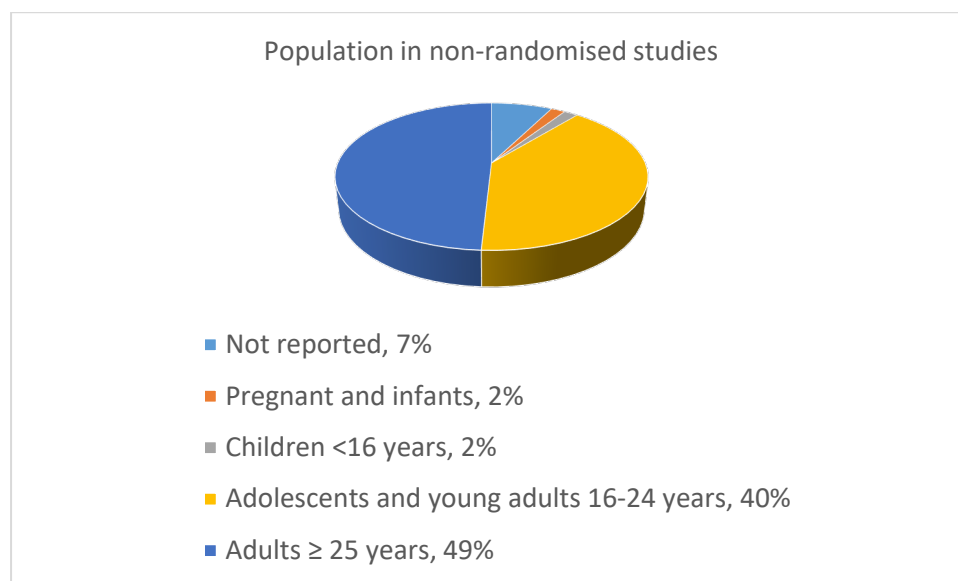


Figure 10. Participant characteristics for the non-randomised controlled studies

Only six of the 105 non-randomised controlled studies on use of electronic cigarettes had a follow-up time of more than two years. One study investigated changes in chronic obstructive pulmonary disease (COPD) progression over a six-year period (Bowler et al 2017). Two studies had a four-year follow-up, one reported on the participants' perceived stress (Leventhal et al 2017) and one reported on the participants' self-reported health (Bhatta et al 2020). Three studies had a three-year follow-up, one reported on the development of gum disease (Atuegwu et al 2019), one on respiratory disease (Xie et al 2020) and one on depressive symptoms (Marsden et al 2019). Follow-up time in non-randomised controlled studies on use of electronic cigarettes are shown in Figure 11.

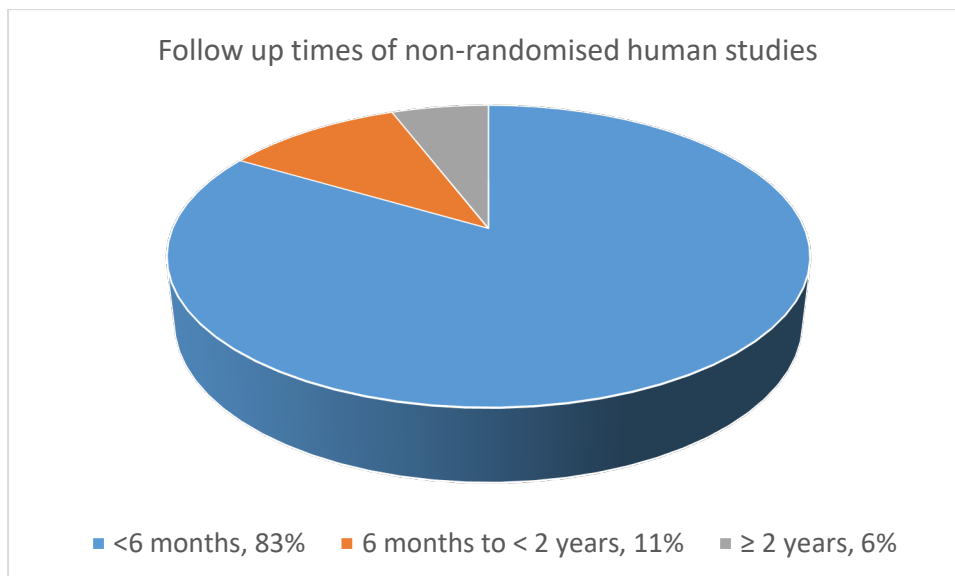


Figure 11. Follow-up time of the non-randomised controlled studies

Prospective studies

We have coded human studies with a prospective design which did not fit into any of the above categories (RCT or non-randomised controlled study) into this group. The majority of these studies are before and after studies without a control group. The health consequences measured in the 45 prospective studies are shown in figure 12.

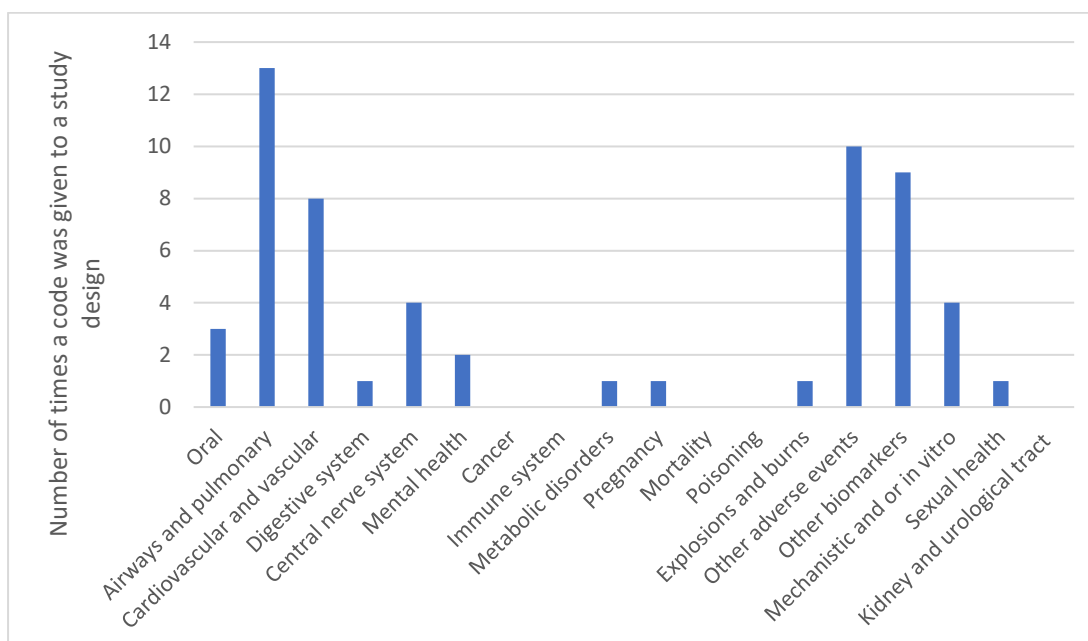


Figure 12. Health consequences addressed in prospective studies

Exposure characterisation and assessment and/or physical or chemical analysis was the aim in 16 of the prospective studies, and these studies did not measure health consequences.

The distribution of the participants' age is shown in Figure 13. The majority of participants were adults ≥ 25 years, followed by adolescents and young adults of 16 to 24 years old. Six studies did not report the age of their participants.

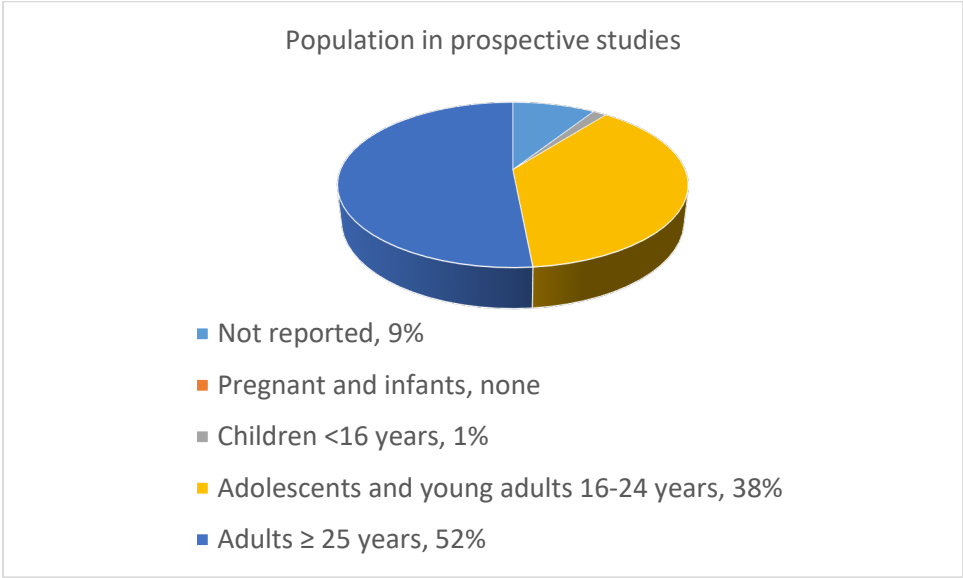


Figure 13. Participant characteristics for the prospective studies

Follow-up time for the prospective studies were under six months for 36 of the 45 studies (figure 14). One prospective study, assessing the impact of e-cigarette use on female fecundability, had a follow-up time maximum of three years (Harlow et al 2020).

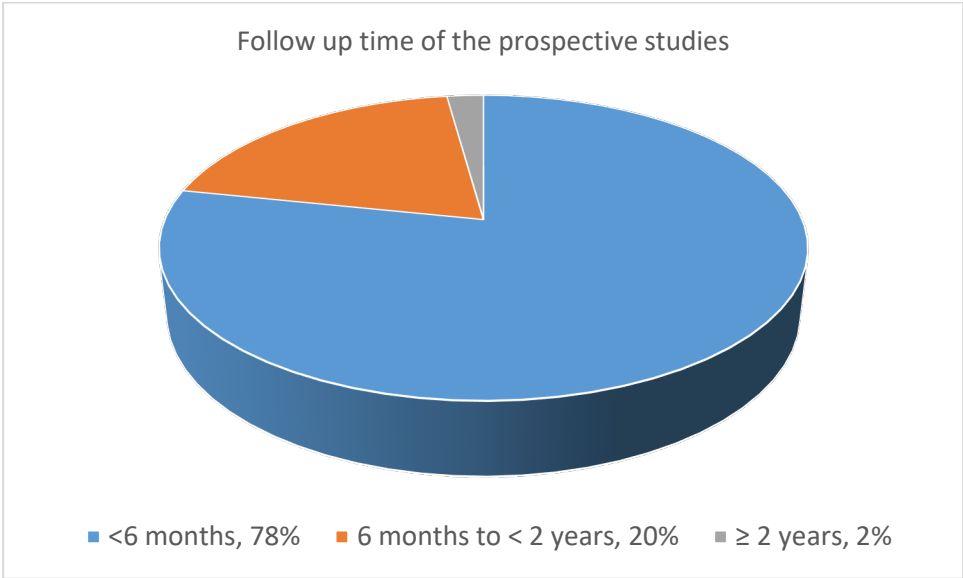


Figure 14. Follow-up time of the prospective studies

Case-control studies

Our searches identified three case-control studies. One studied oral mucosal lesions in 45 users of electronic cigarettes and 45 former smokers (Bardellini et al 2018). The

other studied infant neurobehaviour one month after birth and where mother used either electronic cigarettes (10 infants), mother smoked (29 infants) or where mother did not use tobacco products (44 infants) during pregnancy (Froggatt et al 2020). The third case-control study looked at nicotine replacement where the use of ENDS was an alternative to smoking for patients undergoing plastic surgery (Michaels et al 2018).

Case report and case series

We found 258 case reports and case series pertaining to the use of electronic cigarettes. The health consequences reported on are shown in Figure 15. The numbers add up to more than 258 because some studies measured several different health outcome categories.

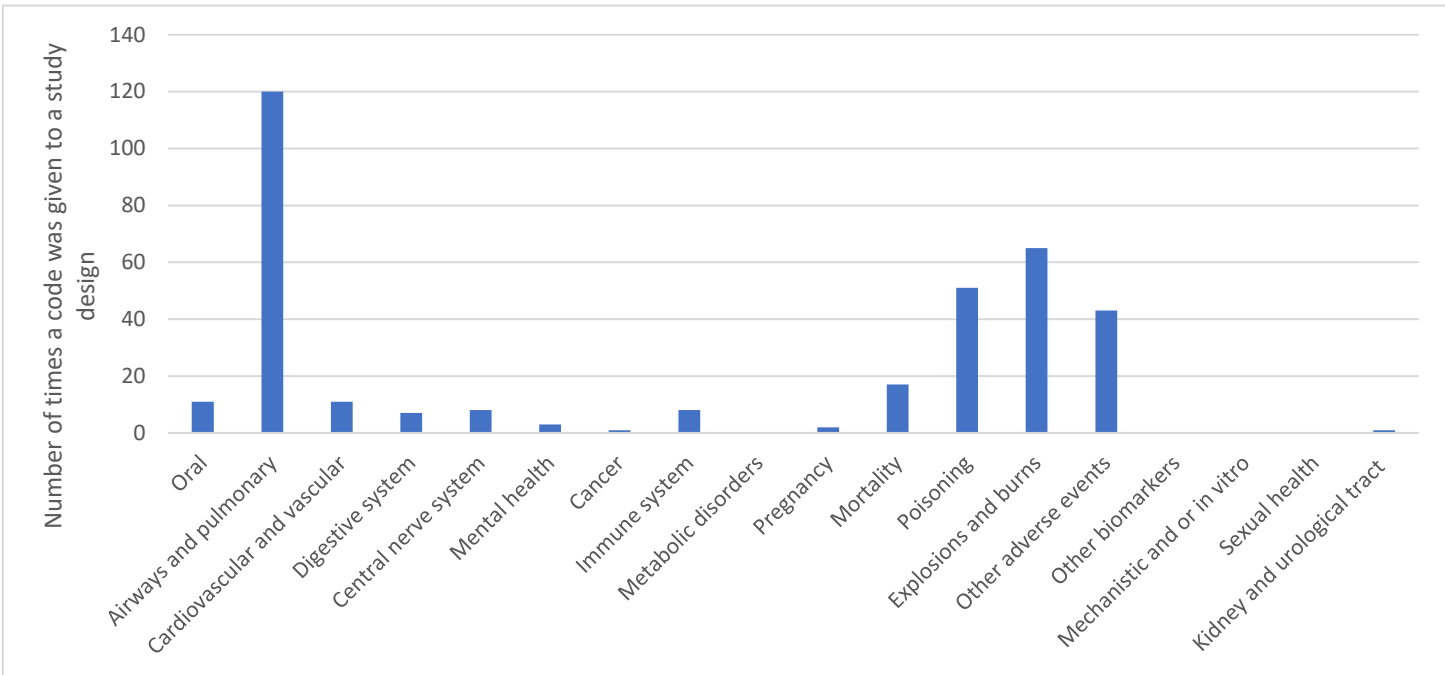


Figure 15. Health consequences addressed in case reports and case series

We see a predominance of case reports and case series reporting on consequences for the airways and pulmonary system (figure 15). Many case reports and case series addressed explosions and burns, poisoning and other adverse events.

The distribution of the patients and participants age are shown in Figure 16. Fourteen percent of the case reports and case series addressed children under 16 years of age. The majority of participants were adults ≥ 25 years (43%) and adolescents and young adults of 16 to 24 years old (33%). Twenty studies did not report the age of their participants.

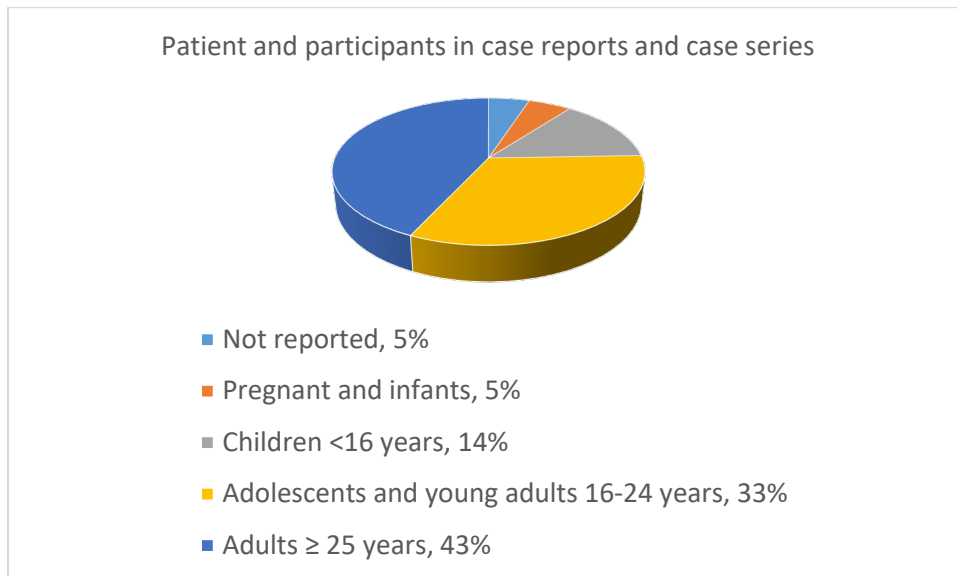


Figure 16. Patient and participant characteristics for the case series and case reports

Cross-sectional studies

We found 241 cross-sectional studies that include people who use electronic cigarettes. The health consequences reported on are shown in figure 17.

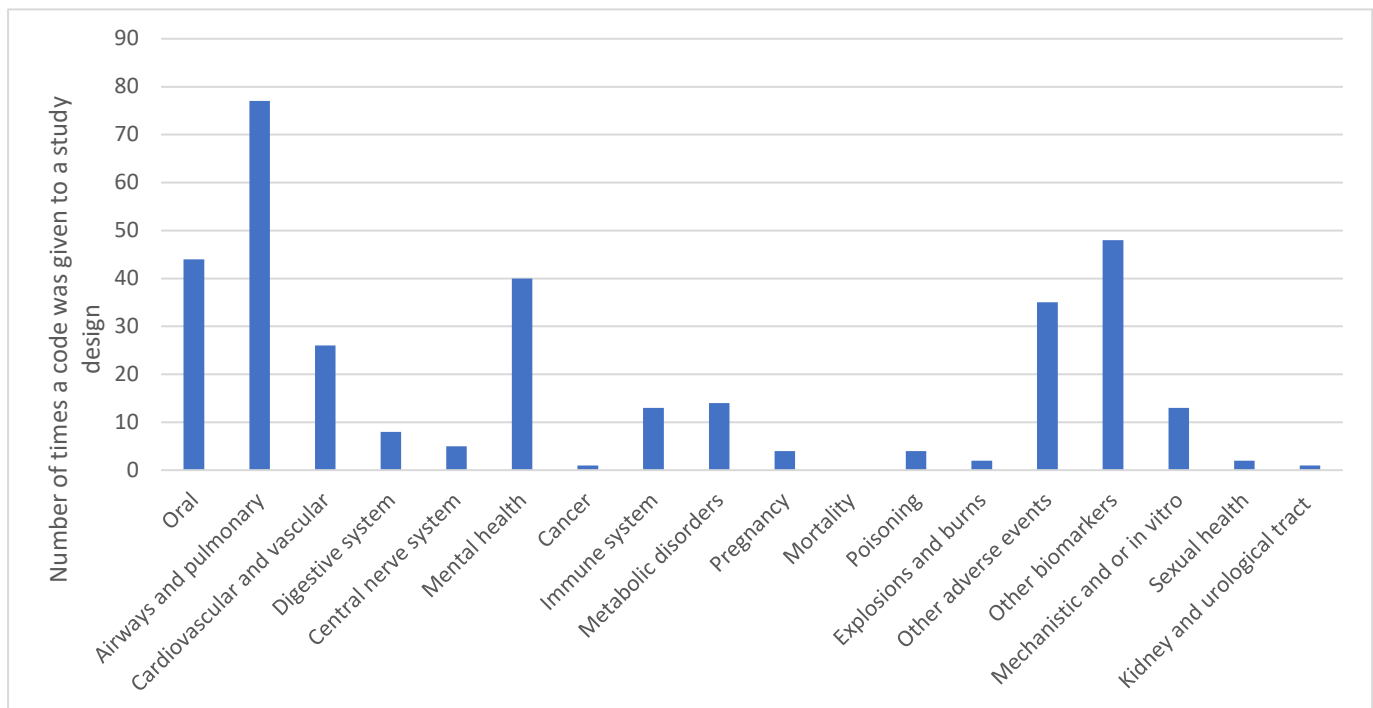


Figure 17. Health consequences addressed in cross-sectional studies

One of only two human studies addressing cancer and use of electronic cigarettes was a cross-sectional study. In a U.S survey, adults who experienced homelessness were asked about chronic health conditions (Leavens et al 2020). The other publication was a case report of one young person with eye cancer (Shields et al 2020).

The age distribution of individuals in the cross-sectional studies is shown in figure 18.

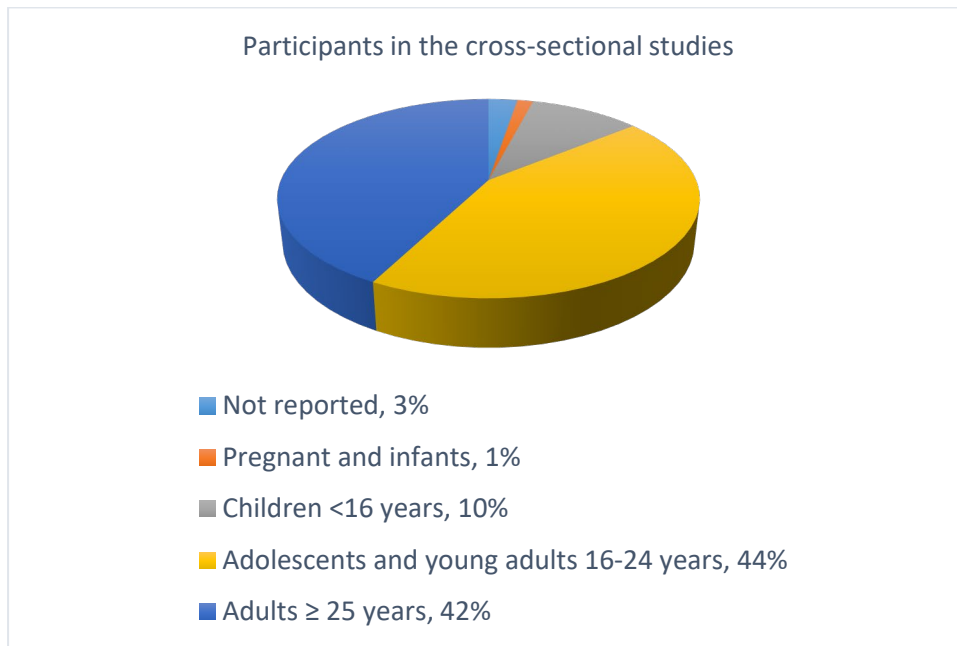


Figure 18. Participants in cross sectional-studies

Animal studies

We identified 156 animal studies involving the exposure to e-liquid/e-liquid constituents or aerosol from e-cigarettes or aerolized nicotine. The health consequences measured in animal studies are presented in figure 19.

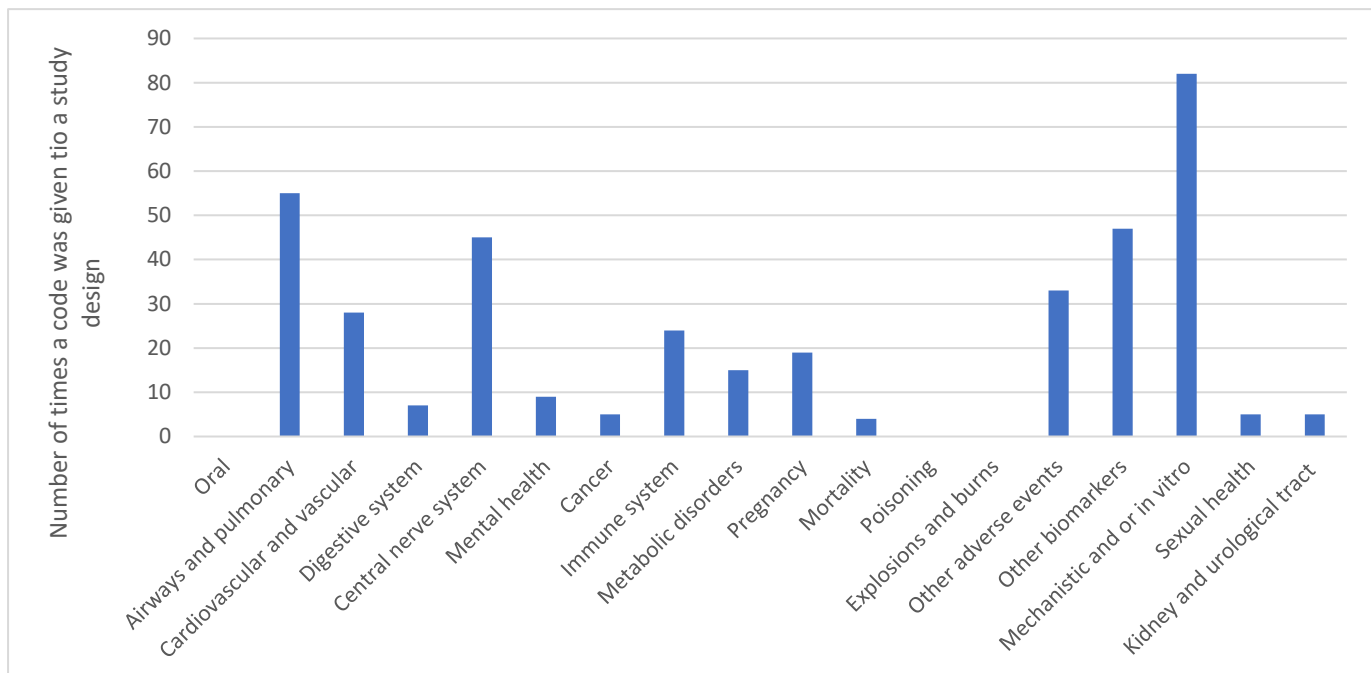


Figure 19. Health consequences addressed in animal studies

Interactive research map

We have in a systematic and scientific way mapped the existing research on potential health consequences from e-cigarettes. The interactive research maps give a systematic and visual overview by providing graphical presentations of areas with many, some or non-existent scientific documentation.

The identified research gaps further indicate where future research may be useful. This interactive research map visualise the available research but it does not assess the size of the health risk associated with electronic cigarettes.

The interactive research maps are available as html files which may be uploaded and freely available on a website. These maps should be useful for evidence synthesis and the production of systematic reviews as well as for prioritising new research.

We have made 5 evidence and gap maps about research on electronic cigarettes:

[Health consequences of e-cigarettes, studies involving humans](#)

[Health consequences of e-cigarettes, prospective studies involving humans](#)

[Health consequences of e-cigarettes, case reports and case series](#)

[Health consequences of e-cigarettes, follow up time for prospective studies involving humans](#)

[Health consequences associated with e-cigarettes, follow up time for animal studies](#)

We classify the studies involving humans in four study groups: randomised controlled study, non-randomised controlled study, prospective study, case-controls.

The interactive map enables the user to click anywhere in a bubble to access a list of all studies addressing that particular population and topic.

Figure 20 shows an example of such an interactive map, whereas figure 21 shows an example of how the references look like when clicking on a bubble. The referenc list may be easily exported to a users own library.



Figure 20. Image of the interactive research map showing health consequences in columns and study design in rows. The size of the bubbles indicates the number of studies in each square.

X 21 Records

Clear Filters

Sort by: Title

Acute Effects of Electronic Cigarette Inhalation on the Vasculature and the Conducting Airways
 Antoniewicz L ; Brynedal A ; Hedma ... 2019

The use of electronic cigarettes has increased exponentially since its introduction onto the global market in 2006. However, short- and long-term health effects remain largely unknown due to the novelty of this product. The present study examines the acute effects of e-cigarette aerosol inhalation, with and without nicotine, on vascular and pulmonary function in healthy volunteers. Seventeen healthy subjects inhaled electronic cigarette aerosol with and without nicotine on two separate occasions in a double-blinded crossover fashion. Blood pressure, heart rate, and arterial stiffness measured by pulse wave velocity and pulse wave analysis were assessed at baseline, and then at 0 h, 2 h, and 4 h following exposure. Diastolic pulmonary and brachial

Figure 21. An image showing the information provided when you click on a bubble.

Discussion

Main findings of this interactive research map on health consequences from e-cigarette use

We have systematically surveyed and created an inter-active research map of existing literature on health risks associated with use of e-cigarettes. Our literature searches were conducted in December 2020 (in Cochrane in February 2021). After removal of duplicates, we had 9969 references. These references were assessed on title and abstract according to our inclusion criteria by two authors independently of each other. The 3841 references that were considered potentially relevant were assessed in full text, again according to the same inclusion criteria and by two people independently of each other. After exclusion, a total of 1482 publications related to health consequences of the use of electronic cigarettes were included.

There were many reviews, however, only 23 of them were systematic reviews, fifteen of them were on health consequences in humans who use electronic cigarettes. Health consequences summarised in these systematic reviews covered oral, airways and pulmonary health, cardiovascular and vascular health, mental health, pregnancy, poisoning, other adverse events and sexual health.

Randomized controlled trial (RCT) studies are the most rigorous study design for determining if a causality between intervention (here use of e-cigarettes) and outcome. However, among the 41 RCTs, only one study had a follow-up of six months. Among the other 105 studies with a control group, only six had a follow-up time of more than 2 years. Thus, any (adverse) impact of e-cigarette use on health which may take an extended time to develop may so far pass undetected.

Due to the recognised health hazards associated with tobacco use, it would be in general unethical to randomise people without any experience with tobacco use or with use of electronic cigarettes. Hence, it is no surprise that there was no long-term randomised human studies on the health consequences associated with the use of electronic cigarettes.

Among the health consequences reported in the included human studies, respiratory and cardiovascular outcomes and other adverse events (outcome not given under other code), were most frequently assessed. For case-reports and case-series studies, after respiratory outcomes, the second and third highest numbers of adverse outcomes were

injuries caused by explosions and burns, and by poisoning. Many of the studies on poisoning episodes assess ingestion of nicotine-containing e-liquid by children.

In addition there are numerous animal and *in vitro* studies examining the effect of exposure to e-liquid/constituents of e-liquid and/or their aerosols available. Such studies may be used to support or refute if the use of electronic cigarettes confer a risk for specific adverse health outcomes, or to detect potential health risks which are difficult to reveal in present human studies

Evidence gaps

The interactive research map visualizes identified knowledge gaps.

There are few publications, and hence, little available documentation regarding effects of e-cigarette use on the digestive system, the central nervous system, mental health, cancer, immune system, metabolic disorder, pregnancy, mortality, sexual health, kidney and urinary tract. Research and surveillance regarding these outcomes may therefore be needed before any conclusion regarding potential health impact from the use of e-cigarettes is reached.

The majority of available epidemiological studies investigating an association between adverse health outcomes and the use of e-cigarettes have focused on health consequences related to respiratory and cardiovascular health. Few studies have long follow-up time, thus any adverse health consequences of e-cigarette use which may take an extended time to develop, may so far go undetected.

With regard to animal and *in vitro* studies, there is still a need for supportive studies for associations/lack of associations seen in epidemiological studies. There is in particular a strong need for information further elucidating any potential risk for adverse health outcomes which takes long time to develop in humans.

Strengths and limitations of this research map

The strength of the map is that it provides an overview over current knowledge and identifies knowledge gaps by a systematic and transparent approach. The systematic mapping of an area of research is a steppingstone for conducting new research. The map provides easy access to relevant studies to summarize evidence in a systematic review.

On the other hand, the map does not assess the quality of the studies nor the size or severity of the health risks.

It is always a limitation with any summarising documents that they may be outdated as soon as new literature is published. This also goes for our interactive map on research

on the use of electronic cigarettes, as our literature searches were conducted in December 2020 and February 2021.

Another limitation of interactive research maps is that they are based on categorisation systems that can be difficult to use consistently. The aim of each category/code is to be as specific as possible, but not all data extracted from the different publications will always fit with one code precisely. An example is that several of the publications included in the present maps have study designs that are difficult to categories precisely to one code, as overlaps may occur between study designs.

Conclusion

The codes most often in the included human studies were related to respiratory and cardiovascular health, along with adverse events not associated with a specific organ or disease type.

Few human studies were published during the first years after the introduction of the e-cigarettes in 2007, with an increasing rate from 2013, and a steep increase in publications the last few years. Case reports and case series led the way, followed by cross-sectional studies.

As for all new products put on the market, there are few long-term human studies available to detect adverse effects that may develop over years and decades. However, numerous *in-vitro*- and animal studies were identified in our search. These may be useful for assessing human health risk.

A common reason for exclusion was that the publication was either sponsored by or written by authors with links to tobacco industry, this applied to 298 publications.

The present interactive research map gives a visual presentation of the broad variety of health consequences linked to the use of e-cigarettes and may be used to identify potential human health risks and possible research gaps.

The interactive research map does not assess the size or severity of the health risks from use of e-cigarettes. Identification of research gaps can be useful for discussion of where future research should focus.

References

- Atuegwu N C, Perez M F; Oncken C and Mead E L; Maheshwari N ; Mortensen E M; (2019) E-cigarette use is associated with a self-reported diagnosis of prediabetes in never cigarette smokers: Results from the behavioral risk factor surveillance system survey. *Drug & Alcohol Dependence* 205, 107692
- Bardellini E, Amadori F and Conti G ; Majorana A ; (2018) Oral mucosal lesions in electronic cigarettes consumers ver-sus former smokers. *Acta Odontologica Scandinavica* 76(3), 226-228
- Bhatta D N and Glantz S A; (2020) Association of E-Cigarette Use With Respiratory Disease Among Adults: A Longitudinal Analysis. *American Journal of Preventive Medicine* 58(2), 182-190
- Bowler R P, Hansel N N; Jacobson S and Graham Barr ; R ; Make B J; Han M K; O'Neal W K; Oelsner E C; Casaburi R ; Bar-jaktarevic I ; Cooper C ; Foreman M ; Wise R A; DeMeo D L; Silverman E K; Bailey W ; Harrington K F; Woodruff P G; Drummond M B; for COPDGene ; Investigators Spiromics ; (2017) Electronic Cigarette Use in US Adults at Risk for or with COPD: Analysis from Two Observational Cohorts. *Journal of General Internal Medicine* 32(12), 1315-1322
- Froggatt S, Reissland N and Covey J ; (2020) The effects of prenatal cigarette and e-cigarette exposure on infant neuro-behaviour: A comparison to a control group. *EclinicalMedicine* 28, 100602
- Harlow A F and Hatch E E; Wesselink A K; Rothman K J; Wise L A; (2020) E-cigarettes and Fecundability: Results from a Prospective Preconception Cohort Study. *Am J Epidemiol.* 2021 Feb 1;190(3):353-361. doi: 10.1093/aje/kwaa067.
- <https://campbellcollaboration.org/evidence-gap-maps.html>
- <https://www.fhi.no/cristin-prosjekter/aktiv/health-risks-associated-with-the-use-of-electronic-cigarettes---a-protocol/>
- Leavens E L. S, Ford B R; Ojo-Fati O and Winkelman T N. A; Vickery K D; Japuntich S J; Busch A M; (2020) Electronic cigarette use patterns and chronic health conditions

among people experiencing homelessness in MN: a statewide survey. BMC Public Health 20(1), 1889

Lee S M, Tenney R and Wallace A W; Arjomandi M ; (2018) E-cigarettes versus nicotine patches for perioperative smoking cessation: a pilot randomized trial. PeerJ 6, e5609

Leventhal A M, Urman R and Barrington-Trimis J L; Goldenson N I; Gallegos K ; Chou C P; Wang K ; Berhane K ; Cruz T B; Pentz M A; Unger J ; McConnell R S; (2017) Perceived stress and poly-tobacco product use across adolescence: Pat-terns of association and gender differences. Journal of Psychiatric Research 94, 172-179

Marsden D G, Loukas A and Chen B ; Perry C L; Wilkinson A V; (2019) Associations between frequency of cigarette and alternative tobacco product use and depressive symptoms: A longitudinal study of young adults. Addictive Behaviors 99, 106078

Michaels B M, Craft P and Michaels J A; Csank G A; (2018) Is Nicotine Replacement a Safe Alternative to Smoking in Plastic Surgery Patients? Plastic and Reconstructive Surgery - Global Open 6(12), e2017

NASEM. National Academies of Sciences, Engineering, and Medicine. Public Health Consequences of E-Cigarettes. Washington, DC, The National Academies Press, 2018.

https://www.ncbi.nlm.nih.gov/books/NBK507171/pdf/Bookshelf_NBK507171.pdf

NIPH, 2015. Health risks associated with the use of electronic cigarettes.

<https://www.fhi.no/globalassets/dokumenterfiler/rapporter/2015/helserisiko-ved-bruk-av-e-sigaretter-pdf.pdf>

SCHEER 2020. Scientific Committee on Health, Environmental and Emerging Risks. Preliminary Opinion on electronic cigarettes. [https://ec.eu-](https://ec.europa.eu/health/sites/health/files/scientific_committees/scheer/docs/scheer_o_017.pdf)

[ropa.eu/health/sites/health/files/scientific_committees/scheer/docs/scheer_o_017.pdf](https://ec.europa.eu/health/sites/health/files/scientific_committees/scheer/docs/scheer_o_017.pdf)

Shea B J, Reeves B C, Wells G, Thuku M, Hamel C, Moran J et al. AMSTAR 2: a critical appraisal tool for systematic reviews that include randomised or non-randomised studies of healthcare interventions, or both. BMJ 2017; 358 doi:

<https://doi.org/10.1136/bmj.j4008>

Shields C L, Kim M and Lally S E; Chevez-Barrrios P ; Shields J A; (2020) Eye cancer in a young male with a vaping history. Indian Journal of Ophthalmology 68(8), 1699-1701

US Surgeon General, 2014. The health consequences of smoking – 50 years of progress: a report of the Surgeon General. – Atlanta, GA. : U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2014.

https://www.ncbi.nlm.nih.gov/books/NBK179276/pdf/Bookshelf_NBK179276.pdf

Xie W, Kathuria H and Galiatsatos P ; Blaha M J; Hamburg N M; Robertson R M;
Bhatnagar A ; Benjamin E J; Stokes A C; (2020) Association of Electronic Cigarette Use
With Incident Respiratory Conditions Among US Adults From 2013 to 2018. JAMA Net-
work Open 3(11), e2020816

Appendix 1: Search strategy

For this interactive research map the aim was to get an overview of all relevant research regarding the use of e-cigarettes and health consequences. Hence all health consequences were relevant and the search was not restricted on outcomes.

Search librarian: Miriam Bakkeli
Reviewer: Astrid Nøstberg

Database: Web of science, **Date:** 18. 12.2020

Duplication control in Before: 19356
EndNote: After: 9661

Number of hits: 6308

1

6,308

TOPIC: (("electronic cigarette\$" or "e-cigarette\$" or "ecigarette\$" or "eCIG*" or "e-CIG*" or "electronic nicotine delivery system\$" or "electronic nicotine delivery device\$" or "nicotin* vapor*" or "nicotin* vapour*" or "vaporised nicotin*" or "vaporized nicotin*" or "vapourised nicotin*" or "vapourized nicotin*" or "e-hookah\$" or "Electronic Hookah\$" or "Hookah Pen\$"))

AND

DOCUMENT TYPES: (Article OR Book OR Book Chapter OR Correction OR Early Access OR Editorial Material OR Letter OR Proceedings Paper OR Reprint OR Review)

Indexes=SCI-EXPANDED, SSCI, A&HCI, ESCI Timespan=1987-2020

| | | |
|--------------------|--------------|--------------------------|
| ARTICLE (4,552) | LETTER (485) | PROCEEDINGS PAPER (33) |
| REPRINT (3) | | EDITORIAL MATERIAL (696) |
| EARLY ACCESS (147) | | BOOK CHAPTER (14) |
| DATA PAPER (1) | REVIEW (502) | CORRECTION (70) |

Database: Ovid MEDLINE(R) and Epub Ahead of Print, In-Process & Other Non-Indexed Citations, Daily and Versions(R) <1946 to December 15, 2020>

Date 17.12.2020, **Number of hits:** 7526

| # | Searches | Re- sults |
|----------|--|--------------|
| 1 | Electronic Nicotine Delivery Systems/ or ("Electronic Cigarette?" or "E-Cigarette?" or "E Cigarette?" or "E-Cig?" or "E Cig?" or "ecigarette\$" or "eCIG*" or "Electronic Nicotine Delivery System?" or "Electronic Nicotine Delivery Device?").tw,kf. | 7114 |
| 2 | ("nicotin* vapor*" or "nicotin* vapour*" or "vapori#ed nicotin*" or "vapouri#ed nicotin*").tw,kf. | 94 |
| 3 | ("e-hookah?" or "e hookah?" or "Electronic Hookah?" or "Hookah Pen?").tw,kf. | 26 |
| 4 | Vaping/ or (Vape? or vaping).tw,kf. | 2626 |
| 5 | or/1-4 | 7526 |
| 6 | from 5 keep 1-1999 | 1999 |
| 7 | from 5 keep 2000-3999 | 2000 |
| 8 | from 5 keep 4000-5999 | 2000 |
| 9 | from 5 keep 6000-7526 | 1527 |

Database: Embase <1974 to 2020 December 15>

Dato: 17.12.2020, **Number of hits:** 5522

| # | Searches | Results |
|----------|--|-------------|
| 1 | electronic cigarette/ or ("Electronic Cigarette?" or "E-Cigarette?" or "E Cigarette?" or "E-Cig?" or "E Cig?" or "ecigarette\$" or "eCIG*" or "Electronic Nicotine Delivery System?" or "Electronic Nicotine Delivery Device?").tw,kw. | 8919 |
| 2 | ("nicotin* vapor*" or "nicotin* vapour*" or "vapori#ed nicotin*" or "vapouri#ed nicotin*").tw,kw. | 127 |
| 3 | ("e-hookah?" or "e hookah?" or "Electronic Hookah?" or "Hookah Pen?").tw,kw. | 32 |
| 4 | vaping/ or (Vape? or vaping).tw,kw. | 3220 |
| 5 | or/1-4 | 9493 |
| 6 | conference abstract.pt. | 393734 2 |
| 7 | 5 not 6 | 8131 |
| 8 | limit 7 to embase | 5522 |
| 9 | from 8 keep 1-999 | 999 |
| 10 | from 8 keep 1000-1999 | 1000 |
| 11 | from 8 keep 2000-2999 | 1000 |
| 12 | from 8 keep 3000-3999 | 1000 |
| 13 | from 8 keep 4000-4999 | 1000 |
| 14 | from 8 keep 5000-5522 | 523 |

Duplication control in Import to EndNote 316

EndNote: After: **308**

Database: Cochrane Library Issue 2 of 12, February 2021

Dato: 08. februar 2021, **Number of hits:** 316

| ID | Search | Hits |
|-----------|--|-------------|
| #1 | [mh ^"Electronic Nicotine Delivery Systems"] | 137 |
| #2 | ((Electronic NEXT Cigarette?) or (E NEXT Cigarette?) or (E NEXT Cig?) or (ecigarette?) or (eCIG*) or (Electronic NEXT Nicotine NEXT Delivery NEXT System?) or (Electronic NEXT Nicotine NEXT Delivery NEXT Device?)):ti,ab | 678 |
| #3 | ((nicotin* NEXT vapor*) or (nicotin* NEXT vapour*) or (vapori?ed NEXT nicotin*) or (vapouri?ed NEXT nicotin*)):ti,ab | 20 |
| #4 | ((e NEXT hookah?) or (Electronic NEXT Hookah?) or (Hookah NEXT Pen?)):ti,ab | 4 |
| #5 | [mh ^"Vaping"] | 45 |
| #6 | ((Vape?) or "vaping"):ti,ab | 156 |
| #7 | {OR #1-#6} | 745* |

Appendix 2: Code book

| Code book for interactive research maps on health consequences associated with the use of electronic cigarettes | |
|--|---|
| Publication type | Comments |
| Systematic reviews (including HTA) | With search and quality assessment of included studies |
| Non-systematic review | Literature search but not quality assessment No other codes needed |
| Randomised Controlled Trials (RCT) | |
| Non-randomised controlled study | |
| Prospective study | |
| Case-control study | |
| Case report and case series | Follow up is "single time event" |
| Cross sectional study | Follow up is "no follow up" |
| Animal study | |
| <i>In vitro</i> study | |
| Model or physical/chemical analysis | |
| Other | |
| | |
| Publication year | |
| <2003 | |
| 2003 | |
| 2004 | |
| 2005 | |
| 2006 | |
| 2007 | |
| 2008 | |
| 2009 | |
| 2010 | |
| 2011 | |
| 2012 | |
| 2013 | |
| 2014 | |
| 2015 | |
| 2016 | |
| 2017 | |
| 2018 | |
| 2019 | |
| 2020 | |
| Population/experimental model | Population and Pattern of product use only for human studies |
| Human - not reported | |
| Pregnant and infants | |

| | | |
|--|--|--|
| | Children < 16 years | |
| | Adolescents and young adults 16-24 years | |
| | Adults > 25 | |
| | | |
| Follow-up time | | |
| | Single time event | |
| | < 6 months | |
| | 6 months to <2 years | |
| | ≥2 years | |
| | No follow up | |
| | | |
| Pattern of e-cigarette use or exposure | | |
| | e-cigarette use only | |
| | E-cigarette use (history of other tobacco products not specified) | |
| | Concurrent use of other tobacco product(s) | |
| | e-cigarette second hand exposure | |
| | No previous use of tobacco | |
| | Previous tobacco use | |
| | Not reported | |
| | Other | |
| | | |
| E-cigarette use or exposure compared with | | |
| | No use or exposure to tobacco cigarette smoke or e-cigarettes | |
| | Use or exposure to tobacco smoking | |
| | Other e-cigarette content (e.g. with/without nicotine) | |
| | | |
| Exposure characterisation and assessment (including liquid content) | | |
| | Liquid content - with nicotine | |
| | Liquid content- with nicotine salts | |
| | Liquid content - without nicotine | |
| | Liquid content - Others additions like flavour, vit E acetate, etc | |
| | Device temperature reported | |
| | External dose: nicotine content, puffing frequency, etc | |
| | Internal dose: Substances levels from vaping measured in blood/urine | |
| | Not given or not reported | |
| | Other | |
| | | |
| Health consequences | | |
| | Oral | |
| | | |
| | Airways and pulmonary | |
| | | |
| | Cardiovascular & vascular | |
| | | |
| | Digestive system | |
| | | |
| | Central nerve system | |
| | | |
| | Mental health | |
| | | |
| | Cancer | |
| | | |
| | Immune system | |
| | | |
| | Metabolic disorders | |
| | | |

| | | |
|--|-----------------------------|--|
| | Pregnancy | |
| | | |
| | Mortality | |
| | | |
| | Poisoning | |
| | | |
| | Explosions and burns | |
| | | |
| | Other adverse events | Such as poisoning and burns/ explosions |
| | | |
| | Other biomarkers | |
| | | |
| | Mechanistic and/or in vitro | |
| | | |
| | Sexual health | |
| | | |
| | Kidney and urological tract | |
| | | |

Appendix 3: Included references

Abafalvi L, Penzes M and Urban R ; Foley K L; Kaan R ; Kispelyi B ; Hermann P ; (2019) Perceived health effects of vaping among Hungarian adult e-cigarette-only and dual users: a cross-sectional internet survey. *BMC Public Health* 19(1), 302

Aberegg S K, Cirulis M M; Maddock S D; Freeman A and Keenan L M; Pirozzi C S; Raman S M; Schroeder J ; Mann H ; Callahan S J; (2020) Clinical, Bronchoscopic, and Imaging Findings of e-Cigarette, or Vaping, Product Use-Associated Lung Injury Among Patients Treated at an Academic Medical Center. *JAMA Network Open* 3(11), e2019176

AboElNaga H H (2018) Electronic cigarettes: Not an advantageous alternative to conventional smoking in asthma. *Egyptian Journal of Chest Diseases and Tuberculosis* 67(4), 427-432

Abou-Assali O, Chang M and Chidipi B ; Martinez-de-Juan J L; Reiser M ; Kanithi M ; Soni R ; McDonald T V; Herweg B ; Saiz J ; Calcul L ; Noujaim S F; (2020) In Vitro and in Vivo Cardiac Toxicity of Flavored Electronic Nicotine Delivery Systems. *American Journal of Physiology Heart & Circulatory Physiology* 20, 20

Acharya S, Ali S I and Anwar S ; Glaser A ; (2020) DO NOT FALL to the VAPE TRAP!. *Respiratory Medicine Case Reports* 31, 101165

Ackley E, Williams J T. B and Kunrath C ; Monson M ; Ignatiuk A ; Gaensbauer J ; (2018) Too Hot to Handle? When Vaporizers Explode. *Journal of Pediatrics* 196, 320-320.e1

Adkins S H, Anderson K N; Goodman A B; Twentymen E, Danielson M L; Kimball A ; Click E S; Ko J Y; Evans M E; Weissman D N; Melstrom P ; Kiernan E ; Krishnasamy V ; Rose D A; Jones C M; King B A; Ellington S R; Pollack L A; Wiltz J L; Lung Injury Clinical Task and Force; the Lung Injury Epidemiology; Surveillance Task Force; (2020) Demographics, Substance Use Behaviors, and Clinical Characteristics of Adolescents With e-Cigarette, or Vaping, Product Use-Associated Lung Injury (EVALI) in the United States in 2019. *JAMA Pediatrics* 174(7), e200756

Aftab G, Ahmad M and Frenia D ; (2019) Vaping-associated Lung Injury. *Cureus* 11(11), e6216

Agochukwu N and Liau J Y (2018) Debunking the myth of e-cigarettes: A case of free flap compromise due to e-cigarette use within the first 24 hours. *Journal of Plastic and Reconstructive & Aesthetic Surgery: JPRAS* 71(3), 451-453

Agustin M, Yamamoto M and Cabrera F ; Eusebio R ; (2018) Diffuse Alveolar Hemorrhage Induced by Vaping. *Case Reports in Pulmonology* 2018, 9724530

Aherrera A, Olmedo P and Grau-Perez M ; Tanda S ; Goessler W ; Jarmul S ; Chen R ; Cohen J E; Rule A M; Navas-Acien A ; (2017) The association of e-cigarette use with exposure to nickel and chromium: A preliminary study of non-invasive biomarkers. *Environmental Research* 159, 313-320

Aherrera A, Aravindakshan A and Jarmul S ; Olmedo P ; Chen R ; Cohen J E; Navas-Acien A ; Rule A M; (2020) E-cigarette use behaviors and device characteristics of daily exclusive e-cigarette users in Maryland: Implications for product toxicity. *Tobacco Induced Diseases* 18, 93

Ahmad S, Zafar I and Mariappan N ; Husain M ; Wei C C; Vetal N ; Eltoum I A; Ahmad A ; (2019) Acute pulmonary effects of aerosolized nicotine. *American Journal of Physiology - Lung Cellular & Molecular Physiology* 316(1), L94-L104

Ahmad M, Aftab G and Rehman S ; Frenia D ; (2020) Long-term Impact of E-cigarette and Vaping Product Use-associated Lung Injury on Diffusing Capacity for Carbon Monoxide Values: A Case Series. *Cureus* 12(2), e7002

Ahmed N, Kalininskiy A and Gandhi H ; Shin J J; (2018) Spontaneous coronary artery dissection in a postpartum e-cigarette smoker. *BMJ Case Reports* 04, 04

Akinkugbe A A (2019) Cigarettes, E-cigarettes, and Adolescents' Oral Health: Findings from the Population Assessment of Tobacco and Health (PATH) Study. *Jdr Clinical & Translational Research* 4(3), 276-283

Al Deeb M, Alresayes S and S A Mokeem; Alhenaki A M; AlHelal A ; Vohra F ; Abduljabbar T ; (2020) Clinical peri-implant health and biological bone marker levels in tobacco users treated with photodynamic therapy. *Photodiagnosis & Photodynamic Therapy* 31, 101821

Al Deeb M, Alresayes S and S A Mokeem; Alhenaki A M; AlHelal A ; Shafqat S S; Vohra F ; Abduljabbar T ; (2020) Clinical and immunological peri-implant parameters among cigarette and electronic smoking patients treated with photochemotherapy: A randomized controlled clinical trial. *Photodiagnosis & Photodynamic Therapy* 31, 101800

Al Rifai M, Mirbolouk M and Obisesan O H; Jia X ; Nasir K ; Merchant A T; Blaha M ; Virani S ; (2020) The Association of Electronic Cigarette Use and the Subjective Domains of Physical and Mental Health: The Behavioral Risk Factor Surveillance System Survey. *Cureus* 12(2), e7088

Al Rifaiy M Q and Qutub O A; Alasqah M N; Al-Sowygh Z H; Mokeem S A; Alrahlah A (2018) Effectiveness of adjunctive antimicrobial photodynamic therapy in reducing peri-implant inflammatory response in individuals vaping electronic cigarettes: A randomized controlled clinical trial. *Photodiagnosis & Photodynamic Therapy* 22, 132-136

Al-Hamoudi N, Alshahaf A and Al Deeb M ; Alrabiah M ; Vohra F ; Abduljabbar T ; (2020) Effect of scaling and root planing on the expression of anti-inflammatory cytokines (IL-4, IL-9, IL-10, and IL-13) in the gingival crevicular fluid of electronic cigarette users and non-smokers with moderate chronic periodontitis. *Journal of Periodontal & Implant Science* 50(2), 74-82

Al-Saleh I, Elkhatib R and Al-Rajoudi T ; Al-Qudaihi G ; Manogarannogaran P ; Eltabache C ; Alotaibi A ; Mummer A B; Almugbel S ; (2020) Cytotoxic and genotoxic effects of e-liquids and their potential associations with nicotine, menthol and phthalate esters. *Chemosphere* 249, 126153

Al-Sawalha N, Alzoubi K and Khabour O ; Karaoghlanian N ; Ismail Z ; Shihadeh A ; Eissenberg T ; (2020) Effect of electronic cigarette aerosol exposure during gestation and lactation on learning and memory of adult male offspring rats. *Physiology & Behavior* 221, 112911

Al-Aali K A, Alrabiah M and ArRejaie A S; Abduljabbar T ; Vohra F ; Akram Z ; (2018) Peri-implant parameters, tumor necrosis factor-alpha, and interleukin-1 beta levels in vaping individuals. *Clinical Implant Dentistry & Related Research* 20(3), 410-415

Alanazi H, Park H J and Chakir J ; Semlali A ; Rouabhia M ; (2018) Comparative study of the effects of cigarette smoke and electronic cigarettes on human gingival fibroblast proliferation, migration and apoptosis. *Food & Chemical Toxicology* 118, 390-398

Alanazi H, Semlali A and Chmielewski W ; Rouabhia M ; (2019) E-Cigarettes Increase *Candida albicans* Growth and Modulate its Interaction with Gingival Epithelial Cells. *International Journal of Environmental Research & Public Health* [Electronic Resource] 16(2), 21

Alanazi A M. M, Alqahtani M M; Pavela G and Ford E W; Leventhal A M; Hendricks P S; (2020) Mental Health and the Association between Asthma and E-cigarette Use among Young Adults in The United States: A Mediation Analysis. *International Journal of Environmental Research & Public Health* [Electronic Resource] 17(23), 26

Alasmari F, Crotty Alexander and L E ; Nelson J A; Schiefer I T; Breen E ; Drummond C A; Sari Y ; (2017) Effects of chronic inhalation of electronic cigarettes containing nicotine on glial glutamate transporters and alpha-7 nicotinic acetylcholine receptor in female CD-1 mice. *Progress in Neuro-Psychopharmacology & Biological Psychiatry* 77, 1-8

Alasmari F, Crotty Alexander and L E ; Hammad A M; Bojanowski C M; Moshensky A ; Sari Y ; (2019) Effects of Chronic Inhalation of Electronic Cigarette Vapor Containing Nicotine on Neurotransmitters in the Frontal Cortex and Striatum of C57BL/6 Mice. *Frontiers in Pharmacology* 10, 885

Alasmari F, Crotty Alexander and L E ; Hammad A M; Horton A ; Alhaddad H ; Schiefer I T; Shin J ; Moshensky A ; Sari Y ; (2020) E-cigarette aerosols containing nicotine modulate nicotinic acetylcholine receptors and astroglial glutamate transporters in mesocorticolimbic brain regions of chronically exposed mice. *Chemico-Biological Interactions* 333, 109308

Aldakheel F M, Alduraywish S A; Jhugroo P and Jhugroo C ; Divakar D D; (2020) Quantification of pathogenic bacteria in the subgingival oral biofilm samples collected from cigarette-smokers, individuals using electronic nicotine delivery systems and non-smokers with and without periodontitis. *Archives of Oral Biology* 117, 104793

Alhaddad H, Wong W and Sari A T; Crotty Alexander ; L E ; Sari Y ; (2020) Effects of 3-Month Exposure to E-Cigarette Aerosols on Glutamatergic Receptors and Transporters in Mesolimbic Brain Regions of Female C57BL/6 Mice. *Toxics* 8(4), 29

Ali M, Khan K and Buch M ; Ramos-Ramirez M ; Sharma M ; Patel S ; Choudhury S ; Anjum H ; Khan A ; Surani S ; (2020) A Case Series of Vaping-Induced Lung Injury in a Community Hospital Setting. *Case Reports in Pulmonology* 2020, 9631916

- Allen J G, Flanigan S S; LeBlanc M and Vallarino J ; MacNaughton P ; Stewart J H; Christiani D C; (2016) 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. *Environmental Health Perspectives* 124(6), 733-9
- Alnajem A, Redha A and Alroumi D ; Alshammasi A ; Ali M ; Alhussaini M ; Almutairi W ; Esmaeil A ; Ziyab A H; (2020) Use of electronic cigarettes and secondhand exposure to their aerosols are associated with asthma symptoms among adolescents: a cross-sectional study. *Respiratory Research* 21(1), 300
- AlQahtani M A, Alayad A S; Alshihri A and Correa F O. B; Akram Z ; (2018) Clinical peri-implant parameters and inflammatory cytokine profile among smokers of cigarette, e-cigarette, and waterpipe. *Clinical Implant Dentistry & Related Research* 20(6), 1016-1021
- Alqahtani F, Alqahtani M and Albaqawi A H; Al-Kheraif A A; Javed F ; (2019) Comparison of cotinine levels in the peri-implant sulcular fluid among cigarette and waterpipe smokers, electronic-cigarette users, and nonsmokers. *Clinical Implant Dentistry & Related Research* 21(4), 702-707
- Alqahtani S, Cooper B and Spears C A; Wright C ; Shannahan J ; (2020) Electronic nicotine delivery system-induced alterations in oral health via saliva assessment. *Experimental Biology & Medicine* 245(15), 1319-1325
- Alzahrani T, Pena I and Temesgen N ; Glantz S A; (2018) Association Between Electronic Cigarette Use and Myocardial Infarction. *American Journal of Preventive Medicine* 55(4), 455-461
- Alzahrani T, Pena I and Temesgen N ; Glantz S A; (2019) E-cigarettes: Stick to the Evidence. *American Journal of Preventive Medicine* 56(1), 160-161
- Alzahrani T and Glantz S A (2019) Adding Data From 2015 Strengthens the Association Between E-Cigarette Use and Myocardial Infarction. *American Journal of Preventive Medicine* 57(4), 569-571
- Alzoubi H, Abu-Lubad M and Al-Mnayyis A ; Satari A ; Alzobi M ; Al Ramadneh M ; Jarajreh D ; (2020) Effect of Electronic Cigarettes on the Carriage of Selected Organisms in the Nasal and Oral Cavity in Comparison to Tobacco Smokers and Non-smokers. *Journal of Clinical and Diagnostic Research* 14(7), DC11-DC15
- Anderson C, Majeste A and Hanus J ; Wang S ; (2016) E-Cigarette Aerosol Exposure Induces Reactive Oxygen Species, DNA Damage, and Cell Death in Vascular Endothelial Cells. *Toxicological Sciences* 154(2), 332-340
- Anderson H, Richie C and Bernard A ; (2017) A Surprisingly Volatile Smoking Alternative: Explosion and Burns as Risks of E-Cigarette Use. *Journal of Burn Care & Research* 38(5), e884
- Andersson C and Vasan R S (2018) Epidemiology of cardiovascular disease in young individuals. *Nature Reviews Cardiology* 15(4), 230-240
- Andresen N S and Lee D J; Kowalski C E; Bayon R (2018) Fall With e-Cigarette in Mouth Resulting in Pharyngeal and Esophageal Burns. *JAMA Otolaryngology-- Head & Neck Surgery* 144(4), 385-386
- Ang E, Tuthill D and Thompson J ; (2018) E-cigarette liquid ingestion: a fast growing accidental issue in children. *Archives of Disease in Childhood* 103(11), 1091
- Ansari-Gilani K, Petraszko A M and Teba C V; Reeves A R; Gupta A ; Gupta A ; Ramaiya N H; Gilkeson R C; (2020) E-cigarette use related lung disease, review of clinical and imaging findings in 3 cases. *Heart & Lung* 49(2), 139-143
- Antherieu S, Garat A and Beauval N ; Soyez M ; Allorge D ; Garcon G ; Lo-Guidice J M; (2017) Comparison of cellular and transcriptomic effects between electronic cigarette vapor and cigarette smoke in human bronchial epithelial cells. *Toxicology in Vitro* 45(Pt 3), 417-425
- Antoniewicz L, Bosson J A and Kuhl J ; Abdel-Halim S M; Kiessling A ; Mobarrez F ; Lundback M ; (2016) Electronic cigarettes increase endothelial progenitor cells in the blood of healthy volunteers. *Atherosclerosis* 255, 179-185
- Antoniewicz L, Brynedal A and Hedman L ; Lundback M ; Bosson J A; (2019) Acute Effects of Electronic Cigarette Inhalation on the Vasculature and the Conducting Airways. *Cardiovascular Toxicology* 19(5), 441-450
- Arastoo S, Haptonstall K P and Choroimi Y ; Moheimani R ; Nguyen K ; Tran E ; Gornbein J ; Middlekauff H R; (2020) Acute and chronic sympathomimetic effects of e-cigarette and tobacco cigarette smoking: role of nicotine and non-nicotine constituents. *American Journal of Physiology - Heart & Circulatory Physiology* 319(2), H262-H270
- Archambeau B A, Young S and Lee C ; Pennington T ; Vanderbeek C ; Miulli D ; Culhane J ; Neeki M ; (2016) E-cigarette Blast Injury: Complex Facial Fractures and Pneumocephalus. *The Western Journal of Emergency Medicine* 17(6), 805-807

- Armatas C, Heinzerling A and Wilken J A; (2020) E-cigarette, or Vaping, Product Use-Associated Lung Injury Cases During the COVID-19 Response - California, 2020. *Mmwr-Morbidity and Mortality Weekly Report* 69(25), 801-802
- Armendariz-Castillo I, Guerrero S and Vera-Guapi A ; Cevallos-Vilatuna T ; Garcia-Cardenas J M; Guevara-Ramirez P ; Lopez-Cortes A ; Perez-Villa A ; Yumiceba V ; Zambrano A K; Leone P E; Paz Y Mino C; (2019) Genotoxic and Carcinogenic Potential of Compounds Associated with Electronic Cigarettes: A Systematic Review. *BioMed Research International* 2019, 1386710
- Arnaout A, Khashaba H and Dobbs T ; Dewi F ; Pope-Jones S ; Sack A ; Estela C ; Nguyen D ; (2017) The Southwest UK Burns Network (SWUK) experience of electronic cigarette explosions and review of literature. *Burns* 43(4), e1-e6
- Arnett D K, Blumenthal R S; Albert M A; Buroker A B; Goldberger Z D; Hahn E J; Himmelfarb C D; Khera A and Lloyd-Jones D ; McEvoy J W; Michos E D; Miedema M D; Munoz D ; Smith S C; Virani S S; Williams K A; Yeboah J ; Ziaeian B ; (2019) 2019 ACC/AHA Guideline on the Primary Prevention of Cardiovascular Disease. *Journal of the American College of Cardiology* 74(10), E177-U76
- ArRejaie A S, Al-Aali K A; Alrabiah M and Vohra F ; Mokeem S A; Basunbul G ; Alrahlah A ; Abduljabbar T ; (2019) Proinflammatory cytokine levels and peri-implant parameters among cigarette smokers, individuals vaping electronic cigarettes, and non-smokers. *Journal of Periodontology* 90(4), 367-374
- Arter Z L, Wiggins A and Hudspath C ; Kisling A ; Hostler D C; Hostler J M; (2019) Acute eosinophilic pneumonia following electronic cigarette use. *Respiratory Medicine Case Reports* 27, 100825
- Artunduaga M, Rao D and Friedman J ; Kwon J K; Pfeifer C M; Dettori A ; Winant A J; Lee E Y; (2020) Pediatric Chest Radiographic and CT Findings of Electronic Cigarette or Vaping Product Use-associated Lung Injury (EVALI). *Radiology* 295(2), 430-438
- Asgharian B, Rostami A A and Price O T; Pithawalla Y B; (2018) Regional deposition of inhaled aerosol constituents from Electronic Nicotine Delivery Systems (ENDS) in the respiratory tract. *Journal of Aerosol Science* 126, 7-20
- Asgharian B, Price O T and Rostami A A; Pithawalla Y B; (2018) Deposition of inhaled electronic cigarette aerosol in the human oral cavity. *Journal of Aerosol Science* 116, 34-47
- Ashford K, McCubbin A and Rayens M K; Wiggins A ; Dougherty K ; Sturgill J ; Ickes M ; (2020) ENDS use among college students: Salivary biomarkers and persistent cough. *Addictive Behaviors* 108, 106462
- Ashour A, Alhussain H and Rashid U B; Abughazzah L ; Gupta I ; Malki A ; Vranic S ; Al Moustafa A E; (2020) E-Cigarette Liquid Provokes Significant Embryotoxicity and Inhibits Angiogenesis. *Toxics* 8(2), 27
- Aslan D, Gurbay A and Hayran M ; Sengelen M ; Pasli D ; Huseyin B ; (2019) Carbon Monoxide in the Expired Air and Urinary Cotinine Levels of e-Cigarette Users. *Turkish Thoracic Journal* 20(2), 125-129
- Kianersi S, Zhang Y and Rosenberg M ; Macy J T; () Association between e-cigarette use and sleep deprivation in U.S. Young adults: Results from the 2017 and 2018 Behavioral Risk Factor Surveillance System. *Addictive Behaviors* 112, 106646
- Friedman A S (2020) Association of vaping-related lung injuries with rates of e-cigarette and cannabis use across US states. *Addiction* , 7
- Wamamili B, Wallace-Bell M and Richardson A ; Grace R C; Coope P ; () Associations of history of mental illness with smoking and vaping among university students aged 18-24 years in New Zealand: Results of a 2018 national cross-sectional survey. *Addictive Behaviors* 112, 106635
- Aszyk J, Wozniak M K and Kubica P ; Kot-Wasik A ; Namiesnik J ; Wasik A ; (2017) Comprehensive determination of flavouring additives and nicotine in e-cigarette refill solutions. Part II: Gas-chromatography-mass spectrometry analysis. *Journal of Chromatography. A* 1517, 156-164
- Aszyk J, Kubica P and Kot-Wasik A ; Namiesnik J ; Wasik A ; (2017) Comprehensive determination of flavouring additives and nicotine in e-cigarette refill solutions. Part I: Liquid chromatography-tandem mass spectrometry analysis. *Journal of Chromatography. A* 1519, 45-54
- Aszyk J, Kubica P and Wozniak M K; Namiesnik J ; Wasik A ; Kot-Wasik A ; (2018) Evaluation of flavour profiles in e-cigarette refill solutions using gas chromatography-tandem mass spectrometry. *Journal of Chromatography. A* 1547, 86-98
- Aszyk J, Kubica P and Namiesnik J ; Kot-Wasik A ; Wasik A ; (2018) New approach for e-cigarette aerosol collection by an original automatic aerosol generator utilizing melt-blown non-woven fabric. *Analytica Chimica Acta* 1038, 67-78

- Aszyk J, Wozniak M K and Kubica P ; Kot-Wasik A ; Wasik A ; (2019) Concentration levels of selected analytes in the gas phase of an e-cigarette aerosol. *Microchemical Journal* 148, 717-724
- Atuegwu N C, Perez M F; Oncken C and Thacker S ; Mead E L; Mortensen E M; (2019) Association between Regular Electronic Nicotine Product Use and Self-reported Periodontal Disease Status: Population Assessment of Tobacco and Health Survey. *International Journal of Environmental Research & Public Health* [Electronic Resource] 16(7), 09
- Atuegwu N C, Perez M F; Oncken C and Mead E L; Maheshwari N ; Mortensen E M; (2019) E-cigarette use is associated with a self-reported diagnosis of prediabetes in never cigarette smokers: Results from the behavioral risk factor surveillance system survey. *Drug & Alcohol Dependence* 205, 107692
- Auer A, Kapeller R and Rothberger K ; Schutte M ; (2018) Ensuring selectivity using retention time modulation by solvent composition, applied to the analysis of phenol in e-liquids. *Journal of Chromatography A* 1574, 122-129
- Aufderheide M and Emura M (2017) Phenotypical changes in a differentiating immortalized bronchial epithelial cell line after exposure to mainstream cigarette smoke and e-cigarette vapor. *Experimental & Toxicologic Pathology* 69(6), 393-401
- Aug A, Altraja S and Kilk K ; Porosk R ; Soomets U ; Altraja A ; (2015) E-Cigarette Affects the Metabolome of Primary Normal Human Bronchial Epithelial Cells. *PLoS ONE* [Electronic Resource] 10(11), e0142053
- Avelar A J and Akers A T; Baumgard Z J; Cooper S Y; Casinelli G P; Henderson B J; (2019) Why flavored vape products may be attractive: Green apple tobacco flavor elicits reward-related behavior, upregulates nAChRs on VTA dopamine neurons, and alters midbrain dopamine and GABA neuron function. *Neuropharmacology* 158, 107729
- Avino P, Scungio M and Stabile L ; Cortellesa G ; Buonanno G ; Manigrasso M ; (2018) Second-hand aerosol from tobacco and electronic cigarettes: Evaluation of the smoker emission rates and doses and lung cancer risk of passive smokers and vapers. *Science of the Total Environment* 642, 137-147
- Avino P, Rosada A and Manigrasso M ; (2019) The inorganic fraction in e-liquids used in vapor products including e-cigarettes. *Journal of Radioanalytical and Nuclear Chemistry* 322(2), 423-430
- Azevedo A, Lobo I and Selores M ; (2019) Allergic contact dermatitis and electronic cigarettes: Is nickel to blame?. *Contact Dermatitis* 81(2), 135-136
- Aziz Ur, Rahman and Mohamed M H. B. N; Jamshed S ; (2015) Safety and effectiveness of electronic cigarettes: A narrative review. *International Medical Journal* 22(3), 122-131
- Aziz A, Shukri N M and Ramli R R; (2017) Vape till your nose bleed. *Journal of Medicine (Bangladesh)* 18(1), 44-46
- Babic M, Schuchardt M and Tolle M ; van der Giet M ; (2019) In times of tobacco-free nicotine consumption: The influence of nicotine on vascular calcification. *European Journal of Clinical Investigation* 49(4), e13077
- Badea M, Luzardo O P and Gonzalez-Antuna A ; Zumbado M ; Rogozea L ; Floroian L ; Alexandrescu D ; Moga M ; Gaman L ; Radoi M ; Boada L D; Henriquez-Hernandez L A; (2018) Body burden of toxic metals and rare earth elements in non-smokers, cigarette smokers and electronic cigarette users. *Environmental Research* 166, 269-275
- Badea M, Gaman L and Delia C ; Ilea A ; Leasu F ; Henriquez-Hernandez L A; Luzardo O P; Radoi M ; Rogozea L ; (2019) Trends of Lipophilic, Antioxidant and Hematological Parameters Associated with Conventional and Electronic Smoking Habits in Middle-Age Romanians. *Journal of Clinical Medicine* 8(5), 12
- Bagale K, Paudel S and Cagle H ; Sigel E ; Kulkarni R ; (2020) Electronic Cigarette (E-Cigarette) Vapor Exposure Alters the *Streptococcus pneumoniae* Transcriptome in a Nicotine-Dependent Manner without Affecting Pneumococcal Virulence. *Applied & Environmental Microbiology* 86(3), 21
- Bahl V, Lin S and Xu N ; Davis B ; Wang Y H; Talbot P ; (2012) Comparison of electronic cigarette refill fluid cytotoxicity using embryonic and adult models. *Reproductive Toxicology* 34(4), 529-37
- Bahmed K, Lin C R and Simborio H ; Karim L ; Aksoy M ; Kelsen S ; Tomar D ; Madesh M ; Elrod J ; Messier E ; Mason R ; Unterwald E M; Eisenstein T K; Criner G J; Kosmider B ; (2019) The role of DJ-1 in human primary alveolar type II cell injury induced by e-cigarette aerosol. *American Journal of Physiology - Lung Cellular & Molecular Physiology* 317(4), L475-L485
- Baiamonte B A, Valenza M and Roltsch E A; Whitaker A M; Baynes B B; Sabino V ; Gilpin N W; (2014) Nicotine dependence produces hyperalgesia: role of corticotropin-releasing factor-1 receptors (CRF1Rs) in the central amygdala (CeA). *Neuropharmacology* 77, 217-23

- Bakre S A and Al-Farra T S; Al-Farra S (2019) Diffuse alveolar damage and e-cigarettes: Case report and review of literature. *Respiratory Medicine Case Reports* 28, 100935
- Baldassarri S R, Hillmer A T; Anderson J M; Jatlow P and Nabulsi N ; Labaree D ; Cosgrove K P; O'Malley S S; Eissenberg T ; Krishnan-Sarin S ; Esterlis I ; (2018) Use of Electronic Cigarettes Leads to Significant Beta2-Nicotinic Acetylcholine Receptor Occupancy: Evidence From a PET Imaging Study. *Nicotine & Tobacco Research* 20(4), 425-433
- Balint G S, Boruga O and Iovanesco G ; Popovici R A; Bolinteanu S L; Mihaescu R ; Popoiu C M; Boia E ; Petrus A ; Andoni M ; (2017) The Effects of Hg²⁺ on Endothelial Function in Electronic Cigarette Smokers with Coronary Artery Disease. *Revista De Chimie* 68(4), 711-714
- Balkissoon R (2019) Journal Club-Electronic Cigarettes and Vaping as a Harm Reduction Alternative: Really?. *Chronic Obstructive Pulmonary Diseases* 6(3), 281-291
- Ballbe M, Martinez-Sanchez J M and Sureda X ; Fu M ; Perez-Ortuno R ; Pascual J A; Salto E ; Fernandez E ; (2014) Cigarettes vs. e-cigarettes: Passive exposure at home measured by means of airborne marker and biomarkers. *Environmental Research* 135, 76-80
- Bals R, Boyd J and Esposito S ; Foronjy R ; Hiemstra P S; Jimenez-Ruiz C A; Katsaounou P ; Lindberg A ; Metz C ; Schober W ; Spira A ; Blasi F ; (2019) Electronic cigarettes: a task force report from the European Respiratory Society. *European Respiratory Journal* 53(2), 02
- Ban C, Krishnan D G and Abdallah Y ; (2017) Ballistic trauma from an exploding electronic cigarette: Case report. *Oral and Maxillofacial Surgery Cases* 3(3), 61-63
- Bandiera F C, Loukas A and Wilkinson A V; Perry C L; (2016) Associations between tobacco and nicotine product use and depressive symptoms among college students in Texas. *Addictive Behaviors* 63, 19-22
- Bandiera F C, Loukas A and Li X ; Wilkinson A V; Perry C L; (2017) Depressive Symptoms Predict Current E-Cigarette Use Among College Students in Texas. *Nicotine & Tobacco Research* 19(9), 1102-1106
- Bansal M, Sharma M and Bullen C ; Svirskis D ; (2018) A Stability Indicating HPLC Method to Determine Actual Content and Stability of Nicotine within Electronic Cigarette Liquids. *International Journal of Environmental Research & Public Health* [Electronic Resource] 15(8), 13
- Barber K E, Ghebrehiwet B and Yin W ; Rubenstein D A; (2017) Endothelial Cell Inflammatory Reactions Are Altered in the Presence of E-Cigarette Extracts of Variable Nicotine. *Cellular & Molecular Bioengineering* 10(1), 124-133
- Bardellini E, Amadori F and Conti G ; Majorana A ; (2018) Oral mucosal lesions in electronic cigarettes consumers versus former smokers. *Acta Odontologica Scandinavica* 76(3), 226-228
- Barhdadi S, Canfyn M and Courselle P ; Rogiers V ; Vanhaecke T ; Deconinck E ; (2017) Development and validation of a HS/GC-MS method for the simultaneous analysis of diacetyl and acetylpropionyl in electronic cigarette refills. *Journal of Pharmaceutical & Biomedical Analysis* 142, 218-224
- Barhdadi S, Mertens B and Van Bossuyt M ; Van De Maele J ; Anthonissen R ; Canfyn M ; Courselle P ; Rogiers V ; Deconinck E ; Vanhaecke T ; (2020) Identification of flavouring substances of genotoxic concern present in e-cigarette refills. *Food & Chemical Toxicology* , 111864
- Barna S, Rozsa D and Varga J ; Fodor A ; Szilasi M ; Galuska L ; Garai I ; (2019) First comparative results about the direct effect of traditional cigarette and e-cigarette smoking on lung alveolocapillary membrane using dynamic ventilation scintigraphy. *Nuclear Medicine Communications* 40(2), 153-158
- Barrameda R, Nguyen T , Wong V ; Castro G ; Rodriguez de la Vega and P; Lozano J ; Zevallos J ; (2020) Use of E-Cigarettes and Self-Reported Lung Disease Among US Adults. *Public Health Reports* 135(6), 785-795
- Bartram A, Jones N and Endersby S ; (2016) Lichenoid eruption associated with use of an e-cigarette. *British Journal of Oral & Maxillofacial Surgery* 54(4), 475
- Bartschat S, Mercer-Chalmers-Bender K and Beike J ; Rothschild M A; Jubner M ; (2015) Not only smoking is deadly: fatal ingestion of e-juice-a case report. *International Journal of Legal Medicine* 129(3), 481-6
- Basma H, Tatineni S and Dhar K ; Qiu F ; Rennard S ; Lowes B D; (2020) Electronic cigarette extract induced toxic effect in iPSC-derived cardiomyocytes. *BMC Cardiovascular Disorders* 20(1), 357
- Bauman Z M, Roman J and Singer M ; Vercauysse G A; (2017) Canary in the coal mine-Initial reports of thermal injury secondary to electronic cigarettes. *Burns* 43(3), e38-e42

- Baumann B, Churg A and Aboulhosn K ; (2020) Vaping-associated lung injury causing organizing pneumonia: A case report. *British Columbia Medical Journal* 62(8), 268-271
- Bavan S, Kim C H and Henderson B J; Lester H A; (2019) Chronic Menthol Does Not Change Stoichiometry or Functional Plasma Membrane Levels of Mouse $\alpha 3\beta 4$ -Containing Nicotinic Acetylcholine Receptors. *Molecular Pharmacology* 95(4), 398-407
- Baxter R D, Vaquera K and George T J; (2020) Extracorporeal Membrane Oxygenation Support for Vaping-Induced Acute Lung Injury. *Annals of Thoracic Surgery* 110(3), e193-e194
- Bayly J E, Bernat D and Porter L ; Choi K ; (2019) Secondhand Exposure to Aerosols From Electronic Nicotine Delivery Systems and Asthma Exacerbations Among Youth With Asthma. *Chest* 155(1), 88-93
- Beauval N, Howsam M and Antherieu S ; Allorge D ; Soyez M ; Garcon G ; Goossens J F; Lo-Guidice J M; Garat A ; (2016) Trace elements in e-liquids - Development and validation of an ICP-MS method for the analysis of electronic cigarette refills. *Regulatory Toxicology & Pharmacology* 79, 144-148
- Beauval N, Antherieu S and Soyez M ; Gengler N ; Grova N ; Howsam M ; Hardy E M; Fischer M ; Appenzeller B M. R; Goossens J F; Allorge D ; Garcon G ; Lo-Guidice J M; Garat A ; (2017) Chemical Evaluation of Electronic Cigarettes: Multi-component Analysis of Liquid Refills and their Corresponding Aerosols. *Journal of Analytical Toxicology* 41(8), 670-678
- Beauval N, Verrielle M and Garat A ; Fronval I ; Dusautoir R ; Antherieu S ; Garcon G ; Lo-Guidice J M; Allorge D ; Locoge N ; (2019) Influence of puffing conditions on the carbonyl composition of e-cigarette aerosols. *International Journal of Hygiene & Environmental Health* 222(1), 136-146
- Becker T D, Arnold M K; Ro V and Martin L ; Rice T R; (2020) Systematic review of electronic cigarette use (vaping) and mental health comorbidity among adolescents and young adults. *Nicotine & Tobacco Research* 09, 09
- Behar R Z, Bahl V and Wang Y ; Lin S ; Xu N ; Davis B ; Talbot P ; (2012) A method for rapid dose-response screening of environmental chemicals using human embryonic stem cells. *Journal of Pharmacological and Toxicological Methods* 66(3), 238-245
- Behar R Z, Davis B and Wang Y ; Bahl V ; Lin S ; Talbot P ; (2014) Identification of toxicants in cinnamon-flavored electronic cigarette refill fluids. *Toxicology in Vitro* 28(2), 198-208
- Behar R Z, Hua M and Talbot P ; (2015) Puffing topography and nicotine intake of electronic cigarette users. *PLoS ONE [Electronic Resource]* 10(2), e0117222
- Behar R Z, Luo W and Lin S C; Wang Y ; Valle J ; Pankow J F; Talbot P ; (2016) Distribution, quantification and toxicity of cinnamaldehyde in electronic cigarette refill fluids and aerosols. *Tobacco Control* 25(Suppl 2), ii94-ii102
- Behar R Z, Wang Y and Talbot P ; (2018) Comparing the cytotoxicity of electronic cigarette fluids, aerosols and solvents. *Tobacco Control* 27(3), 325-333
- Behar R Z, Luo W and McWhirter K J; Pankow J F; Talbot P ; (2018) Analytical and toxicological evaluation of flavor chemicals in electronic cigarette refill fluids. *Scientific Reports* 8(1), 8288
- Beining T, Thogmartin J R and Kurz W ; (2020) Projectile Wound to Head from Modified Electronic Cigarette Explosion. *Journal of Forensic Sciences* 65(4), 1365-1367
- Bekki K, Uchiyama S and Ohta K ; Inaba Y ; Nakagome H ; Kunugita N ; (2014) Carbonyl compounds generated from electronic cigarettes. *International Journal of Environmental Research & Public Health [Electronic Resource]* 11(11), 11192-200
- Beklen A and Uckan D (2020) Electronic cigarette liquid substances propylene glycol and vegetable glycerin induce an inflammatory response in gingival epithelial cells. *Human & Experimental Toxicology* , 960327120943934
- Belkoniene M, Socquet J and Njemba-Freiburghaus D ; Pellaton C ; (2019) Near fatal intoxication by nicotine and propylene glycol injection: a case report of an e-liquid poisoning. *BMC Pharmacology & Toxicology* 20(1), 28
- Belok S H, Parikh R and Bernardo J ; Kathuria H ; (2020) E-cigarette, or vaping, product use-associated lung injury: a review. *Pneumonia* 12, 12
- Benam K H, Novak R and Nawroth J ; Hirano-Kobayashi M ; Ferrante T C; Choe Y ; Prantil-Baun R ; Weaver J C; Bahinski A ; Parker K K; Ingber D E; (2016) Matched-Comparative Modeling of Normal and Diseased Human Airway Responses Using a Microengineered Breathing Lung Chip. *Cell Systems* 3(5), 456-466.e4

- Bengalli R, Ferri E and Labra M ; Mantecca P ; (2017) Lung Toxicity of Condensed Aerosol from E-CIG Liquids: Influence of the Flavor and the In Vitro Model Used. *International Journal of Environmental Research & Public Health* [Electronic Resource] 14(10), 20
- Bennani I, Alami Chentoufi and M ; El Karbane M ; Cheikh A ; Bouatia M ; (2020) E-Cigarette Quality Control: Impurity and Nicotine Level Analysis in Electronic Cigarette Refill Liquids. *TheScientificWorldJournal* 2020, 3050189
- Benowitz N L, St Helen G and Nardone N ; Addo N ; Zhang J J ; Harvanko A M ; Calfee C S ; Jacob P ; 3rd ; (2020) Twenty-Four-Hour Cardiovascular Effects of Electronic Cigarettes Compared With Cigarette Smoking in Dual Users. *Journal of the American Heart Association* 9(23), e017317
- Bentivegna K, Atuegwu N C and Oncken C ; Mead E L ; Perez M F ; Mortensen E M ; (2019) E-cigarette Use Is Associated with Non-prescribed Medication Use in Adults: Results from the PATH Survey. *Journal of General Internal Medicine* 34(10), 1995-1997
- Bergstrom M, Nordberg A and Lunell E ; Antoni G ; Langstrom B ; (1995) Regional deposition of inhaled ¹¹C-nicotine vapor in the human airway as visualized by positron emission tomography. *Clinical Pharmacology & Therapeutics* 57(3), 309-17
- Berkelhamer S K, Helman J M ; Gugino S F ; Leigh N J ; Lakshminrusimha S and Goniewicz M L ; (2019) In Vitro Consequences of Electronic-Cigarette Flavoring Exposure on the Immature Lung. *International Journal of Environmental Research & Public Health* [Electronic Resource] 16(19), 27
- Bertrand P, Bonnarme V and Piccirilli A ; Ayrault P ; Lemeé L ; Frapper G ; Pourchez J ; (2018) Physical and chemical assessment of 1,3 Propanediol as a potential substitute of propylene glycol in refill liquid for electronic cigarettes. *Scientific Reports* 8(1), 10702
- Bhandari D, McCarthy D and Biren C ; Movassaghi C ; Blount B C ; De Jesus V R ; (2019) Development of a UPLC-ESI-MS/MS method to measure urinary metabolites of selected VOCs: Benzene, cyanide, furfural, furfuryl alcohol, 5-hydroxymethylfurfural, and N-methyl-2-pyrrolidone. *Journal of Chromatography B: Analytical Technologies in the Biomedical & Life Sciences* 1126-1127, 121746
- Bharadwaj S, Mitchell R J and Qureshi A ; Niazi J H ; (2017) Toxicity evaluation of e-juice and its soluble aerosols generated by electronic cigarettes using recombinant bioluminescent bacteria responsive to specific cellular damages. *Biosensors & Bioelectronics* 90, 53-60
- Bharat A, Jain N and Sheikh B ; Jeelani H M ; Shayuk M ; (2020) Vaping-Induced Lung Injury: An Uncharted Territory. *Cureus* 12(7), e8970
- Bhat T A and Goniewicz M L ; Thanavala Y M ; (2020) An Animal Model of Inhaled Vitamin E Acetate and EVALI-like Lung Injury. *New England Journal of Medicine* 382(12), 1175-1177
- Bhatta D N and Glantz S A ; (2020) Association of E-Cigarette Use With Respiratory Disease Among Adults: A Longitudinal Analysis. *American Journal of Preventive Medicine* 58(2), 182-190
- Binns C, Lee M K and Low W Y ; (2018) Children and E-Cigarettes: A New Threat to Health. *Asia-Pacific Journal of Public Health* 30(4), 315-320
- BinShabaib M, SS A LHarthi and Akram Z ; Khan J ; Rahman I ; Romanos G E ; Javed F ; (2019) Clinical periodontal status and gingival crevicular fluid cytokine profile among cigarette-smokers, electronic-cigarette users and never-smokers. *Archives of Oral Biology* 102, 212-217
- Biondi-Zoccai G, Sciarretta S and Bullen C ; Nocella C ; Violi F ; Loffredo L ; Pignatelli P ; Perri L ; Peruzzi M ; Marullo A G. M ; De Falco E ; Chimenti I ; Cammisotto V ; Valenti V ; Coluzzi F ; Cavarretta E ; Carrizzo A ; Prati F ; Carnevale R ; Frati G ; (2019) Acute Effects of Heat-Not-Burn, Electronic Vaping, and Traditional Tobacco Combustion Cigarettes: The Sapienza University of Rome-Vascular Assessment of Proatherosclerotic Effects of Smoking (SUR - VAPES) 2 Randomized Trial. *Journal of the American Heart Association* 8(6), e010455
- Bisceglia K J, Caravan S and Rogers K ; Huang L ; (2018) Determination of thermal degradants in e-cigarette fluid via direct sample introduction (DSI) gas chromatography-tandem mass spectrometry. *Analytical Methods* 10(45), 5439-5446
- Bitzer Z T, Goel R and Reilly S M ; Foulds J ; Muscat J ; Elias R J ; Richie J P ; Jr ; (2018) Effects of Solvent and Temperature on Free Radical Formation in Electronic Cigarette Aerosols. *Chemical Research in Toxicology* 31(1), 4-12
- Bitzer Z T, Goel R and Reilly S M ; Elias R J ; Silakov A ; Foulds J ; Muscat J ; Richie J P ; Jr ; (2018) Effect of flavoring chemicals on free radical formation in electronic cigarette aerosols. *Free Radical Biology & Medicine* 120, 72-79

- Bitzer Z T, Goel R and Reilly S M; Bhangu G ; Trushin N ; Foulds J ; Muscat J ; Richie J P; Jr ; (2019) Emissions of Free Radicals, Carbonyls, and Nicotine from the NIDA Standardized Research Electronic Cigarette and Comparison to Similar Commercial Devices. *Chemical Research in Toxicology* 32(1), 130-138
- Bitzer Z T, Goel R and Trushin N ; Muscat J ; Richie J P; Jr ; (2020) Free Radical Production and Characterization of Heat-Not-Burn Cigarettes in Comparison to Conventional and Electronic Cigarettes. *Chemical Research in Toxicology* 33(7), 1882-1887
- Bjurlin M A, Matulewicz R S; Roberts T R; Dearing B A; Schatz D and Sherman S ; Gordon T ; Shahawy O E; (2020) Carcinogen Biomarkers in the Urine of Electronic Cigarette Users and Implications for the Development of Bladder Cancer: A Systematic Review. *European Urology Oncology* 07, 07
- Blacker C J (2020) Clinical Issues to Consider for Clozapine Patients Who Vape: A Case Illustration. *Focus* 18(1), 55-57
- Blagev D P, Harris D and Dunn A C; Guidry D W; Grissom C K; Lanspa M J; (2019) Clinical presentation, treatment, and short-term outcomes of lung injury associated with e-cigarettes or vaping: a prospective observational cohort study. *Lancet* 394(10214), 2073-2083
- Blair S L and Epstein S A; Nizkorodov S A; Staimer N (2015) A Real-Time Fast-Flow Tube Study of VOC and Particulate Emissions from Electronic, Potentially Reduced-Harm, Conventional, and Reference Cigarettes. *Aerosol Science & Technology* 49(9), 816-827
- Blank M D, Pearson J and Cobb C O; Felicione N J; Hiler M M; Spindle T R; Breland A ; (2020) What factors reliably predict electronic cigarette nicotine delivery?. *Tobacco Control* 29(6), 644-651
- Blount B C, Karwowski M P; Morel-Espinosa M and Rees J ; Sosnoff C ; Cowan E ; Gardner M ; Wang L ; Valentin-Blasini L ; Silva L ; De Jesus V R; Kuklenyik Z ; Watson C ; Seyler T ; Xia B ; Chambers D ; Briss P ; King B A; Delaney L ; Jones C M; Baldwin G T; Barr J R; Thomas J ; Pirkle J L; (2019) Evaluation of Bronchoalveolar Lavage Fluid from Patients in an Outbreak of E-cigarette, or Vaping, Product Use-Associated Lung Injury - 10 States, August-October 2019. *MMWR - Morbidity & Mortality Weekly Report* 68(45), 1040-1041
- Blount B C, Karwowski M P; Shields P G; Morel-Espinosa M and Valentin-Blasini L ; Gardner M ; Braselton M ; Brosius C R; Caron K T; Chambers D ; Corstvet J ; Cowan E ; De Jesus V R; Espinosa P ; Fernandez C ; Holder C ; Kuklenyik Z ; Kusovschi J D; Newman C ; Reis G B; Rees J ; Reese C ; Silva L ; Seyler T ; Song M A; Sosnoff C ; Spitzer C R; Tevis D ; Wang L ; Watson C ; Wewers M D; Xia B ; Heitkemper D T; Ghinai I ; Layden J ; Briss P ; King B A; Delaney L J; Jones C M; Baldwin G T; Patel A ; Meaney-Delman D ; Rose D ; Krishnasamy V ; Barr J R; Thomas J ; Pirkle J L; Lung Injury Response Laboratory Working Group ; (2020) Vitamin E Acetate in Bronchoalveolar-Lavage Fluid Associated with EVALI. *New England Journal of Medicine* 382(8), 697-705
- Boas Z, Gupta P and Moheimani R S; Bhetraratana M ; Yin F ; Peters K M; Gornbein J ; Araujo J A; Czernin J ; Middlekauff H R; (2017) Activation of the "Splenocardiac Axis" by electronic and tobacco cigarettes in otherwise healthy young adults. *Physiological Reports* 5(17),
- Boddu S A, Bojanowski C M; Lam M T; Advani I N; Scholten E L; Sun X and Montgrain P ; Malhotra A ; Jain S ; Alexander L E. C; (2019) Use of Electronic Cigarettes with Conventional Tobacco Is Associated with Decreased Sleep Quality in Women. *American Journal of Respiratory & Critical Care Medicine* 200(11), 1431-1434
- Bohr S, Almarzouqi F and Pallua N ; (2016) Extensive burn injury caused by fundamental electronic cigarette design flaw. *Annals of Burns & Fire Disasters* 29(3), 231-233
- Boissiere F, Bekara F and Luca-Pozner V ; Godillot C ; Gandolfi S ; Gibrila J ; Chaput B ; Herlin C ; (2020) Thermal and chemical burns caused by e-cigarette battery explosions. *Annales de Chirurgie Plastique et Esthetique* 65(1), 24-30
- Bolona E, Felix M and Vanegas E ; Vera Paz ; C ; Cherrez-Ojeda I ; (2020) A Case of Vaping-associated Pulmonary Illness in South America: Highlighting the Need for Awareness and Surveillance Programs in the Region. *American Journal of Respiratory & Critical Care Medicine* 201(6), 733-735
- Bonilla A, Blair A J and Alamro S M; Ward R A; Feldman M B; Dutko R A; Karagounis T K; Johnson A L; Folch E E; Vyas J M; (2019) Recurrent spontaneous pneumothoraces and vaping in an 18-year-old man: a case report and review of the literature. *Journal of Medical Case Reports [Electronic Resource]* 13(1), 283
- Born H, Persky M and Kraus D H; Peng R ; Amin M R; Branski R C; (2015) Electronic Cigarettes: A Primer for Clinicians. *Otolaryngology - Head & Neck Surgery* 153(1), 5-14
- Boulay M E, Henry C and Bosse Y ; Boulet L P; Morissette M C; (2017) Acute effects of nicotine-free and flavour-free electronic cigarette use on lung functions in healthy and asthmatic individuals. *Respiratory Research* 18(1), 33

Bourke L, Bauld L and Bullen C ; Cumberbatch M ; Giovannucci E ; Islami F ; McRobbie H ; Silverman D T; Catto J W. F; (2017) E-cigarettes and Urologic Health: A Collaborative Review of Toxicology, Epidemiology, and Potential Risks. *European Urology* 71(6), 915-923

Bowler R P, Hansel N N; Jacobson S and Graham Barr ; R ; Make B J; Han M K; O'Neal W K; Oelsner E C; Casaburi R ; Bar-jaktarevic I ; Cooper C ; Foreman M ; Wise R A; DeMeo D L; Silverman E K; Bailey W ; Harrington K F; Woodruff P G; Drummond M B; for COPDGene ; Investigators Spiromics ; (2017) Electronic Cigarette Use in US Adults at Risk for or with COPD: Analysis from Two Observational Cohorts. *Journal of General Internal Medicine* 32(12), 1315-1322

Boykan R, Messina C R and Chateau G ; Eliscu A ; Tolentino J ; Goniewicz M L; (2019) Self-Reported Use of Tobacco, E-cigarettes, and Marijuana Versus Urinary Biomarkers. *Pediatrics* 143(5), 05

Boykan R, Goniewicz M L and Messina C R; (2019) Evidence of Nicotine Dependence in Adolescents Who Use Juul and Similar Pod Devices. *International Journal of Environmental Research & Public Health [Electronic Resource]* 16(12), 17

Bozier J, Rutting S and Xenaki D ; Peters M ; Adcock I ; Oliver B G; (2019) Heightened response to e-cigarettes in COPD. *Erj Open Research* 5(1),

Bozier J, Chivers E K and Chapman D G; Larcombe A N; Bastian N A; Masso-Silva J A; Byun M K; McDonald C F; Crotty Alexander ; L E ; Ween M P; (2020) The Evolving Landscape of e-Cigarettes: A Systematic Review of Recent Evidence. *Chest* 157(5), 1362-1390

Bozzella M J, Magyar M and DeBiasi R L; Ferrer K ; (2020) Epiglottitis Associated With Intermittent E-cigarette Use: The Vagaries of Vaping Toxicity. *Pediatrics* 145(3), 03

Bradford L E, Rebuli M E; Ring B J; Jaspers I and Clement K C; Loughlin C E; (2020) Danger in the vapor? ECMO for adolescents with status asthmaticus after vaping. *Journal of Asthma* 57(11), 1168-1172

Breiev K, Burseg K M and O'Connell G ; Hartungen E ; Biel S S; Cahours X ; Colard S ; Mark T D; Sulzer P ; (2016) An online method for the analysis of volatile organic compounds in electronic cigarette aerosol based on proton transfer reaction mass spectrometry. *Rapid Communications in Mass Spectrometry* 30(6), 691-7

Breland A, Soule E and Lopez A ; Ramoa C ; El-Hellani A ; Eissenberg T ; (2017) Electronic cigarettes: what are they and what do they do?. *Annals of the New York Academy of Sciences* 1394(1), 5-30

Breland A, McCubbin A and Ashford K ; (2019) Electronic nicotine delivery systems and pregnancy: Recent research on perceptions, cessation, and toxicant delivery. *Birth Defects Research* 111(17), 1284-1293

Brett E I and Miller M B; Leavens E L. S; Lopez S V; Wagener T L; Leffingwell T R; (2020) Electronic cigarette use and sleep health in young adults. *Journal of Sleep Research* 29(3), e12902

Brooks J K and Kleinman J W; Brooks J B; Reynolds M A; (2017) Electronic cigarette explosion associated with extensive intraoral injuries. *Dental Traumatology* 33(2), 149-152

Brown C J and Cheng J M; (2014) Electronic cigarettes: product characterisation and design considerations. *Tobacco Control* 23 Suppl 2, ii4-10

Brownson E G, Thompson C M; Goldsberry S and Chong H J; Friedrich J B; Pham T N; Arbabi S ; Carrougher G J; Gibran N S; (2016) Explosion Injuries from E-Cigarettes. *New England Journal of Medicine* 375(14), 1400-1402

Brozek G M, Jankowski M and Zejda J E; (2019) Acute respiratory responses to the use of e-cigarette: an intervention study. *Scientific Reports* 9(1), 6844

Budzynska E, Sielemann S and Puton J ; Surminski Alm ; (2020) Analysis of e-liquids for electronic cigarettes using GC-IMS/MS with headspace sampling. *Talanta* 209, 120594

Buettner-Schmidt K, Miller D R and Balasubramanian N ; (2016) Electronic Cigarette Refill Liquids: Child-Resistant Packaging, Nicotine Content, and Sales to Minors. *Journal of Pediatric Nursing* 31(4), 373-9

Bunney P E, Hansen M and LeSage M ; (2018) Effects of isolated tobacco alkaloids and tobacco products on deprivation-induced food intake and meal patterns in rats. *Pharmacology and Biochemistry & Behavior* 165, 45-55

Burgwardt S, Huskic A and Schwartz G ; Mason D P; Tapias L ; Podgaetz E ; (2020) Spontaneous pneumomediastinum secondary to electronic cigarette use. *Baylor University Medical Center Proceedings* 33(2), 229-230

Burstyn I (2014) Peering through the mist: systematic review of what the chemistry of contaminants in electronic cigarettes tells us about health risks. *BMC Public Health* 14, 18

- Bush D and Goniewicz M L (2015) A pilot study on nicotine residues in houses of electronic cigarette users, tobacco smokers, and non-users of nicotine-containing products. *International Journal of Drug Policy* 26(6), 609-11
- Bustamante G, Ma B and Yakovlev G ; Yershova K ; Le C ; Jensen J ; Hatsukami D K; Stepanov I ; (2018) Presence of the Carcinogen N'-Nitrosornicotine in Saliva of E-cigarette Users. *Chemical Research in Toxicology* 31(8), 731-738
- Butt Y M, Smith M L; Tazelaar H D; Vaszar L T; Swanson K L; Cecchini M J; Boland J M; Bois M C; Boyum J H; Froemming A T; Khoor A and Mira-Avendano I ; Patel A ; Larsen B T; (2019) Pathology of Vaping-Associated Lung Injury. *New England Journal of Medicine* 381(18), 1780-1781
- Baassiri M, Talih S and Salman R ; Karaoghlanian N ; Saleh R ; El Hage R ; Saliba N ; Shihadeh A ; (2017) Clouds and "throat hit": Effects of liquid composition on nicotine emissions and physical characteristics of electronic cigarette aerosols. *Aerosol Science & Technology* 51(11), 1231-1239
- Cai H, Xu Y and Tang S ; Yang X ; Zou Y ; Wang X ; Mo L ; Wu B ; Liang Z ; Li Y ; Wei X ; Ao Q ; Meng L ; Zhang N ; Chen M ; Lan C ; Li X ; Lu C ; (2020) Systemic toxicity evaluation of novel tobacco products in *Caenorhabditis elegans*. *Toxicology in Vitro* 62, 104671
- Caldwell B, Sumner W and Crane J ; (2012) A systematic review of nicotine by inhalation: is there a role for the inhaled route?. *Nicotine & Tobacco Research* 14(10), 1127-39
- Caliri A W, Caceres A and Tommasi S ; Besaratinia A ; (2020) Hypomethylation of LINE-1 repeat elements and global loss of DNA hydroxymethylation in vapers and smokers. *Epigenetics: Official Journal of the DNA Methylation Society* 15(8), 816-829
- Callahan S J, Harris D and Collingridge D S ; Guidry D W ; Dean N C ; Lanspa M J ; Blagev D P ; (2020) Diagnosing EVALI in the Time of COVID-19. *Chest* 158(5), 2034-2037
- Callahan-Lyon P (2014) Electronic cigarettes: human health effects. *Tobacco Control* 23 Suppl 2, ii36-40
- Cameron J M and Howell D N; White J R; Andrenyak D M; Layton M E; Roll J M; (2014) Variable and potentially fatal amounts of nicotine in e-cigarette nicotine solutions. *Tobacco Control* 23(1), 77-8
- Cammalleri V, Marotta D and Protano C ; Vitali M ; Villari P ; Cattaruzza M S ; On Behalf Of The Smoke-Free Department Working Group ; (2020) How Do Combustion and Non-Combustion Products Used Outdoors Affect Outdoor and Indoor Particulate Matter Levels? A Field Evaluation Near the Entrance of an Italian University Library. *International Journal of Environmental Research & Public Health [Electronic Resource]* 17(14), 18
- Canistro D, Vivarelli F and Cirillo S ; Babot Marquillas ; C ; Buschini A ; Lazzaretti M ; Marchi L ; Cardenia V ; Rodriguez-Estrada M T; Lodovici M ; Cipriani C ; Lorenzini A ; Croco E ; Marchionni S ; Franchi P ; Lucarini M ; Longo V ; Della Croce C. M; Vornoli A ; Colacci A ; Vaccari M ; Sapone A ; Paolini M ; (2017) E-cigarettes induce toxicological effects that can raise the cancer risk. *Scientific Reports* 7(1), 2028
- Cant A, Collard B and Cunliffe D ; (2017) Electronic cigarettes: Necrotic ulcer. *British Dental Journal* 222(4), 226
- Cantrell F L (2014) Adverse effects of e-cigarette exposures. *Journal of Community Health* 39(3), 614-6
- Cao D J, Aldy K and Hsu S ; McGetrick M ; Verbeck G ; De Silva I ; Feng S Y ; (2020) Review of Health Consequences of Electronic Cigarettes and the Outbreak of Electronic Cigarette, or Vaping, Product Use-Associated Lung Injury. *Journal of Medical Toxicology: Official Journal of the American College of Medical Toxicology* 16(3), 295-310
- Caponnetto P, Maglia M and Cannella M C ; Inguscio L ; Buonocore M ; Scoglio C ; Polosa R ; Vinci V ; (2017) Impact of Different e-Cigarette Generation and Models on Cognitive Performances, Craving and Gesture: A Randomized Cross-Over Trial (CogEcig). *Frontiers in Psychology* 8, 9
- Caporale A, Langham M C and Guo W ; Johncola A ; Chatterjee S ; Wehrli F W ; (2019) Acute Effects of Electronic Cigarette Aerosol Inhalation on Vascular Function Detected at Quantitative MRI. *Radiology* 293(1), 97-106
- Cardenas V M and Fischbach L A; Chowdhury P (2019) The use of electronic nicotine delivery systems during pregnancy and the reproductive outcomes: A systematic review of the literature. *Tobacco Induced Diseases* 17, 52
- Cardenas V M, Cen R and Clemens M M; Moody H L; Ekanem U S; Policherla A ; Fischbach L A; Eswaran H ; Magann E F; Delongchamp R R; Boysen G ; (2019) Use of Electronic Nicotine Delivery Systems (ENDS) by pregnant women I: Risk of small-for-gestational-age birth. *Tobacco Induced Diseases* 17, 44
- Cardenas V M and Ali M M; Fischbach L A; Nembhard W N; (2020) Dual use of cigarettes and electronic nicotine delivery systems during pregnancy and the risk of small for gestational age neonates. *Annals of Epidemiology* 52, 86-92.e2

- Cardenia V, Vivarelli F and Cirillo S; Paolini M; Canistro D; Rodriguez-Estrada M T; (2018) The effect of electronic-cigarettes aerosol on rat brain lipid profile. *Biochimie* 153, 99-108
- Carnevale R, Sciarretta S and Violi F; Nocella C; Loffredo L; Perri L; Peruzzi M; Marullo A G; De Falco E; Chimenti I; Valenti V; Biondi-Zoccai G; Frati G; (2016) Acute Impact of Tobacco vs Electronic Cigarette Smoking on Oxidative Stress and Vascular Function. *Chest* 150(3), 606-12
- Carroll D M and Wagener T L; Peck J D; Brame L S; Thompson D M; Stephens L D; Campbell J E; Beebe L A; (2018) Biomarkers of Exposure in ENDS Users, Smokers, and Dual Users of American Indian Descent. *Tobacco Regulatory Science* 4(2), 3-15
- Carroll D M and Wagener T L; Stephens L D; Brame L S; Thompson D M; Beebe L A; (2019) The relationship between nicotine metabolism and nicotine and carcinogen exposure among American Indian commercial cigarette smokers and electronic nicotine delivery system users. *Addictive Behaviors* 92, 58-63
- Carson J L, Zhou L and Brighton L; Mills K H; Zhou H; Jaspers I; Hazucha M; (2017) Temporal structure/function variation in cultured differentiated human nasal epithelium associated with acute single exposure to tobacco smoke or E-cigarette vapor. *Inhalation Toxicology* 29(3), 137-144
- Carter T, Tucker D and Kilic A; Papadimos T J; Barlow A; Berry E; (2017) Life-threatening Vesicular Bronchial Injury Requiring Veno-venous Extracorporeal Membrane Oxygenation Rescue in an Electronic Nicotine Delivery System User. *Clinical Practice & Cases in Emergency Medicine* 1(3), 212-217
- Carwile J L, Fleisch A F; Young K and Ahrens K A; (2019) Electronic Cigarette Use in US Households With Children: The "New" Secondhand Smoke. *JAMA Pediatrics* 173(7), 693-695
- Casanova G S, Amaro R and Soler N; Sanchez M; Badia J R; Barbera J A; Agusti A; (2020) An imported case of e-cigarette or vaping associated lung injury in Barcelona. *European Respiratory Journal* 55(2), 02
- Casanova-Chafer J, Gallart-Mateu D and Armenta S; de la Guardia M; (2016) Preliminary results about the breath of passive smokers and vapers based on the use of portable air monitoring devices. *Microchemical Journal* 126, 454-459
- Casebolt R, Cook S J and Islas A; Brown A; Castle K; Dutcher D D; (2020) Carbon monoxide concentration in mainstream E-cigarette emissions measured with diode laser spectroscopy. *Tobacco Control* 29(6), 652-655
- Cason D E and Morgan D E; Pietryga J A; (2016) Injuries From an Exploding E-Cigarette: A Case Report. *Annals of Internal Medicine* 165(9), 678-679
- Cassidy R N and Tidey J W; Colby S M; (2020) Exclusive E-Cigarette Users Report Lower Levels of Respiratory Symptoms Relative to Dual E-Cigarette and Cigarette Users. *Nicotine & Tobacco Research* 22(Supplement_1), S54-S60
- Cedano J, Sah A and Cedeno-Mendoza R; Fish H; Remolina C; (2020) Confirmed E-cigarette or vaping product use associated lung injury (EVALI) with lung biopsy; A case report and literature review. *Respiratory Medicine Case Reports* 30, 101122
- Cervellati F, Muresan X M and Sticozzi C; Gambari R; Montagner G; Forman H J; Torricelli C; Maioli E; Valacchi G; (2014) Comparative effects between electronic and cigarette smoke in human keratinocytes and epithelial lung cells. *Toxicology in Vitro* 28(5), 999-1005
- Chadi N, Li G and Cerda N; Weitzman E R; (2019) Depressive Symptoms and Suicidality in Adolescents Using e-Cigarettes and Marijuana: A Secondary Data Analysis From the Youth Risk Behavior Survey. *Journal of Addiction Medicine* 13(5), 362-365
- Chadi N, Moore-Hepburn C and Beno S; Richmond S A; (2020) Vaping-related injury and illness among Canadian children and adolescents: a one-time survey of paediatric providers. *BMJ Paediatrics Open* 4(1), e000840
- Chaffee B W, Jacob P and Couch E T; Benowitz N L; (2020) Exposure to a Tobacco-Specific Carcinogen Among Adolescent Smokeless Tobacco Users in Rural California, United States. *Nicotine & Tobacco Research* 22(10), 1764-1771
- Chang Y C and Lee Y H; Liu C T; Shelley M (2019) Patterns of e-cigarette use and self-reported health outcomes among smokers and non-smokers in the United States: A preliminary assessment. *Journal of Substance Use* 24(1), 79-87
- Chang J T, Wang B and Chang C M; Ambrose B K; (2019) National estimates of poisoning events related to liquid nicotine in young children treated in US hospital emergency departments, 2013-2017. *Injury Epidemiology* 6, 10
- Chang J T and Rostron B L; (2019) Electronic nicotine delivery system (ENDS) liquid nicotine exposure in young children presenting to US emergency departments, 2018. *Injury Epidemiology* 6, 43

- Chang Y S, Park S M; Rah Y C; Han E J; Koun S I; Chang J and Choi J ; (2020) In vivo assessment of the toxicity of electronic cigarettes to zebrafish (*Danio rerio*) embryos, following gestational exposure, in terms of mortality, developmental toxicity, and hair cell damage: Toxicity of E-cigs to zebrafish embryos. *Human & Experimental Toxicology* , 960327120947785
- Chang J T and Wang B G; Rostron B L; Chen L H; Schroeder T J; Mah J C; Chang C M; Ambrose B K; (2020) National Estimates of ENDS Liquid Nicotine Exposures, US, 2013-2017. *American Journal of Preventive Medicine* 59(5), 742-745
- Chapman D G, Casey D T; Ather J L; Aliyeva M and Daphtary N ; Lahue K G; van der Velden J L; Janssen-Heininger Y M. W; Irvin C G; (2019) The Effect of Flavored E-cigarettes on Murine Allergic Airways Disease. *Scientific Reports* 9(1), 13671
- Chapman R, Tweed C D and Moonsie I ; (2020) Lung injury from e-cigarette use: a foul and pestilent congregation of vapours. *BMJ Case Reports* 13(11), 09
- Chatham-Stephens K, Law R and Taylor E ; Melstrom P ; Bunnell R ; Wang B ; Apelberg B ; Schier J G; Centers for Disease; Control ; Prevention ; (2014) Notes from the field: calls to poison centers for exposures to electronic cigarettes--United States, September 2010-February 2014. *MMWR - Morbidity & Mortality Weekly Report* 63(13), 292-3
- Chatham-Stephens K, Law R and Taylor E ; Kieszak S ; Melstrom P ; Bunnell R ; Wang B ; Day H ; Apelberg B ; Cantrell L ; Foster H ; Schier J G; (2016) Exposure Calls to U. S. Poison Centers Involving Electronic Cigarettes and Conventional Cigarettes-September 2010-December 2014. *Journal of Medical Toxicology: Official Journal of the American College of Medical Toxicology* 12(4), 350-357
- Chatham-Stephens K, Roguski K, Jang Y ; Cho P ; Jatlaoui T C; Kabbani S ; Glidden E ; Ussery E N; Trivers K F; Evans M E; King B A; Rose D A; Jones C M; Baldwin G ; Delaney L J; Briss P ; Ritchey M D; Lung Injury Response Epidemiology; Surveillance Task Force; Lung Injury Response Clinical Task and Force; (2019) Characteristics of Hospitalized and Nonhospitalized Patients in a Nationwide Outbreak of E-cigarette, or Vaping, Product Use-Associated Lung Injury - United States, November 2019. *MMWR - Morbidity & Mortality Weekly Report* 68(46), 1076-1080
- Chatterjee S, Tao J Q and Johncola A ; Guo W ; Caporale A ; Langham M C; Wehrli F W; (2019) Acute exposure to e-cigarettes causes inflammation and pulmonary endothelial oxidative stress in nonsmoking, healthy young subjects. *American Journal of Physiology - Lung Cellular & Molecular Physiology* 317(2), L155-L166
- Chatterjee S, Caporale A and Tao J Q; Guo W ; Johncola A J; Strasser A A; Leone F T; Langham M C; Wehrli F W; (2020) Acute E-cig Inhalation impacts Vascular Health: A study in smoking naive subjects. *American Journal of Physiology Heart & Circulatory Physiology* 20, 20
- Chaumont M, de Becker B and Zaher W ; Culie A ; Deprez G ; Melot C ; Reye F ; Van Antwerpen P ; Delporte C ; Debbas N ; Boudjeltia K Z; van de Borne P ; (2018) Differential Effects of E-Cigarette on Microvascular Endothelial Function, Arterial Stiffness and Oxidative Stress: A Randomized Crossover Trial. *Scientific Reports* 8(1), 10378
- Chaumont M, Bernard A and Pochet S ; Melot C ; El Khattabi C ; Reye F ; Boudjeltia K Z; Van Antwerpen P ; Delporte C ; van de Borne P ; (2018) High-Wattage E-Cigarettes Induce Tissue Hypoxia and Lower Airway Injury: A Randomized Clinical Trial. *American Journal of Respiratory & Critical Care Medicine* 198(1), 123-126
- Chaumont M, van de Borne P and Bernard A ; Van Muylem A ; Deprez G ; Ullmo J ; Starczewska E ; Briki R ; de Hemptinne Q ; Zaher W ; Debbas N ; (2019) Fourth generation e-cigarette vaping induces transient lung inflammation and gas exchange disturbances: results from two randomized clinical trials. *American Journal of Physiology - Lung Cellular & Molecular Physiology* 316(5), L705-L719
- Chaumont M, Tagliatti V and Channan E M; Colet J M; Bernard A ; Morra S ; Deprez G ; Van Muylem A ; Debbas N ; Schaefer T ; Faoro V ; van de Borne P ; (2020) Short halt in vaping modifies cardiorespiratory parameters and urine metabolome: a randomized trial. *American Journal of Physiology - Lung Cellular & Molecular Physiology* 318(2), L331-L344
- Cheah N P, Chong N W; Tan J and Morsed F A; Yee S K; (2014) Electronic nicotine delivery systems: regulatory and safety challenges: Singapore perspective. *Tobacco Control* 23(2), 119-25
- Chen B C and Bright S B; Trivedi A R; Valento M (2015) Death following intentional ingestion of e-liquid. *Clinical Toxicology: The Official Journal of the American Academy of Clinical Toxicology & European Association of Poisons Centres & Clinical Toxicologists* 53(9), 914-6
- Chen M S, Hall M G; Parada H and Peebles K ; Brodar K E; Brewer N T; (2017) Symptoms during Adolescents' First Use of Cigarettes and E-Cigarettes: A Pilot Study. *International Journal of Environmental Research & Public Health [Electronic Resource]* 14(10), 20
- Chen J, Bullen C and Dirks K ; (2017) A Comparative Health Risk Assessment of Electronic Cigarettes and Conventional Cigarettes. *International Journal of Environmental Research & Public Health [Electronic Resource]* 14(4), 05

- Chen W, Wang P and Ito K ; Fowles J ; Shusterman D ; Jaques P A ; Kumagai K ; (2018) Measurement of heating coil temperature for e-cigarettes with a "top-coil" clearomizer. *PLoS ONE [Electronic Resource]* 13(4), e0195925
- Chen R, Aherrera A and Isichei C ; Olmedo P ; Jarmul S ; Cohen J E ; Navas-Acien A ; Rule A M ; (2018) Assessment of indoor air quality at an electronic cigarette (Vaping) convention. *Journal of Exposure Science & Environmental Epidemiology* 28(6), 522-529
- Chen H, Li G and Chan Y L ; Nguyen T ; van Reyk D ; Saad S ; Oliver B G ; (2018) Modulation of neural regulators of energy homeostasis, and of inflammation, in the pups of mice exposed to e-cigarettes. *Neuroscience Letters* 684, 61-66
- Chen H, Li G and Chan Y L ; Chapman D G ; Sukjamnong S ; Nguyen T ; Annissa T ; McGrath K C ; Sharma P ; Oliver B G ; (2018) Maternal E-Cigarette Exposure in Mice Alters DNA Methylation and Lung Cytokine Expression in Offspring. *American Journal of Respiratory Cell & Molecular Biology* 58(3), 366-377
- Chen Y M and Huang C C ; Sung H C ; Lee M C ; Hsiao C Y ; (2019) Electronic cigarette exposure reduces exercise performance and changes the biochemical profile of female mice. *Bioscience and Biotechnology & Biochemistry* 83(12), 2318-2326
- Chen L, Lu X and Yuan J ; Luo J ; Luo J ; Xie Z ; Li D ; (2020) A Social Media Study on the Associations of Flavored Electronic Cigarettes With Health Symptoms: Observational Study. *Journal of Medical Internet Research* 22(6), e17496
- Chen I L, Todd I and Tighe P J ; Fairclough L C ; (2020) Electronic cigarette vapour moderately stimulates pro-inflammatory signalling pathways and interleukin-6 production by human monocyte-derived dendritic cells. *Archives of Toxicology* 94(6), 2097-2112
- Chen H, Wang B and Li G ; Steele J R ; Stayte S ; Vissel B ; Chan Y L ; Yi C ; Saad S ; Machaalani R ; Oliver B G ; (2020) Brain health is independently impaired by E-vaping and high-fat diet. *Brain, Behavior and Immunity* 20, 20
- Chen H, Li G and Allam Vsrr ; Wang B ; Chan Y L ; Scarfo C ; Ueland M ; Shimmon R ; Fu S ; Foster P ; Oliver B G ; (2020) Evidence from a mouse model on the dangers of thirdhand electronic cigarette exposure during early life. *Erj Open Research* 6(2),
- Cheng T (2014) Chemical evaluation of electronic cigarettes. *Tobacco Control* 23 Suppl 2, ii11-7
- Chi A C and Neville B W ; Ravenel M (2018) Electronic cigarette explosion: Case report of an emerging cause of orofacial trauma. *Trauma (United Kingdom)* 20(1), 62-67
- Chidambaram A G, Dennis R A ; Biko D M ; Hook M and Allen J ; Rapp J B ; (2020) Clinical and radiological characteristics of e-cigarette or vaping product use associated lung injury. *Emergency Radiology* 27(5), 495-501
- Chien J Y and Gu Y C ; Tsai H M ; Liu C H ; Yen C Y ; Wang Y L ; Wang J K ; Lin C H ; (2020) Rapid identification of nicotine in electronic cigarette liquids based on surface-enhanced Raman scattering. *Journal of Food and Drug Analysis* 28(2), 108-114
- Chiu B, Chan J and Das S ; Alshamma Z ; Sergi C ; (2019) Pediatric Sarcoidosis: A Review with Emphasis on Early Onset and High-Risk Sarcoidosis and Diagnostic Challenges. *Diagnostics* 9(4), 25
- Chivers L L and Hand D J ; Priest J S ; Higgins S T ; (2016) E-cigarette use among women of reproductive age: Impulsivity, cigarette smoking status, and other risk factors. *Preventive Medicine* 92, 126-134
- Chivers E, Janka M and Franklin P ; Mullins B ; Larcombe A ; (2019) Nicotine and other potentially harmful compounds in "nicotine-free" e-cigarette liquids in Australia. *Medical Journal of Australia* 210(3), 127-128
- Cho Y H and Shin H S ; (2015) Use of a gas-tight syringe sampling method for the determination of tobacco-specific nitrosamines in E-cigarette aerosols by liquid chromatography-tandem mass spectrometry. *Analytical Methods* 7(11), 4472-4480
- Cho J H and Paik S Y ; (2016) Association between Electronic Cigarette Use and Asthma among High School Students in South Korea. *PLoS ONE [Electronic Resource]* 11(3), e0151022
- Cho J H (2017) The association between electronic-cigarette use and self-reported oral symptoms including cracked or broken teeth and tongue and/or inside-cheek pain among adolescents: A cross-sectional study. *PLoS ONE [Electronic Resource]* 12(7), e0180506
- Choe J, Chen P and Falk J A ; Nguyen L ; Ng D ; Parimon T ; Ghandehari S ; (2020) A Case Series of Vaping-Associated Lung Injury Requiring Mechanical Ventilation. *Critical Care Explorations* 2(1), e0079

- Choi K and Bernat D (2016) E-Cigarette Use Among Florida Youth With and Without Asthma. *American Journal of Preventive Medicine* 51(4), 446-53
- Choi D W, Jeon J and Lee S A; Han K T; Park E C; Jang S I; (2018) Association between Smoking Behavior Patterns and Glycated Hemoglobin Levels in a General Population. *International Journal of Environmental Research & Public Health* [Electronic Resource] 15(10), 16
- Choi A, Le M and Rahim T ; Rose C ; Kosatsky T ; (2019) Electronic cigarette exposures reported to the British Columbia Drug and Poison Information Centre: an observational case series. *CMAJ* open 7(3), E462-E471
- Chu H and Sen S (2020) A proposed further sub-classification of burns caused by electronic vaping devices. *Burns* 46(1), 241-242
- Chung S S and Zheng J S; Kwong A C. S; Lai V W. Y; (2018) Harmful flame retardant found in electronic cigarette aerosol. *Journal of Cleaner Production* 171, 10-16
- Chung S, Bauml N and Dennis J S; Moore R ; Salathe S F; Whitney P L; Sabater J ; Abraham W M; Kim M D; Salathe M ; (2019) Electronic Cigarette Vapor with Nicotine Causes Airway Mucociliary Dysfunction Preferentially via TRPA1 Receptors. *American Journal of Respiratory & Critical Care Medicine* 200(9), 1134-1145
- Chung S J and Kim B K; Oh J H; Shim J S; Chang Y S; Cho S H; Yang M S; (2020) Novel tobacco products including electronic cigarette and heated tobacco products increase risk of allergic rhinitis and asthma in adolescents: Analysis of Korean youth survey. *Allergy* 75(7), 1640-1648
- Church J S, Chace-Donahue F and Blum J L; Ratner J R; Zelikoff J T; Schwartz J J; (2020) Neuroinflammatory and Behavioral Outcomes Measured in Adult Offspring of Mice Exposed Prenatally to E-Cigarette Aerosols. *Environmental Health Perspectives* 128(4), 47006
- Chaaban T (2020) Acute eosinophilic pneumonia associated with non-cigarette smoking products: a systematic review. *Advances in Respiratory Medicine* 88(2), 142-146
- Cichonska D, Kusiak A and Kochanska B ; Ochocinska J ; Swietlik D ; (2019) Influence of Electronic Cigarettes on Selected Antibacterial Properties of Saliva. *International Journal of Environmental Research & Public Health* [Electronic Resource] 16(22), 12
- Cioe P A, Mercurio A N; Lechner W and Costantino C C; Tidey J W; Eissenberg T ; Kahler C W; (2020) A pilot study to examine the acceptability and health effects of electronic cigarettes in HIV-positive smokers. *Drug & Alcohol Dependence* 206, 107678
- Cirillo S, Vivarelli F and Turrini E ; Fimognari C ; Burattini S ; Falcieri E ; Rocchi M B. L; Cardenia V ; Rodriguez-Estrada M T; Paolini M ; Canistro D ; (2019) The customizable e-cigarette resistance influences toxicological outcomes: lung degeneration, inflammation and oxidative stress-induced in a rat model. *Toxicological Sciences* 06, 06
- Cirillo S, Urena J F and Lambert J D; Vivarelli F ; Canistro D ; Paolini M ; Cardenia V ; Rodriguez-Estrada M T; Richie J P, Jr ; Elias R J; (2019) Impact of electronic cigarette heating coil resistance on the production of reactive carbonyls, reactive oxygen species and induction of cytotoxicity in human lung cancer cells in vitro. *Regulatory Toxicology & Pharmacology* 109, 104500
- Claes K E. Y, Vyncke T and De Wolf E ; Hoeksema H ; Verbelen J ; Monstrey S ; (2020) Enzymatic debridement as an effective treatment for combined flame and chemical burns caused by e-cigarettes. *American Journal of Emergency Medicine* 38(6), 1199-1202
- Claire R, Chamberlain C and Davey M A; Cooper S E; Berlin I ; Leonardi-Bee J ; Coleman T ; (2020) Pharmacological interventions for promoting smoking cessation during pregnancy. *Cochrane Database of Systematic Reviews* 3, CD010078
- Clapp P W and Pawlak E A; Lackey J T; Keating J E; Reeber S L; Glish G L; Jaspers I (2017) Flavored e-cigarette liquids and cinnamaldehyde impair respiratory innate immune cell function. *American Journal of Physiology - Lung Cellular & Molecular Physiology* 313(2), L278-L292
- Clapp P W and Lavrich K S; van Heusden C A; Lazarowski E R; Carson J L; Jaspers I (2019) Cinnamaldehyde in flavored e-cigarette liquids temporarily suppresses bronchial epithelial cell ciliary motility by dysregulation of mitochondrial function. *American Journal of Physiology - Lung Cellular & Molecular Physiology* 316(3), L470-L486
- Clemens M M, Cardenas V M; Fischbach L A; Cen R and Siegel E R; Eswaran H ; Ekanem U S; Policherla A ; Moody H L; Magann E F; Boysen G ; (2019) Use of electronic nicotine delivery systems by pregnant women II: Hair biomarkers for exposures to nicotine and tobacco-specific nitrosamines. *Tobacco Induced Diseases* 17, 50
- Cobb N K and Sonti R (2016) E-Cigarettes: The Science Behind the Smoke and Mirrors. *Respiratory Care* 61(8), 1122-8

- Cobb E, Hall J and Palazzolo D L; (2018) Induction of metallothionein expression after exposure to conventional cigarette smoke but not electronic cigarette (ECIG)-generated aerosol in *Caenorhabditis elegans*. *Frontiers in Physiology* 9(APR),
- Cobb C O, Lopez A A; Soule E K; Yen M S; Rumsey H and Lester Scholtes ; R ; Rudy A K; Lipato T ; Guy M ; Eissenberg T ; (2019) Influence of electronic cigarette liquid flavors and nicotine concentration on subjective measures of abuse liability in young adult cigarette smokers. *Drug & Alcohol Dependence* 203, 27-34
- Cobb C O, Lester R C; Rudy A K; Hoetger C and Scott M ; Austin M ; Montpetit A ; Lipato T ; Graham A L; Barnes A J; Eissenberg T ; (2020) Tobacco-use behavior and toxicant exposure among current dual users of electronic cigarettes and tobacco cigarettes. *Experimental & Clinical Psychopharmacology* 13, 13
- Colaianne C A, Tapias L F; Cauley R and Sheridan R ; Schulz J T; Goverman J ; (2016) Injuries Caused by Explosion of Electronic Cigarette Devices. *Eplasty [Electronic Resource]* 16, ic9
- Colesar M T and McCollum D J; (2020) E-Cigarette or Vaping Product Use-Associated Lung Injury (EVALI) in an Active Duty Service Member. *Military Medicine* 03, 03
- Conklin D J, Malovichko M V; Zeller I and Das T P; Krivokhizhina T V; Lynch B H; Lorkiewicz P ; Agarwal A ; Wickramasinghe N ; Habertzettl P ; Sithu S D; Shah J ; O'Toole T E; Rai S N; Bhatnagar A ; Srivastava S ; (2017) Biomarkers of Chronic Acrolein Inhalation Exposure in Mice: Implications for Tobacco Product-Induced Toxicity. *Toxicological Sciences* 158(2), 263-274
- Conklin D J, Ogunwale M A; Chen Y and Theis W S; Nantz M H; Fu X A; Chen L C; Riggs D W; Lorkiewicz P ; Bhatnagar A ; Srivastava S ; (2018) Electronic cigarette-generated aldehydes: The contribution of e-liquid components to their formation and the use of urinary aldehyde metabolites as biomarkers of exposure. *Aerosol Science & Technology* 52(11), 1219-1232
- Conway K P, Green V R; Kasza K A; Silveira M L; Borek N and Kimmel H L; Sargent J D; Stanton C ; Lambert E ; Hilmi N ; Reissig C J; Jackson K J; Tanski S E; Maklan D ; Hyland A J; Compton W M; (2017) Co-occurrence of tobacco product use, substance use, and mental health problems among adults: Findings from Wave 1 (2013-2014) of the Population Assessment of Tobacco and Health (PATH) Study. *Drug & Alcohol Dependence* 177, 104-111
- Conway K P, Green V R; Kasza K A; Silveira M L; Borek N and Kimmel H L; Sargent J D; Stanton C A; Lambert E ; Hilmi N ; Reissig C J; Jackson K J; Tanski S E; Maklan D ; Hyland A J; Compton W M; (2018) Co-occurrence of tobacco product use, substance use, and mental health problems among youth: Findings from wave 1 (2013-2014) of the population assessment of tobacco and health (PATH) study. *Addictive Behaviors* 76, 208-217
- Cooke W H, Pokhrel A and Dowling C ; Fogt D L; Rickards C A; (2015) Acute inhalation of vaporized nicotine increases arterial pressure in young non-smokers: a pilot study. *Clinical Autonomic Research* 25(4), 267-70
- Cooper S Y and Akers A T; Henderson B J; (2020) Green Apple e-Cigarette Flavorant Farnesene Triggers Reward-Related Behavior by Promoting High-Sensitivity nAChRs in the Ventral Tegmental Area. *Eneuro* 7(4),
- Cooper S Y and Akers A T; Henderson B J; (2020) Flavors enhance nicotine vapor self-administration in male mice. *Nicotine & Tobacco Research* 29, 29
- Coppeta L, Magrini A and Pietroiusti A ; Perrone S ; Grana M ; (2018) Effects of smoking electronic cigarettes on pulmonary function and environmental parameters. *Open Public Health Journal* 11(1), 360-368
- Corbett S E, Nitzberg M and Moses E ; Kleerup E ; Wang T ; Perdomo C ; Perdomo C ; Liu G ; Xiao X ; Liu H ; Elashoff D A; Brooks D R; O'Connor G T; Dubinett S M; Spira A ; Lenburg M E; (2019) Gene Expression Alterations in the Bronchial Epithelium of e-Cigarette Users. *Chest* 156(4), 764-773
- Corcoran A, Carl J C and Rezaee F ; (2020) The importance of anti-vaping vigilance-EVALI in seven adolescent pediatric patients in Northeast Ohio. *Pediatric Pulmonology* 55(7), 1719-1724
- Corey C G and Chang J T; Rostron B L; (2018) Electronic nicotine delivery system (ENDS) battery-related burns presenting to US emergency departments, 2016. *Injury Epidemiology* 5(1), 4
- Corona G, Sansone A and Pallotti F ; Ferlin A ; Pivonello R ; Isidori A M; Maggi M ; Jannini E A; (2020) People smoke for nicotine, but lose sexual and reproductive health for tar: a narrative review on the effect of cigarette smoking on male sexuality and reproduction. *Journal of Endocrinological Investigation* 43(10), 1391-1408
- Correia-Alvarez E, Keating J E and Glish G ; Tarran R ; Sassano M F; (2020) Reactive Oxygen Species, Mitochondrial Membrane Potential, and Cellular Membrane Potential Are Predictors of E-Liquid Induced Cellular Toxicity. *Nicotine & Tobacco Research* 22(Supplement_1), S4-S13

Corriden R, Moshensky A and Bojanowski C M; Meier A ; Chien J ; Nelson R K; Crotty Alexander ; L E ; (2020) E-cigarette use increases susceptibility to bacterial infection by impairment of human neutrophil chemotaxis, phagocytosis, and NET formation. *American Journal of Physiology - Cell Physiology* 318(1), C205-C214

Cossio R, Cerra Z A and Tanaka H ; (2020) Vascular effects of a single bout of electronic cigarette use. *Clinical & Experimental Pharmacology & Physiology* 47(1), 3-6

Crenshaw M D and Tefft M E; Buehler S S; Brinkman M C; Clark P I; Gordon S M; (2016) Determination of nicotine, glycerol, propylene glycol and water in electronic cigarette fluids using quantitative ¹ H NMR. *Magnetic Resonance in Chemistry* 54(11), 901-904

Croff J M, Chiaf A L; Hartwell M L; Crockett E K; Tan C and Teague K ; (2019) Electronic Nicotine Delivery Systems and Serum Folate: A Case Study. *Tobacco Use Insights* 12, 1179173X19885397

Cromwell B, Mota L C and Levine M ; (2020) Detection of Potentially Toxic Additives in Electronic Cigarettes and Cigarette Flavorings. *Analytical Letters* 53(9), 1407-1415

Crotty Alexander, L E and Drummond C A; Hepokoski M ; Mathew D ; Moshensky A ; Willeford A ; Das S ; Singh P ; Yong Z ; Lee J H; Vega K ; Du A ; Shin J ; Javier C ; Tian J ; Brown J H; Breen E C; (2018) Chronic inhalation of e-cigarette vapor containing nicotine disrupts airway barrier function and induces systemic inflammation and multiorgan fibrosis in mice. *American Journal of Physiology - Regulatory Integrative & Comparative Physiology* 314(6), R834-R847

Crowley R A (2015) Electronic Nicotine Delivery Systems: executive summary of a policy position paper from the American College of Physicians. (vol 162, pg 583, 2015). *Annals of Internal Medicine* 162(12), 880-880

Cuadra G A and Smith M T; Nelson J M; Loh E K; Palazzolo D L; (2019) A Comparison of Flavorless Electronic Cigarette-Generated Aerosol and Conventional Cigarette Smoke on the Survival and Growth of Common Oral Commensal Streptococci. *International Journal of Environmental Research & Public Health [Electronic Resource]* 16(10), 14

Curtis K, Stewart C J and Robinson M ; Molfese D L; Gosnell S N; Kosten T R; Petrosino J F; De La Garza R ; 2nd ; Salas R ; (2019) Insular resting state functional connectivity is associated with gut microbiota diversity. *European Journal of Neuroscience* 50(3), 2446-2452

Czoli C D, Goniewicz M L; Palumbo M and Leigh N ; White C M; Hammond D ; (2019) Identification of flavouring chemicals and potential toxicants in e-cigarette products in Ontario, Canada. *Canadian Journal of Public Health. Revue Canadienne de Sante Publique* 110(5), 542-550

Czoli C D and Fong G T; Goniewicz M L; Hammond D (2019) Biomarkers of Exposure Among "Dual Users" of Tobacco Cigarettes and Electronic Cigarettes in Canada. *Nicotine & Tobacco Research* 21(9), 1259-1266

D'Ruiz C D and Graff D W; Robinson E (2016) Reductions in biomarkers of exposure, impacts on smoking urge and assessment of product use and tolerability in adult smokers following partial or complete substitution of cigarettes with electronic cigarettes. *BMC Public Health* 16, 543

Dada O M and Chalbot M C. G; Kavouras I G; (2020) Functional characterization of flavorings in electronic cigarette refill liquids by nuclear magnetic resonance spectroscopy. *Analytical Methods* 12(5), 611-619

Dagaonkar R S and Udwadi Z F; (2014) Water pipes and E-cigarettes: new faces of an ancient enemy. *Journal of the Association of Physicians of India* 62(4), 324-8

Dahal R, Adhikari K and Patten S B; (2020) Smoking Cessation and Improvement in Mental Health Outcomes: Do People Who Quit Smoking by Switching to Electronic Cigarettes Experience Improvement in Mental Health?. *Canadian Journal of Psychiatry - Revue Canadienne de Psychiatrie* 65(7), 512-514

Dai J, Kim K H and Szulejko J E; Jo S H; (2017) A simple method for the parallel quantification of nicotine and major solvent components in electronic cigarette liquids and vaped aerosols. *Microchemical Journal* 133, 237-245

Dai J, Kim K H and Szulejko J E; Jo S H; Kwon K ; Choi D W; (2018) Quantification of nicotine and major solvents in retail electronic cigarette fluids and vaped aerosols. *Microchemical Journal* 140, 262-268

Dai H and Khan A S (2020) A Longitudinal Study of Exposure to Tobacco-Related Toxicants and Subsequent Respiratory Symptoms Among U.S. Adults with Varying E-cigarette Use Status. *Nicotine & Tobacco Research* 22(Supplement_1), S61-S69

Davies M J, Birkett J W; Kotwa M and Tomlinson L ; Woldetinsae R ; (2017) The impact of cigarette/e-cigarette vapour on simulated pulmonary surfactant monolayers under physiologically relevant conditions. *Surface and Interface Analysis* 49(7), 654-665

Davis B, Dang M and Kim J ; Talbot P ; (2015) Nicotine concentrations in electronic cigarette refill and do-it-yourself fluids. *Nicotine & Tobacco Research* 17(2), 134-41

Davis B, Razo A and Nothnagel E ; Chen M ; Talbot P ; (2016) Unexpected nicotine in Do-it-Yourself electronic cigarette flavourings. *Tobacco Control* 25(e1), e67-8

Davis E S, Sassano M F; Goodell H and Tarran R ; (2017) E-Liquid Autofluorescence can be used as a Marker of Vaping Deposition and Third-Hand Vape Exposure. *Scientific Reports* 7(1), 7459

de Falco B, Petridis A and Paramasivan P ; Troise A D; Scaloni A ; Deeni Y ; Stephens W E; Fiore A ; (2020) Reducing toxic reactive carbonyl species in e-cigarette emissions: testing a harm-reduction strategy based on dicarbonyl trapping. *Rsc Advances* 10(36), 21535-21544

De Jesus V R and Silva L K; Newman C A; Blount B C; (2020) Novel methods for the analysis of toxicants in bronchoalveolar lavage fluid samples from e-cigarette, or vaping, product use associated lung injury (EVALI) cases: Terpenes. *Rapid Communications in Mass Spectrometry* 34(19), e8879

De Jesus V R, Chambers D M; Reese C and Braselton M ; Espinosa P ; Corstvet J ; Blount B C; (2020) Novel methods for the analysis of toxicants in bronchoalveolar lavage fluid samples from e-cigarette, or vaping, product use-associated lung injury cases: Selected petroleum distillates. *Rapid Communications in Mass Spectrometry* 34(19), e8898

De Jesus V R, Bhandari D and Zhang L ; Reese C ; Capella K ; Tevis D ; Zhu W ; Del Valle-Pinero A Y; Lagaud G ; Chang J T; van Bommel D ; Kimmel H L; Sharma E ; Goniewicz M L; Hyland A ; Blount B C; (2020) Urinary Biomarkers of Exposure to Volatile Organic Compounds from the Population Assessment of Tobacco and Health Study Wave 1 (2013-2014). *International Journal of Environmental Research & Public Health* [Electronic Resource] 17(15), 28

De Pieri C, Brisotto S and Marzona F ; Dolcemascolo V ; Cogo P E; (2020) Liquid Nicotine Intoxication Due to Dangerous Packaging. *Pediatric Emergency Care* 36(7), e425

Deconinck E, Bothy J L and Barhdadi S ; Courselle P ; (2016) Discriminating nicotine and non-nicotine containing e-liquids using infrared spectroscopy. *Journal of Pharmaceutical & Biomedical Analysis* 120, 333-41

Delaval M, Egli D and Schupfer P ; Benarafa C ; Geiser M ; Burtscher H ; (2019) Novel instrument to generate representative e-cigarette vapors for physicochemical particle characterization and in-vitro toxicity. *Journal of Aerosol Science* 129, 40-52

Deliwala S, Sundus S and Haykal T ; Theophilus N ; Bachuwa G ; (2020) E-cigarette, or Vaping, Product Use-associated Lung Injury (EVALI): Acute Lung Illness within Hours of Switching from Traditional to E-cigarettes. *Cureus* 12(4), e7513

Delk J, Creamer M R and Perry C L; Harrell M B; (2018) Weight Status and Cigarette and Electronic Cigarette Use in Adolescents. *American Journal of Preventive Medicine* 54(1), e31-e35

Demir E and Topal S (2018) Sudden sensorineural hearing loss associated with electronic cigarette liquid: The first case in the literature. *International Journal of Pediatric Otorhinolaryngology* 114, 26-28

Deng W, Schofield J R. M and Le X C; Li X F; (2020) Electronic cigarettes and toxic substances, including arsenic species. *Journal of Environmental Sciences (China)* 92, 278-283

Desai N (2020) Smoking and pregnancy: The era of electronic nicotine delivery systems. *Obstetric Medicine* 13(4), 154-158

Dhand R (2017) Inhaled Drug Therapy 2016: The Year in Review. *Respiratory Care* 62(7), 978-996

Di Biase A, Attorri L and Di Benedetto R ; Sanchez M ; (2018) Comparative effects between electronic cigarette and tobacco cigarette smoke on oxidative markers in cultured immune cells isolated from rats. *Annali Dell'Istituto Superiore di Sanita* 54(4), 300-307

Di Cicco M, Sepich M and Ragazzo V ; Peroni D G; Comberiat P ; (2020) Potential effects of E-cigarettes and vaping on pediatric asthma. *Minerva Pediatrica* 72(5), 372-382

Dibaji S A. R, Guha S and Arab A ; Murray B T; Myers M R; (2018) Accuracy of commercial electronic nicotine delivery systems (ENDS) temperature control technology. *PLoS ONE* [Electronic Resource] 13(11), e0206937

Dicpinigaitis P V, Lee Chang and A ; Dicpinigaitis A J; Negassa A ; (2016) Effect of Electronic Cigarette Use on the Urge-to-Cough Sensation. *Nicotine & Tobacco Research* 18(8), 1763-5

Dicpinigaitis P V, Lee Chang and A ; Dicpinigaitis A J; Negassa A ; (2016) Effect of e-Cigarette Use on Cough Reflex Sensitivity. *Chest* 149(1), 161-5

- Dinkeloo E, Grier T L and Brooks R D; Jones B H; (2020) Vaping, Smoking, and the Physical Fitness of Active Young Men. *American Journal of Preventive Medicine* 58(1), e31-e37
- Dinu V, MacCalman T and Yang N ; Adams G G; Yakubov G E; Harding S E; Fisk I D; (2020) Probing the effect of aroma compounds on the hydrodynamic properties of mucin glycoproteins. *European Biophysics Journal* 49(8), 799-808
- DiPasquale M, Gbadamosi O and Nguyen M H. L; Castillo S R; Rickeard B W; Kelley E G; Nagao M ; Marquardt D ; (2020) A Mechanical Mechanism for Vitamin E Acetate in E-cigarette/Vaping-Associated Lung Injury. *Chemical Research in Toxicology* 33(9), 2432-2440
- Dohnalek H M and Harley E H; (2019) Analysis of Electronic Cigarette-Related Injury Presenting to U.S. Emergency Departments, 2008-2017. *Journal of Emergency Medicine* 57(3), 399-404
- Douglass B, Solecki S and Fay-Hillier T ; (2020) The Harmful Consequences of Vaping: A Public Health Threat. *Journal of Addictions Nursing* 31(2), 79-84
- Doukas S G, Kavali L and Menon R S; Izotov B N; Bukhari A ; (2020) E-cigarette or vaping induced lung injury: A case series and literature review. *Toxicology Reports* 7, 1381-1386
- Drovandi A, Salem S and Barker D ; Booth D ; Kairuz T ; (2020) Human Biomarker Exposure From Cigarettes Versus Novel Heat-Not-Burn Devices: A Systematic Review and Meta-Analysis. *Nicotine & Tobacco Research* 22(7), 1077-1085
- Drummond M B and Upson D (2014) Electronic cigarettes. Potential harms and benefits. *Annals of the American Thoracic Society* 11(2), 236-42
- Duell A K and Pankow J F; Peyton D H; (2018) Free-Base Nicotine Determination in Electronic Cigarette Liquids by ¹H NMR Spectroscopy. *Chemical Research in Toxicology* 31(6), 431-434
- Duell A K and Pankow J F; Gillette S M; Peyton D H; (2018) Boiling points of the propylene glycol + glycerol system at 1 atmosphere pressure: 188.6-292 degreeC without and with added water or nicotine. *Chemical Engineering Communications* 205(12), 1691-1700
- Duell A K, McWhirter K J; Korzun T and Strongin R M; Peyton D H; (2019) Sucralose-Enhanced Degradation of Electronic Cigarette Liquids during Vaping. *Chemical Research in Toxicology* 32(6), 1241-1249
- Duell A K and Pankow J F; Peyton D H; (2020) Nicotine in tobacco product aerosols: 'It's deja vu all over again'. *Tobacco Control* 29(6), 656-662
- Dunbar M S and Tucker J S; Ewing B A; Pedersen E R; Miles J N; Shih R A; D'Amico E J; (2017) Frequency of E-cigarette Use, Health Status, and Risk and Protective Health Behaviors in Adolescents. *Journal of Addiction Medicine* 11(1), 55-62
- Dunbar Z R, Das A and O'Connor R J; Goniewicz M L; Wei B ; Travers M J; (2018) Brief Report: Lead Levels in Selected Electronic Cigarettes from Canada and the United States. *International Journal of Environmental Research & Public Health* [Electronic Resource] 15(1), 19
- Durmowicz E L and Rudy S F; Chen I L; (2016) Electronic cigarettes: analysis of FDA adverse experience reports in non-users. *Tobacco Control* 25(2), 242
- Dusautoir R, Zarcone G and Verrielle M ; Garcon G ; Fronval I ; Beauval N ; Allorge D ; Riffault V ; Locoge N ; Lo-Guidice J M; Antherieu S ; (2020) Comparison of the chemical composition of aerosols from heated tobacco products, electronic cigarettes and tobacco cigarettes and their toxic impacts on the human bronchial epithelial BEAS-2B cells. *Journal of Hazardous Materials* 401, 123417
- Eberlein C K, Frieling H and Kohnlein T ; Hillemacher T ; Bleich S ; (2014) Suicide attempt by poisoning using nicotine liquid for use in electronic cigarettes. *American Journal of Psychiatry* 171(8), 891
- Eddingsaas N, Pagano T and Cummings C ; Rahman I ; Robinson R ; Hensel E ; (2018) Qualitative Analysis of E-Liquid Emissions as a Function of Flavor Additives Using Two Aerosol Capture Methods. *International Journal of Environmental Research & Public Health* [Electronic Resource] 15(2), 13
- Edmonds P J, Copeland C and Conger A ; Richmond B W; (2020) Vaping-induced diffuse alveolar hemorrhage. *Respiratory Medicine Case Reports* 29, 100996
- Edwards D A and Mather R A; Shirley S G; Dodd G H; (1987) Evidence for an olfactory receptor which responds to nicotine--nicotine as an odorant. *Experientia* 43(8), 868-73

- Knapp A A, Allan N P; Cloutier R and Blumenthal H ; Moradi S ; Budney A J; Lord S E; () Effects of anxiety sensitivity on cannabis, alcohol, and nicotine use among adolescents: evaluating pathways through anxiety, withdrawal symptoms, and coping motives. *Journal of Behavioral Medicine* , 15
- Eggleston W, Nacca N and Stork C M; Marraffa J M; (2016) Pediatric death after unintentional exposure to liquid nicotine for an electronic cigarette. *Clinical Toxicology: The Official Journal of the American Academy of Clinical Toxicology & European Association of Poisons Centres & Clinical Toxicologists* 54(9), 890-891
- El Chebib H, McArthur K and Gorbonosov M ; Domachowske J B; (2020) Anaerobic Necrotizing Pneumonia: Another Potential Life-threatening Complication of Vaping?. *Pediatrics* 145(4), 04
- El Golli N, Rahali D and Jrad-Lamine A ; Dallagi Y ; Jallouli M ; Bdiri Y ; Ba N ; Lebret M ; Rosa J P; El May M ; El Fazaa S ; (2016) Impact of electronic-cigarette refill liquid on rat testis. *Toxicology Mechanisms & Methods* 26(6), 427-34
- El Golli N, Jrad-Lamine A and Neffati H ; Rahali D ; Dallagi Y ; Dkhili H ; Ba N ; El May M V; El Fazaa S ; (2016) Impact of e-cigarette refill liquid with or without nicotine on liver function in adult rats. *Toxicology Mechanisms & Methods* 26(6), 419-26
- El Golli N, Dkhili H and Dallagi Y ; Rahali D ; Lasram M ; Bini-Dhouib I ; Lebret M ; Rosa J P; El Fazaa S ; Allal-El Asmi M ; (2016) Comparison between electronic cigarette refill liquid and nicotine on metabolic parameters in rats. *Life Sciences* 146, 131-8
- El-Hage R, El-Hellani A and Salman R ; Talih S ; Shihadeh A ; Saliba N A; (2018) Fate of pyrazines in the flavored liquids of e-cigarettes. *Aerosol Science & Technology* 52(4), 377-384
- El-Hage R, El-Hellani A and Haddad C ; Salman R ; Talih S ; Shihadeh A ; Eissenberg T ; Aoun Saliba ; N ; (2019) Toxic emissions resulting from sucralose added to electronic cigarette liquids. *Aerosol Science and Technology* 53(10), 1197-1203
- El-Hage R, El-Hellani A and Salman R ; Talih S ; Shihadeh A ; Saliba N A; (2020) Vaped Humectants in E-Cigarettes Are a Source of Phenols. *Chemical Research in Toxicology* 33(9), 2374-2380
- El-Hellani A, El-Hage R and Baalbaki R ; Salman R ; Talih S ; Shihadeh A ; Saliba N A; (2015) Free-Base and Protonated Nicotine in Electronic Cigarette Liquids and Aerosols. *Chemical Research in Toxicology* 28(8), 1532-7
- El-Hellani A, El-Hage R and Salman R ; Talih S ; Shihadeh A ; Saliba N A; (2017) Carboxylate Counteranions in Electronic Cigarette Liquids: Influence on Nicotine Emissions. *Chemical Research in Toxicology* 30(8), 1577-1581
- El-Hellani A, Salman R and El-Hage R ; Talih S ; Malek N ; Baalbaki R ; Karaoghlanian N ; Nakkash R ; Shihadeh A ; Saliba N A; (2018) Nicotine and Carbonyl Emissions From Popular Electronic Cigarette Products: Correlation to Liquid Composition and Design Characteristics. *Nicotine & Tobacco Research* 20(2), 215-223
- El-Hellani A, Al-Moussawi S and El-Hage R ; Talih S ; Salman R ; Shihadeh A ; Saliba N A; (2019) Carbon Monoxide and Small Hydrocarbon Emissions from Sub-ohm Electronic Cigarettes. *Chemical Research in Toxicology* 32(2), 312-317
- Wang et al (2016) Electronic Cigarette Use and Respiratory Symptoms in Chinese Adolescents in Hong Kong. *Jama Pediatrics* 170(1), 89-+
- Hong Y R and Mainous A G; () Electronic Cigarette Use and Oral Human Papillomavirus Infection Among US Adult Population: Analysis of 2013-2016 NHANES. *Journal of General Internal Medicine* , 3
- Ellington S, Salvatore P P and Ko J ; Danielson M ; Kim L ; Cyrus A ; Wallace M ; Board A ; Krishnasamy V ; King B A; Rose D ; Jones C M; Pollack L A; Lung Injury Response Epidemiology; Surveillance Task Force; (2020) Update: Product, Substance-Use, and Demographic Characteristics of Hospitalized Patients in a Nationwide Outbreak of E-cigarette, or Vaping, Product Use-Associated Lung Injury - United States, August 2019-January 2020. *MMWR - Morbidity & Mortality Weekly Report* 69(2), 44-49
- England L J, Aagaard K and Bloch M ; Conway K ; Cosgrove K ; Grana R ; Gould T J; Hatsukami D ; Jensen F ; Kandel D ; Lanphear B ; Leslie F ; Pauly J R; Neiderhiser J ; Rubinstein M ; Slotkin T A; Spindel E ; Stroud L ; Wakschlag L ; (2017) Developmental toxicity of nicotine: A transdisciplinary synthesis and implications for emerging tobacco products. *Neuroscience & Biobehavioral Reviews* 72, 176-189
- Entwistle M R, Valle K and Schweizer D ; Cisneros R ; (2020) Electronic cigarette (e-cigarette) use and frequency of asthma symptoms in adult asthmatics in California. *Journal of Asthma* , 1-7
- Erythropel H C, Jabba S V; DeWinter T M; Mendizabal M and Anastas P T; Jordt S E; Zimmerman J B; (2019) Formation of flavorant-propylene Glycol Adducts With Novel Toxicological Properties in Chemically Unstable E-Cigarette Liquids. *Nicotine & Tobacco Research* 21(9), 1248-1258

- Erythropel H C, Davis L M; de Winter T M; Jordt S E; Anastas P T; O'Malley S S; Krishnan-Sarin S and Zimmerman J B; (2019) Flavorant-Solvent Reaction Products and Menthol in JUUL E-Cigarettes and Aerosol. *American Journal of Preventive Medicine* 57(3), 425-427
- Erythropel H C, Anastas P T; Krishnan-Sarin S and O'Malley S S; Jordt S E; Zimmerman J B; (2020) Differences in flavourant levels and synthetic coolant use between USA, EU and Canadian Juul products. *Tobacco Control* 27, 27
- Escobar Y H, Nipp G and Cui T; Petters S S; Surratt J D; Jaspers I; (2020) In Vitro Toxicity and Chemical Characterization of Aerosol Derived from Electronic Cigarette Humectants Using a Newly Developed Exposure System. *Chemical Research in Toxicology* 33(7), 1677-1688
- Espinoza-Derout J, Shao X M and Bankole E; Hasan K M; Mtume N; Liu Y; Sinha-Hikim A P; Friedman T C; (2019) Hepatic DNA Damage Induced by Electronic Cigarette Exposure Is Associated With the Modulation of NAD⁺/PARP1/SIRT1 Axis. *Frontiers in Endocrinology* 10, 320
- Espinoza-Derout J, Hasan K M and Shao X M; Jordan M C; Sims C; Lee D L; Sinha S; Simmons Z; Mtume N; Liu Y; Roos K P; Sinha-Hikim A P; Friedman T C; (2019) Chronic intermittent electronic cigarette exposure induces cardiac dysfunction and atherosclerosis in apolipoprotein-E knockout mice. *American Journal of Physiology - Heart & Circulatory Physiology* 317(2), H445-H459
- Essenmacher C, Naegle M and Baird C; Vest B; Spielmann R; Smith-East M; Powers L; (2018) Electronic Nicotine Delivery Systems (ENDS): What Nurses Need to Know. *Journal of the American Psychiatric Nurses Association* 24(2), 145-152
- Etter J F and Bullen C (2011) Saliva cotinine levels in users of electronic cigarettes. *European Respiratory Journal* 38(5), 1219-20
- Etter J F, Zather E and Svensson S; (2013) Analysis of refill liquids for electronic cigarettes. *Addiction* 108(9), 1671-9
- Etter J F (2014) Levels of saliva cotinine in electronic cigarette users. *Addiction* 109(5), 825-9
- Etter J F (2016) A longitudinal study of cotinine in long-term daily users of e-cigarettes. *Drug & Alcohol Dependence* 160, 218-21
- Etter J F and Bugay A (2017) E-cigarette liquids: Constancy of content across batches and accuracy of labeling. *Addictive Behaviors* 73, 137-143
- Eversole A, Maloney S and Talih S; Salman R; Karaoghlanian N; Lipato T; Eissenberg T; Breland A; (2020) Variable Voltage, Tank-Style ENDS Do Not Always Deliver Nicotine. *Tobacco Regulatory Science* 6(6), 416-422
- Fadus M C and Smith T T; Squeglia L M; (2019) The rise of e-cigarettes, pod mod devices, and JUUL among youth: Factors influencing use, health implications, and downstream effects. *Drug & Alcohol Dependence* 201, 85-93
- Fagan P, Pokhrel P and Herzog T A; Moolchan E T; Cassel K D; Franke A A; Li X; Pagano I; Trinidad D R; Sakuma K K; Sterling K; Jorgensen D; Lynch T; Kawamoto C; Guy M C; Laguna I; Hanes S; Alexander L A; Clanton M S; Graham-Tutt C; Eissenberg T; Addictive Carcinogens; Workgroup; (2018) Sugar and Aldehyde Content in Flavored Electronic Cigarette Liquids. *Nicotine & Tobacco Research* 20(8), 985-992
- Famele M, Palmisani J and Ferranti C; Abenavoli C; Palleschi L; Mancinelli R; Fidente R M; de Gennaro G; Draisci R; (2017) Liquid chromatography with tandem mass spectrometry method for the determination of nicotine and minor tobacco alkaloids in electronic cigarette refill liquids and second-hand generated aerosol. *Journal of Separation Science* 40(5), 1049-1056
- Farber H J, Groner J and Walley S; Nelson K; Section On Tobacco; Control; (2015) Protecting Children From Tobacco, Nicotine, and Tobacco Smoke. *Pediatrics* 136(5), e1439-67
- Faridoun A, Sultan A S and Jabra-Rizk M A; Weikel D; Varlotta S; Meiller T F; (2020) Salivary biomarker profiles in E-cigarette users and conventional smokers: A cross-sectional study. *Oral Diseases* 03, 03
- Farinha H and Martins V (2015) *Lingua Villosa Nigra* Associated with the Use of Electronic Cigarette. *Acta Medica Portuguesa* 28(3), 393
- Farooq U, Anwar M and Alcantar D; Amine M; Colon Hidalgo; D; (2020) Gastroenteritis and Miliary Lung Opacities: An Interesting Combination of Findings. *Cureus* 12(6), e8848
- Fathima S and Zhang H (2020) Histologic patterns of lung injury in patients using e-cigarettes. *Baylor University Medical Center Proceedings* 33(4), 619-620

- Falcon L M, Rudy S and Limpert J ; Wang B ; Murphy I ; (2020) Adverse Experience Reports of Seizures in Youth and Young Adult Electronic Nicotine Delivery Systems Users. *Journal of Adolescent Health* 66(1), 15-17
- Felicione N J, Karaoghlanian N and Shihadeh A ; Eissenberg T ; Blank M D ; (2020) Comparison of Measurement Methods for Electronic Cigarette Puff Topography. *Tobacco Regulatory Science* 6(5), 318-330
- Fernandez E, Ballbe M and Sureda X ; Fu M ; Salto E ; Martinez-Sanchez J M ; (2015) Particulate Matter from Electronic Cigarettes and Conventional Cigarettes: a Systematic Review and Observational Study. *Current Environmental Health Reports* 2(4), 423-9
- Ferrari M, Zanasi A and Nardi E ; Morselli Labate ; A M ; Ceriana P ; Balestrino A ; Pisani L ; Corcione N ; Nava S ; (2015) Short-term effects of a nicotine-free e-cigarette compared to a traditional cigarette in smokers and non-smokers. *BMC Pulmonary Medicine* 15, 120
- Ferro M P, Leclerc L and Sleiman M ; Marchiori B ; Pourchez J ; Owens R M ; Ramuz M ; (2019) Effect of E Cigarette Emissions on Tracheal Cells Monitored at the Air-Liquid Interface Using an Organic Electrochemical Transistor. *Advanced Biosystems* 3(3), e1800249
- Fetterman J L, Weisbrod R M ; Feng B and Bastin R ; Tuttle S T ; Holbrook M ; Baker G ; Robertson R M ; Conklin D J ; Bhatnagar A ; Hamburg N M ; (2018) Flavorings in Tobacco Products Induce Endothelial Cell Dysfunction. *Arteriosclerosis and Thrombosis & Vascular Biology* 38(7), 1607-1615
- Fetterman J L, Keith R J ; Palmisano J N ; McGlasson K L ; Weisbrod R M ; Majid S and Bastin R ; Stathos M M ; Stokes A C ; Robertson R M ; Bhatnagar A ; Hamburg N M ; (2020) Alterations in Vascular Function Associated With the Use of Combustible and Electronic Cigarettes. *Journal of the American Heart Association* 9(9), e014570
- Figueredo C A, Abdelhay N and Figueredo C M ; Catunda R ; Gibson M P ; (2020) The impact of vaping on periodontitis: A systematic review. *Clinical & Experimental Dental Research* 04, 04
- Fischman J S, Sista S and Lee D ; Cuadra G A ; Palazzolo D L ; (2020) Flavorless vs. Flavored Electronic Cigarette-Generated Aerosol and E-Liquid on the Growth of Common Oral Commensal Streptococci. *Frontiers in Physiology* 11 (no pagination),
- Fite P J, Cushing C and C O Dell ; (2020) Examination of the links between functions of aggression and risk for e-cigarette use among middle school-age youth: a comparison with risk for alcohol use. *Journal of Substance Use* , 1-6
- Flach S, Maniam P and Manickavasagam J ; (2019) E-cigarettes and head and neck cancers: A systematic review of the current literature. *Clinical Otolaryngology* 44(5), 749-756
- Flieger J, Kawka J and Tatarczak-Michalewska M ; (2019) Levels of the Thiocyanate in the Saliva of Tobacco Smokers in Comparison to e-Cigarette Smokers and Nonsmokers Measured by HPLC on a Phosphatidylcholine Column. *Molecules* 24(20), 21
- Flouris A D, Poulianiti K P ; Chorti M S ; Jamurtas A Z ; Kouretas D and Owolabi E O ; Tzatzarakis M N ; Tsatsakis A M ; Koutedakis Y ; (2012) Acute effects of electronic and tobacco cigarette smoking on complete blood count. *Food & Chemical Toxicology* 50(10), 3600-3
- Flower M, Nandakumar L and Singh M ; Wyld D ; Windsor M ; Fielding D ; (2017) Respiratory bronchiolitis-associated interstitial lung disease secondary to electronic nicotine delivery system use confirmed with open lung biopsy. *Respirology Case Reports* 5(3), e00230
- Floyd E L, Queimado L and Wang J ; Regens J L ; Johnson D L ; (2018) Electronic cigarette power affects count concentration and particle size distribution of vaping aerosol. *PLoS ONE [Electronic Resource]* 13(12), e0210147
- Floyd E L, Subedi S and Wagener T L ; Johnson D L ; Oni T M ; (2020) Low powered variable voltage E-Cigarette batteries under perform at higher power settings. *Inhalation Toxicology* 32(3), 110-114
- Fogt D L and Levi M A ; Rickards C A ; Stelly S P ; Cooke W H ; (2016) Effects of Acute Vaporized Nicotine in Non-Tobacco Users at Rest and during Exercise. *International Journal of Exercise Science* 9(5), 607-615
- Foran I, Oak N R and Meunier M J ; (2017) High-Pressure Injection Injury Caused by Electronic Cigarette Explosion: A Case Report. *Jbjs Case Connector* 7(2), e36
- Forrester M B (2015) Pediatric Exposures to Electronic Cigarettes Reported to Texas Poison Centers. *Journal of Emergency Medicine* 49(2), 136-42

Foust A M and Winant A J; Chu W C; Das K M; Phillips G S; Lee E Y; (2020) Pediatric SARS, H1N1, MERS, EVALI, and Now Coronavirus Disease (COVID-19) Pneumonia: What Radiologists Need to Know. *AJR. American Journal of Roentgenology* 215(3), 736-744

Fowles J, Barreau T and Wu N ; (2020) Cancer and Non-Cancer Risk Concerns from Metals in Electronic Cigarette Liquids and Aerosols. *International Journal of Environmental Research & Public Health [Electronic Resource]* 17(6), 24

Fracol M, Dorfman R and Janes L ; Kulkarni S ; Bethke K ; Hansen N ; Kim J ; (2017) The Surgical Impact of E-Cigarettes: A Case Report and Review of the Current Literature. *Archives of Plastic Surgery* 44(6), 477-481

Franck C, Budlovsky T and Windle S B; Filion K B; Eisenberg M J; (2014) Electronic Cigarettes in North America. *Circulation* 129(19), 1945-1952

Franco T, Trapasso S and Puzzo L ; Allegra E ; (2016) Electronic Cigarette: Role in the Primary Prevention of Oral Cavity Cancer. *Clinical Medicine Insights Ear Nose & Throat* 9, 7-12

Franzen K F, Willig J and Cayo Talavera ; S ; Meusel M ; Sayk F ; Reppel M ; Dalhoff K ; Mortensen K ; Droemann D ; (2018) E-cigarettes and cigarettes worsen peripheral and central hemodynamics as well as arterial stiffness: A randomized, double-blinded pilot study. *Vascular Medicine* 23(5), 419-425

Frasch H F and Barbero A M; (2017) In vitro human epidermal permeation of nicotine from electronic cigarette refill liquids and implications for dermal exposure assessment. *Journal of Exposure Science & Environmental Epidemiology* 27(6), 618-624

Frati G, Carnevale R and Nocella C ; Peruzzi M ; Marullo A G. M; De Falco E ; Chimenti I ; Cammisotto V ; Valenti V ; Cavarretta E ; Carrizzo A ; Versaci F ; Vitali M ; Protano C ; Roever L ; Giordano A ; Sciarretta S ; Biondi-Zoccai G ; (2020) Profiling the Acute Effects of Modified Risk Products: Evidence from the SUR-VAPES (Sapienza University of Rome-Vascular Assessment of Proatherosclerotic Effects of Smoking) Cluster Study. *Current Atherosclerosis Reports* 22(2), 8

Friedman A S (2020) Association of vaping-related lung injuries with rates of e-cigarette and cannabis use across US states. *Addiction* 25, 25

Frigerio G, Mercadante R and Campo L ; Polledri E ; Boniardi L ; Olgiati L ; Missineo P ; Nash W J; Dunn W B; Fustinoni S ; (2020) Urinary biomonitoring of subjects with different smoking habits. Part II: an untargeted metabolomic approach and the comparison with the targeted measurement of mercapturic acids. *Toxicology Letters* 329, 56-66

Frigerio G, Mercadante R and Campo L ; Polledri E ; Boniardi L ; Olgiati L ; Missineo P ; Fustinoni S ; (2020) Urinary biomonitoring of subjects with different smoking habits. Part I: Profiling mercapturic acids. *Toxicology Letters* 327, 48-57

Froggatt S, Reissland N and Covey J ; (2020) The effects of prenatal cigarette and e-cigarette exposure on infant neurobehaviour: A comparison to a control group. *EClinicalMedicine* 28, 100602

Fromme H and Schober W (2015) Waterpipes and e-cigarettes: Impact of alternative smoking techniques on indoor air quality and health. *Atmospheric Environment* 106, 429-441

Fryman C, Lou B and Weber A G; Steinberg H N; Khanijo S ; Iakovou A ; Makaryus M R; (2020) Acute Respiratory Failure Associated With Vaping. *Chest* 157(3), e63-e68

Fuller T W, Acharya A P; Meyyappan T and Yu M ; Bhaskar G ; Little S R; Tarin T V; (2018) Comparison of Bladder Carcinogens in the Urine of E-cigarette Users Versus Non E-cigarette Using Controls. *Scientific Reports* 8(1), 507

Fuochi V, Caruso M and Emma R ; Stivala A ; Polosa R ; Distefano A ; Furneri P M; (2020) Investigation on the antibacterial activity of electronic cigarette liquids (ECLs): a proof of concept study. *Current Pharmaceutical Biotechnology* 03, 03

Fuoco F C, Buonanno G and Stabile L ; Vigo P ; (2014) Influential parameters on particle concentration and size distribution in the mainstream of e-cigarettes. *Environmental Pollution* 184, 523-9

Gahring L C and Myers E J; Rogers S W; (2020) Inhaled aerosolized nicotine suppresses the lung eosinophilic response to house dust mite allergen. *American Journal of Physiology - Lung Cellular & Molecular Physiology* 319(4), L683-L692

Gaiha S M, Cheng J and Halpern-Felsher B ; (2020) Association Between Youth Smoking, Electronic Cigarette Use, and COVID-19. *Journal of Adolescent Health* 67(4), 519-523

Galiatsatos P, Gomez E and Lin C T; Illei P B; Shah P ; Neptune E ; (2020) Secondhand smoke from electronic cigarette resulting in hypersensitivity pneumonitis. *BMJ Case Reports* 13(3), 22

Gallart-Mateu D, Elbal L and Armenta S ; de la Guardia M ; (2016) Passive exposure to nicotine from e-cigarettes. *Talanta* 152, 329-34

- Ganesan S M, Dabdoub S M; Nagaraja H N; Scott M L; Pamulapati S and Berman M L; Shields P G; Wewers M E; Kumar P S; (2020) Adverse effects of electronic cigarettes on the disease-naive oral microbiome. *Science Advances* 6(22), eaaz0108
- Ganguly K, Nordstrom A and Thimraj T A; Rahman M ; Ramstrom M ; Sompa S I; Lin E Z; O'Brien F ; Koelmel J ; Ernstgard L ; Johanson G ; Pollitt K J. G; Palmberg L ; Upadhyay S ; (2020) Addressing the challenges of E-cigarette safety profiling by assessment of pulmonary toxicological response in bronchial and alveolar mucosa models. *Scientific Reports* 10(1), 20460
- Ganz O, Rimal R N and Johnson A L; Cohn A M; Horn K ; Delnevo C D; Villanti A C; (2019) Tobacco use and the interplay of internalizing, externalizing and substance use problems: A latent class analysis of data from the Population Assessment of Tobacco and Health Study. *Drug & Alcohol Dependence* 205, 107686
- Garcia P D and Gornbein J A; Middlekauff H R; (2020) Cardiovascular autonomic effects of electronic cigarette use: a systematic review. *Clinical Autonomic Research* 30(6), 507-519
- Garcia-Arcos I, Geraghty P and Baumlin N ; Campos M ; Dabo A J; Jundi B ; Cummins N ; Eden E ; Grosche A ; Salathe M ; Foronjy R ; (2016) Chronic electronic cigarette exposure in mice induces features of COPD in a nicotine-dependent manner. *Thorax* 71(12), 1119-1129
- Garcia-Gomez D, Gaisl T and Barrios-Collado C ; Vidal-de-Miguel G ; Kohler M ; Zenobi R ; (2016) Real-Time Chemical Analysis of E-Cigarette Aerosols By Means Of Secondary Electrospray Ionization Mass Spectrometry. *Chemistry-A European Journal* 22(7), 2452-7
- Gaub K L, Hallyburton S and Samanic C ; Paddock D ; Clark C R; Pence S ; Brown J A; Hawkins E ; (2019) Patient Characteristics and Product Use Behaviors Among Persons with E-cigarette, or Vaping, Product Use-Associated Lung Injury - Indiana, June - October 2019. *MMWR - Morbidity & Mortality Weekly Report* 68(49), 1139-1141
- Gaur S and Agnihotri R (2019) Health Effects of Trace Metals in Electronic Cigarette Aerosols-a Systematic Review. *Biological Trace Element Research* 188(2), 295-315
- Gauthier P T and Holloway A C; Vijayan M M; (2020) Vape flavourants dull sensory perception and cause hyperactivity in developing zebrafish embryos. *Biology Letters* 16(9), 20200361
- Gavrilin M A, McAndrew C C; Prather E R; Tsai M and Spitzer C R; Song M A; Mitra S ; Sarkar A ; Shields P G; Diaz P T; Wewers M D; (2020) Inflammasome Adaptor ASC Is Highly Elevated in Lung Over Plasma and Relates to Inflammation and Lung Diffusion in the Absence of Speck Formation. *Frontiers in Immunology* 11 (no pagination),
- Geiss O, Bianchi I and Barahona F ; Barrero-Moreno J ; (2015) Characterisation of mainstream and passive vapours emitted by selected electronic cigarettes. *International Journal of Hygiene & Environmental Health* 218(1), 169-80
- Geiss O, Bianchi I and Barrero-Moreno J ; (2016) Lung-deposited surface area concentration measurements in selected occupational and non-occupational environments. *Journal of Aerosol Science* 96, 24-37
- Geiss O, Bianchi I and Barrero-Moreno J ; (2016) Correlation of volatile carbonyl yields emitted by e-cigarettes with the temperature of the heating coil and the perceived sensorial quality of the generated vapours. *International Journal of Hygiene & Environmental Health* 219(3), 268-77
- Gellatly S, Pavelka N and Crue T ; Schweitzer K S; Day B J; Min E ; Numata M ; Voelker D R; Scruggs A ; Petrache I ; Chu H W; (2020) Nicotine-Free e-Cigarette Vapor Exposure Stimulates IL6 and Mucin Production in Human Primary Small Airway Epithelial Cells. *Journal of Inflammation Research* 13, 175-185
- George O, Grieder T E and Cole M ; Koob G F; (2010) Exposure to chronic intermittent nicotine vapor induces nicotine dependence. *Pharmacology and Biochemistry & Behavior* 96(1), 104-7
- Gerloff J, Sundar I K and Freter R ; Sekera E R; Friedman A E; Robinson R ; Pagano T ; Rahman I ; (2017) Inflammatory Response and Barrier Dysfunction by Different e-Cigarette Flavoring Chemicals Identified by Gas Chromatography-Mass Spectrometry in e-Liquids and e-Vapors on Human Lung Epithelial Cells and Fibroblasts. *Applied in Vitro Toxicology* 3(1), 28-40
- Ghazali A F and Ismail A F; Daud A (2019) Caries experience among cigarette and E-cigarette users: A 6-month prospective study. *Journal of Pharmaceutical Sciences and Research* 11(7), 2566-2569
- Ghinai I, Pray I W and Navon L ; O'Laughlin K ; Saathoff-Huber L ; Hoots B ; Kimball A ; Tenforde M W; Chevinsky J R; Layer M ; Ezike N ; Meiman J ; Layden J E; (2019) E-cigarette Product Use, or Vaping, Among Persons with Associated Lung Injury - Illinois and Wisconsin, April-September 2019. *MMWR - Morbidity & Mortality Weekly Report* 68(39), 865-869

Ghinai I, Navon L and Gunn J K L; Duca L M; Brister S; Love S; Brink R; Fajardo G; Johnson J; Saathoff-Huber L; King B A; Jones C M; Krishnasamy V P; Layden J E; (2020) Characteristics of Persons Who Report Using Only Nicotine-Containing Products Among Interviewed Patients with E-cigarette, or Vaping, Product Use-Associated Lung Injury - Illinois, August-December 2019. *MMWR - Morbidity & Mortality Weekly Report* 69(3), 84-89

Gholap V V, Kosmider L and Halquist M S; (2018) A Standardized Approach to Quantitative Analysis of Nicotine in e-Liquids Based on Peak Purity Criteria Using High-Performance Liquid Chromatography. *Journal of Analytical Methods in Chemistry* 2018, 1720375

Gholap V V, Heyder R S; Kosmider L and Halquist M S; (2020) An Analytical Perspective on Determination of Free Base Nicotine in E-Liquids. *Journal of Analytical Methods in Chemistry* 2020, 6178570

Ghosh A, Beyazcicek O and Davis E S; Onyenwoke R U; Tarran R; () Cellular effects of nicotine salt-containing e-liquids. *Journal of Applied Toxicology* , 13

Ghosh A, Coakley R C and Mascenik T; Rowell T R; Davis E S; Rogers K; Webster M J; Dang H; Herring L E; Sassano M F; Livraghi-Butrico A; Van Buren S K; Graves L M; Herman M A; Randell S H; Alexis N E; Tarran R; (2018) Chronic E-Cigarette Exposure Alters the Human Bronchial Epithelial Proteome. *American Journal of Respiratory & Critical Care Medicine* 198(1), 67-76

Ghosh A, Coakley R D and Ghio A J; Muhlebach M S; Esther C R; Jr; Alexis N E; Tarran R; (2019) Chronic E-Cigarette Use Increases Neutrophil Elastase and Matrix Metalloprotease Levels in the Lung. *American Journal of Respiratory & Critical Care Medicine* 200(11), 1392-1401

Ghosh B, Reyes-Caballero H and Akgun-Olmez S G; Nishida K; Chandrala L; Smirnova L; Biswal S; Sidhaye V K; (2020) Effect of sub-chronic exposure to cigarette smoke, electronic cigarette and waterpipe on human lung epithelial barrier function. *BMC Pulmonary Medicine* 20(1), 216

Gibson C J. S, Eshraghi N and Kemalyan N A; Mueller C; (2019) Electronic cigarette burns: A case series. *Trauma (United Kingdom)* 21(2), 103-106

Gill N, Sangha G and Poonai N; Lim R; (2015) E-Cigarette Liquid Nicotine Ingestion in a Child: Case Report and Discussion. *CJEM Canadian Journal of Emergency Medical Care* 17(6), 699-703

Gillen S and Saltzman D (2014) Antenatal exposure to e-cigarette vapor as a possible etiology to total colonic necrotizing enterocolitis: A case report. *Journal of Pediatric Surgery Case Reports* 2(12), 536-537

Gillman I G and Kistler K A; Stewart E W; Paolantonio A R; (2016) Effect of variable power levels on the yield of total aerosol mass and formation of aldehydes in e-cigarette aerosols. *Regulatory Toxicology & Pharmacology* 75, 58-65

Gillman I G and Pennington A S. C; Humphries K E; Oldham M J; (2020) Determining the impact of flavored e-liquids on aldehyde production during Vaping. *Regulatory Toxicology & Pharmacology* 112, 104588

Gilpin N W, Whitaker A M; Baynes B and Abdel A Y; Weil M T; George O; (2014) Nicotine vapor inhalation escalates nicotine self-administration. *Addiction Biology* 19(4), 587-92

Gilpin D F, McGown K A; Gallagher K and Bengoechea J; Dumigan A; Einarsson G; Elborn J S; Tunney M M; (2019) Electronic cigarette vapour increases virulence and inflammatory potential of respiratory pathogens. *Respiratory Research* 20(1), 267

Giovanni S P and Keller T L; Bryant A D; Weiss N S; Littman A J; (2020) Electronic Cigarette Use and Chronic Respiratory Symptoms among U.S. Adults. *American Journal of Respiratory & Critical Care Medicine* 201(9), 1157-1160

Girvalaki C, Tzatzarakis M and Kyriakos C N; Vardavas A I; Stivaktakis P D; Kavvalakis M; Tsatsakis A; Vardavas C; (2018) Composition and chemical health hazards of the most common electronic cigarette liquids in nine European countries. *Inhalation Toxicology* 30(9-10), 361-369

Girvalaki C, Tzatzarakis M and Vardavas A; Kyriakos C N; Nikitara K; Stivaktakis P; Tsatsakis A; Vardavas C; (2020) Discrepancies in reported versus measured nicotine content of e-cigarette refill liquids across nine European countries before and after the implementation of the EU Tobacco Products Directive. *European Respiratory Journal* 55(2), 02

Glantz S A and Bareham D W; (2018) E-Cigarettes: Use, Effects on Smoking, Risks, and Policy Implications. *Annual Review of Public Health* 39, 215-235

Glasser A M, Collins L and Pearson J L; Abudayyeh H; Niaura R S; Abrams D B; Villanti A C; (2017) Overview of Electronic Nicotine Delivery Systems: A Systematic Review. *American Journal of Preventive Medicine* 52(2), e33-e66

- Go Y Y, Mun J Y; Chae S W; Chang J and Song J J; (2020) Comparison between in vitro toxicities of tobacco- and menthol-flavored electronic cigarette liquids on human middle ear epithelial cells. *Scientific Reports* 10(1), 2544
- Goel R, Durand E and Trushin N; Prokopczyk B; Foulds J; Elias R J; Richie J P; Jr; (2015) Highly reactive free radicals in electronic cigarette aerosols. *Chemical Research in Toxicology* 28(9), 1675-7
- Golli N E, Jrad-Lamine A and Neffati H; Dkhili H; Rahali D; Dallagi Y; El May M V; El Fazaa S; (2016) Impact of e-cigarette refill liquid exposure on rat kidney. *Regulatory Toxicology & Pharmacology* 77, 109-16
- Golli N E, Dallagi Y and Rahali D; Rejeb I; Fazaa S E; (2016) Neurobehavioral assessment following e-cigarette refill liquid exposure in adult rats. *Toxicology Mechanisms & Methods* 26(6), 435-42
- Golub J S and Samy R N; (2015) Preventing or reducing smoking-related complications in otologic and neurotologic surgery. *Current Opinion in Otolaryngology & Head & Neck Surgery* 23(5), 334-40
- Gomez A C, Rodriguez-Fernandez P and Villar-Hernandez R; Gibert I; Muriel-Moreno B; Lacoma A; Prat-Aymerich C; Dominguez J; (2020) E-cigarettes: Effects in phagocytosis and cytokines response against *Mycobacterium tuberculosis*. *PLoS ONE [Electronic Resource]* 15(2), e0228919
- Goney G, Cok I and Tamer U; Burgaz S; Sengezer T; (2016) Urinary cotinine levels of electronic cigarette (e-cigarette) users. *Toxicology Mechanisms & Methods* 26(6), 414-8
- Goniewicz M L, Kuma T and Gawron M; Knysak J; Kosmider L; (2013) Nicotine levels in electronic cigarettes. *Nicotine & Tobacco Research* 15(1), 158-66
- Goniewicz M L, Knysak J and Gawron M; Kosmider L; Sobczak A; Kurek J; Prokopowicz A; Jablonska-Czapla M; Rosik-Dulewska C; Havel C; Jacob P; 3rd; Benowitz N; (2014) Levels of selected carcinogens and toxicants in vapour from electronic cigarettes. *Tobacco Control* 23(2), 133-9
- Goniewicz M L, Hajek P and McRobbie H; (2014) Nicotine content of electronic cigarettes, its release in vapour and its consistency across batches: regulatory implications. *Addiction* 109(3), 500-7
- Goniewicz M L and Lee L (2015) Electronic cigarettes are a source of thirdhand exposure to nicotine. *Nicotine & Tobacco Research* 17(2), 256-8
- Goniewicz M L, Gawron M and Smith D M; Peng M; Jacob P; 3rd; Benowitz N L; (2017) Exposure to Nicotine and Selected Toxicants in Cigarette Smokers Who Switched to Electronic Cigarettes: A Longitudinal Within-Subjects Observational Study. *Nicotine & Tobacco Research* 19(2), 160-167
- Goniewicz M L, Smith D M; Edwards K C; Blount B C; Caldwell K L; Feng J and Wang L; Christensen C; Ambrose B; Borek N; van Bommel D; Konkel K; Erives G; Stanton C A; Lambert E; Kimmel H L; Hatsukami D; Hecht S S; Niaura R S; Travers M; Lawrence C; Hyland A J; (2018) Comparison of Nicotine and Toxicant Exposure in Users of Electronic Cigarettes and Combustible Cigarettes. *JAMA Network Open* 1(8), e185937
- Goniewicz M L and Smith D M; (2019) Are Some E-Cigarette Users "Blowing Smoke"?: Assessing the Accuracy of Self-Reported Smoking Abstinence in Exclusive E-Cigarette Users. *Nicotine & Tobacco Research* 21(5), 699-700
- Goniewicz M L, Boykan R and Messina C R; Eliscu A; Tolentino J; (2019) High exposure to nicotine among adolescents who use Juul and other vape pod systems ('pods'). *Tobacco Control* 28(6), 676-677
- Goniewicz M L, Miller C R; Sutanto E and Li D; (2020) How effective are electronic cigarettes for reducing respiratory and cardiovascular risk in smokers? A systematic review. *Harm Reduction Journal* 17(1), 91
- Gonsalves C L and Zhu J W; Kam A J; (2020) Diagnosis and Acute Management of E-Cigarette or Vaping Product Use-Associated Lung Injury in the Pediatric Population: A Systematic Review. *Journal of Pediatrics* 19, 19
- Gonzalez J E and Cooke W H; (2020) Acute effects of electronic cigarettes on arterial pressure and peripheral sympathetic activity in young non-smokers. *American Journal of Physiology Heart & Circulatory Physiology* 08, 08
- Gorna I, Napierala M and Florek E; (2020) Electronic Cigarette Use and Metabolic Syndrome Development: A Critical Review. *Toxics* 8(4), 17
- Gotts J E, Jordt S E; McConnell R and Tarran R; (2019) What are the respiratory effects of e-cigarettes?. *BMJ* 366, l5275
- Gotts Jeffrey (2019) What are the respiratory effects of e-cigarettes?. *BMJ* 367, l5980

- Gould G S, Havard A and Lim L L; Kumar R ; Grp Psanz Smoking Pregnancy Expert; (2020) Exposure to Tobacco, Environmental Tobacco Smoke and Nicotine in Pregnancy: A Pragmatic Overview of Reviews of Maternal and Child Outcomes, Effectiveness of Interventions and Barriers and Facilitators to Quitting. *International Journal of Environmental Research and Public Health* 17(6), 34
- Govindarajan P, Spiller H A and Casavant M J; Chounthirath T ; Smith G A; (2018) E-Cigarette and Liquid Nicotine Exposures Among Young Children. *Pediatrics* 141(5), 05
- Grana R, Benowitz N and Glantz S A; (2014) E-cigarettes: a scientific review. *Circulation* 129(19), 1972-86
- Grant J E, Lust K and Fridberg D J; King A C; Chamberlain S R; (2019) E-cigarette use (vaping) is associated with illicit drug use, mental health problems, and impulsivity in university students. *Annals of Clinical Psychiatry* 31(1), 27-35
- Gray N, Halstead M and Gonzalez-Jimenez N ; Valentin-Blasini L ; Watson C ; Pappas R S; (2019) Analysis of Toxic Metals in Liquid from Electronic Cigarettes. *International Journal of Environmental Research & Public Health [Electronic Resource]* 16(22), 13
- Gray N, Halstead M and Valentin-Blasini L ; Watson C ; Pappas R S; (2020) Toxic Metals in Liquid and Aerosol from Pod-Type Electronic Cigarettes. *Journal of Analytical Toxicology* 03, 03
- Green V R and Silveira M L; Kimmel H L; Conway K P; (2018) Body mass index and tobacco-product use among U.S. youth: Findings from wave 1 (2013-2014) of the Population Assessment of Tobacco and Health (PATH) Study. *Addictive Behaviors* 81, 91-95
- Greenberg J M and Carballosa C M; Cheung H S; (2017) Concise Review: The Deleterious Effects of Cigarette Smoking and Nicotine Usage and Mesenchymal Stem Cell Function and Implications for Cell-Based Therapies. *Stem Cells Translational Medicine* 6(9), 1815-1821
- Grzywacz A, Suchanecka A and Chmielowiec J ; Chmielowiec K ; Szumilas K ; Masiak J ; Balwicki L ; Michalowska-Sawczyn M ; Trybek G ; (2020) Personality Traits or Genetic Determinants-Which Strongly Influences E-Cigarette Users?. *International Journal of Environmental Research & Public Health [Electronic Resource]* 17(1), 05
- Gualano M R, Passi S and Bert F ; La Torre G ; Scaiola G ; Siliquini R ; (2015) Electronic cigarettes: assessing the efficacy and the adverse effects through a systematic review of published studies. *Journal of Public Health* 37(3), 488-97
- Guerrero-Cignarella A, Luna Diaz and L V ; Balestrini K ; Holt G ; Mirsaeidi M ; Calderon-Candelario R ; Whitney P ; Salathe M ; Campos M A; (2018) Differences in vaping topography in relation to adherence to exclusive electronic cigarette use in veterans. *PLoS ONE [Electronic Resource]* 13(4), e0195896
- Gulsen A and Uslu B (2020) Health Hazards and Complications Associated with Electronic Cigarettes: A Review. *Turkish Thoracic Journal* 21(3), 201-208
- Gupta S, Gandhi A and Manikonda R ; (2014) Accidental nicotine liquid ingestion: emerging paediatric problem. *Archives of Disease in Childhood* 99(12), 1149
- Guy M C, Pokhrel P and Herzog T A; Cassel K D; Sakuma K L. K; Trinidad D R; Palafox S ; Halquist M S; Eissenberg T ; Bodnar-Deren S ; Fagan P ; (2019) How Much Nicotine is in Your Electronic Cigarette Flavored Liquid?. *Tobacco Regulatory Science* 5(1), 15-26
- Ha T N, Madison M C; Kheradmand F and Altman K W; (2019) Laryngeal inflammatory response to smoke and vape in a murine model. *American Journal of Otolaryngology* 40(1), 89-92
- Haddad C, Salman R and El-Hellani A ; Talih S ; Shihadeh A ; Saliba N A; (2019) Reactive Oxygen Species Emissions from Supra- and Sub-Ohm Electronic Cigarettes. *Journal of Analytical Toxicology* 43(1), 45-50
- Hadwiger M E, Trehly M L; Ye W and Moore T ; Allgire J ; Westenberger B ; (2010) Identification of amino-tadalafil and rimonabant in electronic cigarette products using high pressure liquid chromatography with diode array and tandem mass spectrometric detection. *Journal of Chromatography. A* 1217(48), 7547-55
- Hagarty S and Luo J (2020) E-cigarette "Vape" Device Explosion Causing C Spine Fracture. *Plastic and Reconstructive Surgery - Global Open* 8(4), e2745
- Hage A N, Krause W and Mathues A ; Krasner L ; Kasten S ; Eliason J L; Ghosh A ; (2017) Comparing the Effects of Electronic Cigarette Vapor and Cigarette Smoke in a Novel In Vivo Exposure System. *Journal of Visualized Experiments* 123(05), 24
- Hage R, Fretz V and Schuurmans M M; (2020) Electronic cigarettes and vaping associated pulmonary illness (VAPI): A narrative review. *Pulmonology* 26(5), 291-303

- Haghnegahdar A, Feng Y and Chen X ; Lin J ; (2018) Computational Analysis of Deposition and Translocation of Inhaled Nicotine and Acrolein in the Human Body with E-cigarette Puffing Topographies. *Aerosol Science & Technology* 52(5), 483-493
- Hahn J, Monakhova Y B and Hengen J ; Kohl-Himmelseher M ; Schussler J ; Hahn H ; Kuballa T ; Lachenmeier D W; (2014) Electronic cigarettes: overview of chemical composition and exposure estimation. *Tobacco Induced Diseases* 12(1), 23
- Hajek P, Etter J F and Benowitz N ; Eissenberg T ; McRobbie H ; (2014) Electronic cigarettes: review of use, content, safety, effects on smokers and potential for harm and benefit. *Addiction* 109(11), 1801-10
- Hajek P, Goniewicz M L and Phillips A ; Myers Smith ; K ; West O ; McRobbie H ; (2015) Nicotine intake from electronic cigarettes on initial use and after 4 weeks of regular use. *Nicotine & Tobacco Research* 17(2), 175-9
- Hajek P, Przulj D and Phillips A ; Anderson R ; McRobbie H ; (2017) Nicotine delivery to users from cigarettes and from different types of e-cigarettes. *Psychopharmacology* 234(5), 773-779
- Hallowell R W, Feldman M B; Little B P; Karp Leaf and R S ; Hariri L P; (2019) Case 38-2019: A 20-Year-Old Man with Dyspnea and Abnormalities on Chest Imaging. *New England Journal of Medicine* 381(24), 2353-2363
- Halstead M, Gray N and Gonzalez-Jimenez N ; Fresquez M ; Valentin-Blasini L ; Watson C ; Pappas R S; (2020) Analysis of Toxic Metals in Electronic Cigarette Aerosols Using a Novel Trap Design. *Journal of Analytical Toxicology* 44(2), 149-155
- Han S, Chen H and Zhang X ; Liu T ; Fu Y ; (2016) Levels of Selected Groups of Compounds in Refill Solutions for Electronic Cigarettes. *Nicotine & Tobacco Research* 18(5), 708-14
- Han C H and Chung J H; (2020) Factors associated with electronic cigarette use among adolescents asthma in the Republic Of Korea. *Journal of Asthma* , 1-9
- Haptonstall K P, Choroomi Y and Moheimani R ; Nguyen K ; Tran E ; Lakhani K ; Ruedisueli I ; Gornbein J ; Middlekauff H R; (2020) Differential effects of tobacco cigarettes and electronic cigarettes on endothelial function in healthy young people. *American Journal of Physiology - Heart & Circulatory Physiology* 319(3), H547-H556
- Haran J B, Cavallaro J A; Donaldson C and Petteys S M; (2020) Young Man With Dyspnea and Hemoptysis. *Annals of Emergency Medicine* 75(5), 669-679
- Harlow A F and Hatch E E; Wesselink A K; Rothman K J; Wise L A; (2020) E-cigarettes and Fecundability: Results from a Prospective Preconception Cohort Study. *Am J Epidemiol.* 2021 Feb 1;190(3):353-361. doi: 10.1093/aje/kwaa067.
- Harrell P T and Simmons V N; Correa J B; Padhya T A; Brandon T H; (2014) Electronic nicotine delivery systems ("e-cigarettes"): review of safety and smoking cessation efficacy. *Otolaryngology - Head & Neck Surgery* 151(3), 381-93
- Harrill W C (2020) Vaping during the COVID-19 pandemic: NOT GOOD!! *Laryngoscope Investigative Otolaryngology* 5(3), 399-400
- Harris A C, Muelken P and Smethells J R; Krueger M ; LeSage M G; (2017) Similar precipitated withdrawal effects on intracranial self-stimulation during chronic infusion of an e-cigarette liquid or nicotine alone. *Pharmacology and Biochemistry & Behavior* 161, 1-5
- Harris A C, Muelken P and Smethells J R; Yershova K ; Stepanov I ; Olson T T; Kellar K J; LeSage M G; (2018) Effects of nicotine-containing and "nicotine-free" e-cigarette refill liquids on intracranial self-stimulation in rats. *Drug & Alcohol Dependence* 185, 1-9
- Harris A C, Muelken P and Haave Z ; Swain Y ; Smethells J R; LeSage M G; (2018) Propylene glycol, a major electronic cigarette constituent, attenuates the adverse effects of high-dose nicotine as measured by intracranial self-stimulation in rats. *Drug & Alcohol Dependence* 193, 162-168
- Harris A C, Muelken P and Swain Y ; Palumbo M ; Jain V ; Goniewicz M L; Stepanov I ; LeSage M G; (2019) Non-nicotine constituents in e-cigarette aerosol extract attenuate nicotine's aversive effects in adolescent rats. *Drug & Alcohol Dependence* 203, 51-60
- Harris D E and Foley E M; (2020) Anesthesia Implications of Patient Use of Electronic Cigarettes. *AANA Journal* 88(2), 135-140
- Harris A C, Smethells J R; Palumbo M and Goniewicz M ; LeSage M G; (2020) Comparison of the Relative Abuse Liability of Electronic Cigarette Aerosol Extracts and Nicotine Alone in Adolescent Rats: A Behavioral Economic Analysis. *International Journal of Environmental Research & Public Health [Electronic Resource]* 17(3), 30

- Harrison R, Hicklin D and Jr ; (2016) Electronic cigarette explosions involving the oral cavity. *Journal of the American Dental Association* 147(11), 891-896
- Harshman J, Vojvodic M and Rogers A D; (2018) Burns associated with e-cigarette batteries: A case series and literature review. *CJEM Canadian Journal of Emergency Medical Care* 20(S2), S20-S28
- Hartmann-Boyce J, McRobbie H and Lindson N ; Bullen C ; Begh R ; Theodoulou A ; Notley C ; Rigotti N A; Turner T ; Butler A R; et al ; (2020) Electronic cigarettes for smoking cessation. *Cochrane Database of Systematic Reviews* (10),
- Hartnett K P, Kite-Powell A and Patel M T; Haag B L; Sheppard M J; Dias T P; King B A; Melstrom P C; Ritchey M D; Stein Z ; Idaikkadar N ; Vivolo-Kantor A M; Rose D A; Briss P A; Layden J E; Rodgers L ; Adjemian J ; (2020) Syndromic Surveillance for E-Cigarette, or Vaping, Product Use-Associated Lung Injury. *New England Journal of Medicine* 382(8), 766-772
- Harvanko A M and McCubbin A K; Ashford K B; Kelly T H; (2018) Electronic cigarette liquid and device parameters and aerosol characteristics: A survey of regular users. *Addictive Behaviors* 84, 201-206
- Harvanko A, Kryscio R and Martin C ; Kelly T ; (2019) Stimulus effects of propylene glycol and vegetable glycerin in electronic cigarette liquids. *Drug & Alcohol Dependence* 194, 326-329
- Harvanko A M, St Helen G and Nardone N ; Addo N ; Benowitz N L; (2020) Twenty-four-hour subjective and pharmacological effects of ad-libitum electronic and combustible cigarette use among dual users. *Addiction* 115(6), 1149-1159
- Harvanko A M, Havel C M; Jacob P and Benowitz N L; (2020) Characterization of Nicotine Salts in 23 Electronic Cigarette Refill Liquids. *Nicotine & Tobacco Research* 22(7), 1239-1243
- Hasan K M, Friedman T C; Shao X and Parveen M ; Sims C ; Lee D L; Espinoza-Derout J ; Sinha-Hikim I ; Sinha-Hikim A P; (2019) E-cigarettes and Western Diet: Important Metabolic Risk Factors for Hepatic Diseases. *Hepatology* 69(6), 2442-2454
- Hasan K M, Munoz A and Tumoyan H ; Parveen M ; Espinoza-Derout J ; Shao X M; Mahata S K; Friedman T C; Sinha-Hikim A P; (2020) Adverse effects of fetal exposure of electronic-cigarettes and high-fat diet on male neonatal hearts. *Experimental & Molecular Pathology* 118, 104573
- Hasan K M, Friedman T C; Parveen M and Espinoza-Derout J ; Bautista F ; Razipour M M; Shao X M; Jordan M C; Roos K P; Mahata S K; Sinha-Hikim A P; (2020) Electronic cigarettes cause alteration in cardiac structure and function in diet-induced obese mice. *PLoS ONE [Electronic Resource]* 15(10), e0239671
- Hasan F, Khachatryan L and Lomnicki S ; (2020) Comparative Studies of Environmentally Persistent Free Radicals on Total Particulate Matter Collected from Electronic and Tobacco Cigarettes. *Environmental Science & Technology* 54(9), 5710-5718
- Hassan S, Anwar M U and Muthayya P ; Jivan S ; (2016) Burn injuries from exploding electronic cigarette batteries: An emerging public health hazard. *Journal of Plastic and Reconstructive & Aesthetic Surgery: JPRAS* 69(12), 1716-1718
- Havel C M, Benowitz N L; Jacob P and 3rd ; St Helen G ; (2017) An Electronic Cigarette Vaping Machine for the Characterization of Aerosol Delivery and Composition. *Nicotine & Tobacco Research* 19(10), 1224-1231
- Havermans A, Krusemann E J. Z and Pennings J ; de Graaf K ; Boesveldt S ; Talhout R ; (2019) Nearly 20 000 e-liquids and 250 unique flavour descriptions: an overview of the Dutch market based on information from manufacturers. *Tobacco Control* 04, 04
- Hayanga J W. A, Hayanga H K; Dhamija A and Fugett J ; Cook C ; Powell D ; McCarthy P ; Olfert M ; Badhwar V ; Toker A ; (2020) Extracorporeal support to treat E-cigarette or vaping product use-associated lung injury (EVALI) during the coronavirus disease 2019 (COVID-19) pandemic. *JTCVS Technique* 3, 381-384
- Hecht S S, Carmella S G; Kotandeniya D and Pillsbury M E; Chen M ; Ransom B W; Vogel R I; Thompson E ; Murphy S E; Hatsukami D K; (2015) Evaluation of toxicant and carcinogen metabolites in the urine of e-cigarette users versus cigarette smokers. *Nicotine & Tobacco Research* 17(6), 704-9
- Hedman L, Backman H and Stridsman C ; Bosson J A; Lundback M ; Lindberg A ; Ronmark E ; Ekerljung L ; (2018) Association of Electronic Cigarette Use With Smoking Habits, Demographic Factors, and Respiratory Symptoms. *JAMA Network Open* 1(3), e180789
- Hefner K, Valentine G and Sofuoglu M ; (2017) Electronic cigarettes and mental illness: Reviewing the evidence for help and harm among those with psychiatric and substance use disorders. *American Journal on Addictions* 26(4), 306-315

Heinzerling A, Armatas C and Karmarkar E ; Attfield K ; Guo W H; Wang Y ; Vrdoljak G ; Moezzi B ; Xu D D; Wagner J ; Fowles J ; Dean C ; Cummings K J; Wilken J A; (2020) Severe Lung Injury Associated With Use of e-Cigarette, or Vaping, Products-California, 2019. *Jama Internal Medicine* 180(6), 861-869

Heldt N A, Seliga A and Winfield M ; Gajghate S ; Reichenbach N ; Yu X ; Rom S ; Tenneti A ; May D ; Gregory B D; Persidsky Y ; (2020) Electronic cigarette exposure disrupts blood-brain barrier integrity and promotes neuroinflammation. *Brain, Behavior and Immunity* 88, 363-380

Heldt N A, Reichenbach N and McGary H M; Persidsky Y ; (2020) Effects of Electronic Nicotine Delivery Systems and Cigarettes on Systemic Circulation and Blood-Brain Barrier: Implications for Cognitive Decline. *American Journal of Pathology* 04, 04

Hellinghausen G, Lee J T and Weatherly C A; Lopez D A; Armstrong D W; (2017) Evaluation of nicotine in tobacco-free-nicotine commercial products. *Drug Testing & Analysis* 9(6), 944-948

Hensel E C, Jayasekera S and Robinson R J; (2018) Accounting for effects of system dynamics to improve accuracy of emissions reported in e-cig vaping machines. *Inhalation Toxicology* 30(9-10), 343-353

Hensel E C, Eddingsaas N C; DiFrancesco A G; Jayasekera S and O'Dea S ; Robinson R J; (2019) Framework to Estimate Total Particulate Mass and Nicotine Delivered to E-cig Users from Natural Environment Monitoring Data. *Scientific Reports* 9(1), 8752

Herlin C, Bekara F and Bertheuil N ; Frobert P ; Carloni R ; Chaput B ; (2016) Deep burns caused by electronic vaping devices explosion. *Burns* 42(8), 1875-1877

Hernigou J and Schuind F (2019) Tobacco and bone fractures: A review of the facts and issues that every orthopaedic surgeon should know. *Bone & Joint Research* 8(6), 255-265

Herr C, Tsitouras K and Niederstraser J ; Backes C ; Beisswenger C ; Dong L ; Guillot L ; Keller A ; Bals R ; (2020) Cigarette smoke and electronic cigarettes differentially activate bronchial epithelial cells. *Respiratory Research* 21(1), 67

Herrington J S and Myers C (2015) Electronic cigarette solutions and resultant aerosol profiles. *Journal of Chromatography. A* 1418, 192-199

Hess I M, Lachireddy K and Capon A ; (2016) A systematic review of the health risks from passive exposure to electronic cigarette vapour. *Public Health Research & Practice* 26(2), 15

Hess C A, Olmedo P and Navas-Acien A ; Goessler W ; Cohen J E; Rule A M; (2017) E-cigarettes as a source of toxic and potentially carcinogenic metals. *Environmental Research* 152, 221-225

Heydari G, Ahmady A E and Chamyani F ; Masjedi M ; Fadaizadeh L ; (2017) Electronic cigarette, effective or harmful for quitting smoking and respiratory health: A quantitative review papers. *Lung India* 34(1), 25-28

Heyes G, Weigelt L and Molloy A ; Mason L ; (2020) The influence of smoking on foot and ankle surgery: a review of the literature. *Foot*, 101735

Hickey S, Goverman J and Friedstat J ; Sheridan R ; Schulz J ; (2018) Thermal injuries from exploding electronic cigarettes. *Burns* 44(5), 1294-1301

Hickman E, Herrera C A and Jaspers I ; (2019) Common E-Cigarette Flavoring Chemicals Impair Neutrophil Phagocytosis and Oxidative Burst. *Chemical Research in Toxicology* 32(6), 982-985

Hiemstra P S and Bals R (2016) Basic science of electronic cigarettes: assessment in cell culture and in vivo models. *Respiratory Research* 17(1), 127

Higham A, Rattray N J and Dewhurst J A; Trivedi D K; Fowler S J; Goodacre R ; Singh D ; (2016) Electronic cigarette exposure triggers neutrophil inflammatory responses. *Respiratory Research* 17(1), 56

Higham A, Bostock D and Booth G ; Dungwa J V; Singh D ; (2018) The effect of electronic cigarette and tobacco smoke exposure on COPD bronchial epithelial cell inflammatory responses. *International Journal of Copd* 13, 989-1000

Hiler M, Breland A and Spindle T ; Maloney S ; Lipato T ; Karaoghlanian N ; Shihadeh A ; Lopez A ; Ramoa C ; Eissenberg T ; (2017) Electronic cigarette user plasma nicotine concentration, puff topography, heart rate, and subjective effects: Influence of liquid nicotine concentration and user experience. *Experimental & Clinical Psychopharmacology* 25(5), 380-392

- Hiler M, Karaoghlanian N and Talih S ; Maloney S ; Breland A ; Shihadeh A ; Eissenberg T ; (2020) Effects of electronic cigarette heating coil resistance and liquid nicotine concentration on user nicotine delivery, heart rate, subjective effects, puff topography, and liquid consumption. *Experimental & Clinical Psychopharmacology* 28(5), 527-539
- Hiler M, Breland A and Wolf C E; Poklis J L; Nanco C R; Eissenberg T ; (2020) Are Urine Propylene Glycol or Vegetable Glycerin Markers of E-cigarette Use or Abstinence?. *Tobacco Regulatory Science* 6(4), 235-241
- Hilpert M, Ilievski V and Coady M ; Andrade-Gutierrez M ; Yan B ; Chillrud S N; Navas-Acien A ; Kleiman N J; (2019) A custom-built low-cost chamber for exposing rodents to e-cigarette aerosol: practical considerations. *Inhalation Toxicology* 31(11-12), 399-408
- Hilpert M, Ilievski V and Hsu S Y; Rule A M; Olmedo P ; Drazer G ; (2020) E-cigarette aerosol collection using converging and straight tubing Sections: Physical mechanisms. *Journal of Colloid & Interface Science* 584, 804-815
- Hilton R, Summer R and Roman J ; Sundaram B ; George G ; (2020) E-cigarettes and Vaping Associated Lung Injury: A Case Series and Brief Review. *American Journal of the Medical Sciences* 359(3), 137-139
- Ho W, Jones C D and Widdowson D ; Bahia H ; (2019) Bromelain-based enzymatic debridement of e-cigarette burns: a single unit experience. *Journal of Wound Care* 28(11), 758-761
- Hobkirk A L, Nichols T T; Foulds J and Yingst J M; Veldheer S ; Hrabovsky S ; Richie J ; Eissenberg T ; Wilson S J; (2018) Changes in resting state functional brain connectivity and withdrawal symptoms are associated with acute electronic cigarette use. *Brain Research Bulletin* 138, 56-63
- Holbrook L T, Zeman K L; Burke A and Jaspers I ; Bennett W D; (2019) Radiolabeling an Electronic Cigarette Aerosol Using Technetium Carbon Ultrafine Particles. *Journal of aerosol medicine & pulmonary drug delivery* 32(1), 47-53
- Holden L L, Truong L and Simonich M T; Tanguay R L; (2020) Assessing the hazard of E-Cigarette flavor mixtures using zebrafish. *Food & Chemical Toxicology* 136, 110945
- Holland T E and de la Feld S (2019) E-cigarette Dermatitis. *Dermatitis* 30(4), 272
- Holliday R S, Campbell J and Preshaw P M; (2019) Effect of nicotine on human gingival, periodontal ligament and oral epithelial cells. A systematic review of the literature. *Journal of Dentistry* 86, 81-88
- Holmboe S A, Priskorn L and Jensen T K; Skakkebaek N E; Andersson A M; Jorgensen N ; (2020) Use of e-cigarettes associated with lower sperm counts in a cross-sectional study of young men from the general population. *Human Reproduction* 35(7), 1693-1701
- Hom S, Chen L and Wang T ; Ghebrehiwet B ; Yin W ; Rubenstein D A; (2016) Platelet activation, adhesion, inflammation, and aggregation potential are altered in the presence of electronic cigarette extracts of variable nicotine concentrations. *Platelets* 27(7), 694-702
- Honeycutt S C and Garrett P I; Barraza A G; Maloy A N; Hillhouse T M; (2020) Repeated nicotine vapor inhalation induces behavioral sensitization in male and female C57BL/6 mice. *Behavioural Pharmacology* 31(6), 583-590
- Howard C (2016) A New Source for Nicotine Exposures in Pediatric Patients: Electronic Cigarettes. *Journal of Emergency Nursing* 42(5), 451-3
- Hua M, Alfi M and Talbot P ; (2013) Health-related effects reported by electronic cigarette users in online forums. *Journal of Medical Internet Research* 15(4), e59
- Hua M and Talbot P (2016) Potential health effects of electronic cigarettes: A systematic review of case reports. *Preventive Medicine Reports* 4, 169-78
- Hua M, Omaiye E E and Luo W ; McWhirter K J; Pankow J F; Talbot P ; (2019) Identification of Cytotoxic Flavor Chemicals in Top-Selling Electronic Cigarette Refill Fluids. *Scientific Reports* 9(1), 2782
- Hua M, Sadah S and Hristidis V ; Talbot P ; (2020) Health Effects Associated With Electronic Cigarette Use: Automated Mining of Online Forums. *Journal of Medical Internet Research* 22(1), e15684
- Huang Y J, Deng Q X; Lan H Q; Fang Z Z; Chen H and Lin Y ; Xu H C; James T D; Xie W ; (2020) Colorimetric assay for the rapid determination of free-base nicotine in e-liquid. *Analytical Methods* 12(2), 193-199
- Hughes A and Hendrickson R G (2019) An epidemiologic and clinical description of e-cigarette toxicity. *Clinical Toxicology: The Official Journal of the American Academy of Clinical Toxicology & European Association of Poisons Centres & Clinical Toxicologists* 57(4), 287-293

- Huilgol P, Bhatt S P and Biligowda N ; Wright N C; Wells J M; (2019) Association of e-cigarette use with oral health: a population-based cross-sectional questionnaire study. *Journal of Public Health* 41(2), 354-361
- Hung P H, Savidge M and De M ; Kang J C; Healy S M; Valerio L G; Jr ; (2020) In vitro and in silico genetic toxicity screening of flavor compounds and other ingredients in tobacco products with emphasis on ENDS. *Journal of Applied Toxicology* 40(11), 1566-1587
- Hureaux J, Drouet M and Urban T ; (2014) A case report of subacute bronchial toxicity induced by an electronic cigarette. *Thorax* 69(6), 596-7
- Husari A, Shihadeh A and Talih S ; Hashem Y ; El Sabban M ; Zaatari G ; (2016) Acute Exposure to Electronic and Combustible Cigarette Aerosols: Effects in an Animal Model and in Human Alveolar Cells. *Nicotine & Tobacco Research* 18(5), 613-9
- Hutzler C, Paschke M and Kruschinski S ; Henkler F ; Hahn J ; Luch A ; (2014) Chemical hazards present in liquids and vapors of electronic cigarettes. *Archives of Toxicology* 88(7), 1295-308
- Huynh D, Huang J and Le L T. T; Liu D ; Liu C ; Pham K ; Wang H ; (2020) Electronic cigarettes promotes the lung colonization of human breast cancer in NOD-SCID-Gamma mice. *International Journal of Clinical & Experimental Pathology* 13(8), 2075-2081
- Hwang J H, Lyes M and Sladewski K ; Enany S ; McEachern E ; Mathew D P ; Das S ; Moshensky A ; Bapat S ; Pride D T ; Ongkeko W M ; Crotty Alexander ; L E ; (2016) Electronic cigarette inhalation alters innate immunity and airway cytokines while increasing the virulence of colonizing bacteria. *Journal of Molecular Medicine* 94(6), 667-79
- Ibraheem W I and Fageeh H I ; Preethanath R S ; Alzahrani F A ; Al-Zawawi A S ; Divakar D D ; Al-Kheraif A A ; (2020) Comparison of RANKL and osteoprotegerin levels in the gingival crevicular fluid of young cigarette- and waterpipe-smokers and individuals using electronic nicotine delivery systems. *Archives of Oral Biology* 115, 104714
- Ikonomidis I, Vlastos D and Kourea K ; Kostelli G ; Varoudi M ; Pavlidis G ; Efentakis P ; Triantafyllidi H ; Parissis J ; Andreadou I ; Iliodromitis E ; Lekakis J ; (2018) Electronic Cigarette Smoking Increases Arterial Stiffness and Oxidative Stress to a Lesser Extent Than a Single Conventional Cigarette: An Acute and Chronic Study. *Circulation* 137(3), 303-306
- Ikonomidis I, Katogiannis K and Kostelli G ; Kourea K ; Kyriakou E ; Kypraiou A ; Tsoumani M ; Andreadou I ; Lambadiari V ; Plotas P ; Thymis I ; Tsantes A E ; (2020) Effects of electronic cigarette on platelet and vascular function after four months of use. *Food & Chemical Toxicology* 141, 111389
- Ilyas S, Murdela F and Hutahaean S ; Situmorang P C ; (2019) The Effect of Haramounting Leaf Ethanol Extract (*Rhodomomyrtus tomentosa* (Aiton) Hassk.) on the Number of Leukocyte Type and Histology of Mice Pulmo (*Mus Musculus L.*) Exposed to Electronic Cigarette. *Open Access Macedonian Journal of Medical Sciences* 7(11), 1750-1756
- Ip M, Diamantakos E and Haptonstall K ; Choroomi Y ; Moheimani R S ; Nguyen K H ; Tran E ; Gornbein J ; Middlekauff H R ; (2020) Tobacco and electronic cigarettes adversely impact ECG indexes of ventricular repolarization: implication for sudden death risk. *American Journal of Physiology - Heart & Circulatory Physiology* 318(5), H1176-H1184
- Isakov K M. M, Legasto A C ; Hossain R and Verzosa Weisman ; S ; Toy D ; Groner L K ; Feibusch A ; Escalon J G ; (2020) A Case-Based Review of Vaping-Induced Injury-Pulmonary Toxicity and Beyond. *Current Problems in Diagnostic Radiology* 26, 26
- Isik Andrikopoulos, G and Farsalinos K ; Poulas K ; (2019) Electronic Nicotine Delivery Systems (ENDS) and Their Relevance in Oral Health. *Toxics* 7(4), 06
- Ismail A F and Ghazali A F ; (2018) Electronic cigarettes and oral health: A narrative review. *International Journal of Pharmaceutical Research* 10(2), 84-86
- Ismail A F and Ghazali A F ; Daud A (2019) Effect of electronic cigarette usage on oral health: A 6-month prospective study. *Indian Journal of Public Health Research and Development* 10(6), 1455-1460
- Isrctn (2018) Acute effects of electronic cigarette on lung function and airway inflammation in patients with asthma. <http://www.who.int/trialsearch/Trial2.aspx?TrialID=ISRCTN89151172> ,
- Itoh N and Bell S E (2017) High dilution surface-enhanced Raman spectroscopy for rapid determination of nicotine in e-liquids for electronic cigarettes. *Analyst* 142(6), 994-998
- Itoh M, Aoshiba K and Herai Y ; Nakamura H ; Takemura T ; (2018) Lung injury associated with electronic cigarettes inhalation diagnosed by transbronchial lung biopsy. *Respirology Case Reports* 6(1), e00282

- Jabba S V and Jordt S E; (2019) Risk Analysis for the Carcinogen Pulegone in Mint- and Menthol-Flavored e-Cigarettes and Smokeless Tobacco Products. *JAMA Internal Medicine* 16, 16
- Jabba S V and Diaz A N; Erythropel H C; Zimmerman J B; Jordt S E; (2020) Chemical Adducts of Reactive Flavor Aldehydes Formed in E-Cigarette Liquids Are Cytotoxic and Inhibit Mitochondrial Function in Respiratory Epithelial Cells. *Nicotine & Tobacco Research* 22(Supplement_1), S25-S34
- Jackson R, Huskey M and Brown S; (2020) Labelling accuracy in low nicotine e-cigarette liquids from a sampling of US manufacturers. *International Journal of Pharmacy Practice* 28(3), 290-294
- Jackson M, Singh K P and Lamb T; McIntosh S; Rahman I; (2020) Flavor Preference and Systemic Immunoglobulin Responses in E-Cigarette Users and Waterpipe and Tobacco Smokers: A Pilot Study. *International Journal of Environmental Research & Public Health* [Electronic Resource] 17(2), 19
- Jackson A, Grobman B and Krishnan-Sarin S; (2020) Recent findings in the pharmacology of inhaled nicotine: Preclinical and clinical in vivo studies. *Neuropharmacology* 176, 108218
- Jackson A, Green B and Erythropel H C; Kong G; Cavallo D A; Eid T; Gueorguieva R; Buta E; O'Malley S S; Krishnan-Sarin S; (2020) Influence of menthol and green apple e-liquids containing different nicotine concentrations among youth e-cigarette users. *Experimental & Clinical Psychopharmacology* 16, 16
- Jacob P, St Helen G and Yu L; Nardone N; Havel C; Cheung P; Benowitz N L; (2020) Biomarkers of Exposure for Dual Use of Electronic Cigarettes and Combustible Cigarettes: Nicotelline, NNAL, and Total Nicotine Equivalents. *Nicotine & Tobacco Research* 22(7), 1107-1113
- Jain R B (2018) Concentrations of selected metals in blood, serum, and urine among US adult exclusive users of cigarettes, cigars, and electronic cigarettes. *Toxicological and Environmental Chemistry* 100(1), 134-142
- Jain R B (2019) Concentrations of cadmium, lead, and mercury in blood among US cigarettes, cigars, electronic cigarettes, and dual cigarette-e-cigarette users. *Environmental Pollution* 251, 970-974
- Jain R B (2020) Re-visiting serum cotinine concentrations among various types of smokers including cigarette only smokers: some new, previously unreported results. *Environmental Science & Pollution Research* 09, 09
- Jakschitz T, Fischnaller M and Noel J C; Gstir R; Rainer D; Rutzinger P; Bonn G; Rode B M; (2020) Electronic cigarettes - an important progress or just another risk for health?. *Pure and Applied Chemistry* 92(3), 485-491
- Jamison A and Lockington D (2016) Ocular Chemical Injury Secondary to Electronic Cigarette Liquid Misuse. *JAMA Ophthalmology* 134(12), 1443
- Jamshed L, Perono G A and Jamshed S; Holloway A C; (2020) Early Life Exposure to Nicotine: Postnatal Metabolic, Neurobehavioral and Respiratory Outcomes and the Development of Childhood Cancers. *Toxicological Sciences* 178(1), 3-15
- Jankharia B, Rajan S and Angirish B; (2020) Vaping associated lung injury (EVALI) as an organizing pneumonia pattern- A case report. *Lung India* 37(6), 533-535
- Jankowski M, Brozek G and Lawson J; Skoczynski S; Zejda J E; (2017) E-smoking: Emerging public health problem?. *International Journal of Occupational Medicine & Environmental Health* 30(3), 329-344
- Jatlow P, Valentine G and Gueorguieva R; Nadim H; Wu R; O'Malley S S; Sofuoglu M; (2018) Plasma Menthol Glucuronide as a Biomarker of Acute Menthol Inhalation. *Tobacco Regulatory Science* 4(1), 586-591
- Javed F, Kellesarian S V and Sundar I K; Romanos G E; Rahman I; (2017) Recent updates on electronic cigarette aerosol and inhaled nicotine effects on periodontal and pulmonary tissues. *Oral Diseases* 23(8), 1052-1057
- Javed F, Abduljabbar T and Vohra F; Malmstrom H; Rahman I; Romanos G E; (2017) Comparison of Periodontal Parameters and Self-Perceived Oral Symptoms Among Cigarette Smokers, Individuals Vaping Electronic Cigarettes, and Never-Smokers. *Journal of Periodontology* 88(10), 1059-1065
- Jensen R P, Luo W and Pankow J F; Strongin R M; Peyton D H; (2015) Hidden formaldehyde in e-cigarette aerosols. *New England Journal of Medicine* 372(4), 392-4
- Jensen R P and Strongin R M; Peyton D H; (2017) Solvent Chemistry in the Electronic Cigarette Reaction Vessel. *Scientific Reports* 7, 42549
- Jeong W, Choi D W and Kim Y K; Lee H J; Lee S A; Park E C; Jang S I; (2020) Associations of electronic and conventional cigarette use with periodontal disease in South Korean adults. *Journal of Periodontology* 91(1), 55-64

- Ji E H, Sun B and Zhao T ; Shu S ; Chang C H; Messadi D ; Xia T ; Zhu Y ; Hu S ; (2016) Characterization of Electronic Cigarette Aerosol and Its Induction of Oxidative Stress Response in Oral Keratinocytes. *PLoS ONE [Electronic Resource]* 11(5), e0154447
- Ji E H, Elzakra N and Chen W ; Cui L ; Lee E S; Sun B B; Messadi D ; Xia T ; Zhu Y F; Hu S ; (2019) E-cigarette aerosols induce unfolded protein response in normal human oral keratinocytes. *Journal of Cancer* 10(27), 6915-6924
- Jiang H, Ahmed C M. S and Martin T J; Canchola A ; Oswald I W. H; Garcia J A; Chen J Y; Koby K A; Buchanan A J; Zhao Z ; Zhang H ; Chen K ; Lin Y H; (2020) Chemical and Toxicological Characterization of Vaping Emission Products from Commonly Used Vape Juice Diluents. *Chemical Research in Toxicology* 33(8), 2157-2163
- Jiwani A Z and Williams J F; Rizzo J A; Chung K K; King B T; Cancio L C; (2017) Thermal injury patterns associated with electronic cigarettes. *International Journal of Burns & Trauma* 7(1), 1-5
- Jo S H and Kim K H; (2016) Development of a sampling method for carbonyl compounds released due to the use of electronic cigarettes and quantitation of their conversion from liquid to aerosol. *Journal of Chromatography. A* 1429, 369-73
- Johnson M and Pennington N (2015) Adolescent Use of Electronic Cigarettes: An Emergent Health Concern for Pediatric Nurses. *Journal of Pediatric Nursing* 30(4), 611-5
- Johnson J M, Naeher L P; Yu X and Rathbun S L; Muilenburg J L; Wang J S; (2018) Air monitoring at large public electronic cigarette events. *International Journal of Hygiene & Environmental Health* 221(3), 541-547
- Johnson J M, Naeher L P; Yu X and Sosnoff C ; Wang L ; Rathbun S L; De Jesus V R; Xia B ; Holder C ; Muilenburg J L; Wang J S; (2019) A biomonitoring assessment of secondhand exposures to electronic cigarette emissions. *International Journal of Hygiene & Environmental Health* 222(5), 816-823
- Jonas A M and Raj R (2020) Vaping-Related Acute Parenchymal Lung Injury: A Systematic Review. *Chest* 158(4), 1555-1565
- Jones C D, Ho W and Gunn E ; Widdowson D ; Bahia H ; (2019) E-cigarette burn injuries: Comprehensive review and management guidelines proposal. *Burns* 45(4), 763-771
- Jorenby D E and Smith S S; Fiore M C; Baker T B; (2017) Nicotine levels, withdrawal symptoms, and smoking reduction success in real world use: A comparison of cigarette smokers and dual users of both cigarettes and E-cigarettes. *Drug & Alcohol Dependence* 170, 93-101
- Jude J, Hiller H and Miller J ; (2020) Melon with a Twist: A Case of Nicotine Overdose After Ingestion and Aspiration of Vape Liquid. *Military Medicine* 10, 10
- Kadimisetty K, Malla S and Rusling J F; (2017) Automated 3-D Printed Arrays to Evaluate Genotoxic Chemistry: E-Cigarettes and Water Samples. *ACS Sensors* 2(5), 670-678
- Kaisar M A, Villalba H and Prasad S ; Liles T ; Sifat A E; Sajja R K; Abbruscato T J; Cucullo L ; (2017) Offsetting the impact of smoking and e-cigarette vaping on the cerebrovascular system and stroke injury: Is Metformin a viable countermeasure?. *Redox Biology* 13, 353-362
- Kaisar M A, Sivandzade F and Bhalerao A ; Cucullo L ; (2018) Conventional and electronic cigarettes dysregulate the expression of iron transporters and detoxifying enzymes at the brain vascular endothelium: In vivo evidence of a gender-specific cellular response to chronic cigarette smoke exposure. *Neuroscience Letters* 682, 1-9
- Kalayci M, Cetinkaya E and Suren E ; Yigit K ; Duman F ; Erol M K; (2020) The effect of electronic cigarette smoking on retinal microcirculation: Enlargement of the foveal avascular zone. *Photodiagnosis and Photodynamic Therapy* 32 (no pagination),
- Kalininskiy A, Bach C T and Nacca N E; Ginsberg G ; Marraffa J ; Navarette K A; McGraw M D; Croft D P; (2019) E-cigarette, or vaping, product use associated lung injury (EVALI): case series and diagnostic approach. *The Lancet Respiratory Medicine* 7(12), 1017-1026
- Kallupi M, de Guglielmo G and Larrosa E ; George O ; (2019) Exposure to passive nicotine vapor in male adolescent rats produces a withdrawal-like state and facilitates nicotine self-administration during adulthood. *European Neuropsychopharmacology* 29(11), 1227-1234
- Kamboj A, Spiller H A and Casavant M J; Chounthirath T ; Smith G A; (2016) Pediatric Exposure to E-Cigarettes, Nicotine, and Tobacco Products in the United States. *Pediatrics* 137(6), 06
- Kang S, Kufta K and Sollecito T P; Panchal N ; (2018) A treatment algorithm for the management of intraoral burns: A narrative review. *Burns* 44(5), 1065-1076

- Kang J and Valerio L G (2020) Investigating DNA adduct formation by flavor chemicals and tobacco byproducts in electronic nicotine delivery system (ENDS) using in silico approaches. *Toxicology and Applied Pharmacology* 398, 17
- Kar M, Emre I E and Bayar Muluk ; N ; Cingi C ; (2019) Effect of Electronic Cigarettes on the Inner Mucosa of the Craniofacial Region. *Journal of Craniofacial Surgery* 30(3), e235-e238
- Karaaslan F, Dikilitas A and Yigit U ; (2020) The effects of vaping electronic cigarettes on periodontitis. *Australian Dental Journal* 65(2), 143-149
- Kass A P and Overbeek D L; Chiel L E; Boyer E W; Casey A M. H; (2020) Case series: Adolescent victims of the vaping public health crisis with pulmonary complications. *Pediatric Pulmonology* 55(5), 1224-1236
- Katz M G and Russell K W; (2019) Injury from E-Cigarette Explosion. *New England Journal of Medicine* 380(25), 2460
- Kaufman P, Dubray J and Soule E K; Cobb C O; Zarins S ; Schwartz R ; (2018) Analysis of Secondhand E-cigarette Aerosol Compounds in an Indoor Setting. *Tobacco Regulatory Science* 4(3), 29-37
- Kaur G, Pinkston R and McLemore B ; Dorsey W C; Batra S ; (2018) Immunological and toxicological risk assessment of e-cigarettes. *European Respiratory Review* 27(147), 31
- Kaur G, Singh K and Maremanda K P; Li D ; Chand H S; Rahman I ; (2020) Differential plasma exosomal long non-coding RNAs expression profiles and their emerging role in E-cigarette users, cigarette, waterpipe, and dual smokers. *PLoS ONE [Electronic Resource]* 15(12), e0243065
- Kavvalakis M P, Stivaktakis P D; Tzatzarakis M N; Kouretas D and Liesivuori J ; Alegakis A K; Vynias D ; Tsatsakis A M; (2015) Multicomponent analysis of replacement liquids of electronic cigarettes using chromatographic techniques. *Journal of Analytical Toxicology* 39(4), 262-9
- Keith R J, Fetterman J L; Orimoloye O A; Dardari Z and Lorkiewicz P K; Hamburg N M; DeFilippis A P; Blaha M J; Bhatnagar A ; (2020) Characterization of Volatile Organic Compound Metabolites in Cigarette Smokers, Electronic Nicotine Device Users, Dual Users, and Nonusers of Tobacco. *Nicotine & Tobacco Research* 22(2), 264-272
- Kelesidis T, Tran E and Arastoo S ; Lakhani K ; Heymans R ; Gornbein J ; Middlekauff H R; (2020) Elevated Cellular Oxidative Stress in Circulating Immune Cells in Otherwise Healthy Young People Who Use Electronic Cigarettes in a Cross-Sectional Single-Center Study: Implications for Future Cardiovascular Risk. *Journal of the American Heart Association* 9(18), e016983
- Kelley B P and Prakash P B; (2020) Vaping-Associated Lung Injury: Should We Consider Screening Adolescents Who Vape?. *Clinical Pediatrics* 59(11), 1033-1035
- Kennedy A E, Kandalam S and Olivares-Navarrete R ; Dickinson A J. G; (2017) E-cigarette aerosol exposure can cause craniofacial defects in *Xenopus laevis* embryos and mammalian neural crest cells. *PLoS ONE [Electronic Resource]* 12(9), e0185729
- Kennedy C D, van Schalkwyk M C. I; McKee M and Pisinger C ; (2019) The cardiovascular effects of electronic cigarettes: A systematic review of experimental studies. *Preventive Medicine* 127, 105770
- Kerasioti E, Veskokoukis A S and Skaperda Z ; Zacharias A ; Poulas K ; Lazopoulos G ; Kouretas D ; (2020) The flavoring and not the nicotine content is a decisive factor for the effects of refill liquids of electronic cigarette on the redox status of endothelial cells. *Toxicology Reports* 7, 1095-1102
- Kerr D M. I, Brooksbank K J. M; Taylor R G; Pinel K and Rios F J; Touyz R M; Delles C ; (2019) Acute effects of electronic and tobacco cigarettes on vascular and respiratory function in healthy volunteers: a cross-over study. *Journal of Hypertension* 37(1), 154-166
- Khachatoorian C, Jacob P and 3rd ; Sen A ; Zhu Y ; Benowitz N L; Talbot P ; (2019) Identification and quantification of electronic cigarette exhaled aerosol residue chemicals in field sites. *Environmental Research* 170, 351-358
- Khachatoorian C, Jacob Iii and P ; Benowitz N L; Talbot P ; (2019) Electronic cigarette chemicals transfer from a vape shop to a nearby business in a multiple-tenant retail building. *Tobacco Control* 28(5), 519-525
- Khairudin M N, Mohd Zahidin and A Z ; Bastion M L; (2016) Front to back ocular injury from a vaping-related explosion. *BMJ Case Reports* 05, 05
- Khalaf H N and Mostafa M Y. A; Zhukovsky M (2019) Effect of electronic cigarette (EC) aerosols on particle size distribution in indoor air and in a radon chamber. *Nukleonika* 64(1), 31-38

- Khalil C, Chahine J B and Haykal T ; Al Hageh C ; Rizk S ; Khnayzer R S; (2020) E-cigarette aerosol induced cytotoxicity, DNA damages and late apoptosis in dynamically exposed A549 cells. *Chemosphere* 263, 127874
- Khan M S, Khateeb F and Akhtar J ; Khan Z ; Lal A ; Kholodovych V ; Hammersley J ; (2018) Organizing pneumonia related to electronic cigarette use: A case report and review of literature. *The clinical respiratory journal* 12(3), 1295-1299
- Khan N A, Yogeswaran S and Wang Q ; Muthumalage T ; Sundar I K; Rahman I ; (2019) Waterpipe smoke and e-cigarette vapor differentially affect circadian molecular clock gene expression in mouse lungs. *PLoS ONE [Electronic Resource]* 14(2), e0211645
- Khlystov A and Samburova V (2016) Flavoring Compounds Dominate Toxic Aldehyde Production during E-Cigarette Vaping. *Environmental Science & Technology* 50(23), 13080-13085
- Khorassani F, Kaufman M and Lopez L V; (2018) Supratherapeutic Serum Clozapine Concentration After Transition From Traditional to Electronic Cigarettes. *Journal of Clinical Psychopharmacology* 38(4), 391-392
- Khosravi M, Lin R L and Lee L Y; (2018) Inhalation of electronic cigarette aerosol induces reflex bronchoconstriction by activation of vagal bronchopulmonary C-fibers. *American Journal of Physiology - Lung Cellular & Molecular Physiology* 315(4), L467-L475
- Kienhuis A S and Soeteman-Hernandez L G; Bos P M; Cremers H W; Klerx W N; Talhout R (2015) Potential harmful health effects of inhaling nicotine-free shisha-pen vapor: a chemical risk assessment of the main components propylene glycol and glycerol. *Tobacco Induced Diseases* 13(1), 15
- Kim H J and Shin H S; (2013) Determination of tobacco-specific nitrosamines in replacement liquids of electronic cigarettes by liquid chromatography-tandem mass spectrometry. *Journal of Chromatography. A* 1291, 48-55
- Kim Y H and Kim K H; (2015) A novel method to quantify the emission and conversion of VOCs in the smoking of electronic cigarettes. *Scientific Reports* 5, 16383
- Kim S, Goniewicz M L and Yu S ; Kim B ; Gupta R ; (2015) Variations in label information and nicotine levels in electronic cigarette refill liquids in South Korea: regulation challenges. *International Journal of Environmental Research & Public Health [Electronic Resource]* 12(5), 4859-68
- Kim K H (2016) Mass change tracking approach as collection guidelines for aerosol and vapor samples released during e-cigarette smoking. *Analytical Methods* 8(10), 2305-2311
- Kim S Y, Sim S and Choi H G; (2017) Active, passive, and electronic cigarette smoking is associated with asthma in adolescents. *Scientific Reports* 7(1), 17789
- Kim J J, Sabatelli N and Tutak W ; Giuseppetti A ; Frukhtbeyn S ; Shaffer I ; Wilhide J ; Routkevitch D ; Ondov J M; (2017) Universal electronic-cigarette test: physiochemical characterization of reference e-liquid. *Tobacco Induced Diseases* 15, 14
- Kim S A, Smith S and Beauchamp C ; Song Y ; Chiang M ; Giuseppetti A ; Frukhtbeyn S ; Shaffer I ; Wilhide J ; Routkevitch D ; Ondov J M; Kim J J; (2018) Cariogenic potential of sweet flavors in electronic-cigarette liquids. *PLoS ONE [Electronic Resource]* 13(9), e0203717
- Kim J S and Kim K (2019) Electronic cigarette use and suicidal behaviors among adolescents. *Journal of Public Health* 23, 23
- Kim Y H and An Y J; (2020) Development of a standardized new cigarette smoke generating (SNCSG) system for the assessment of chemicals in the smoke of new cigarette types (heat-not-burn (HNB) tobacco and electronic cigarettes (E-Cigs)). *Environmental Research* 185, 109413
- Kim T, Choi H and Kang J ; Kim J ; (2020) Association between electronic cigarette use and metabolic syndrome in the Korean general population: A nationwide population-based study. *PLoS ONE [Electronic Resource]* 15(8), e0237983
- Kim S and Oancea S C (2020) Electronic cigarettes may not be a "safer alternative" of conventional cigarettes during pregnancy: evidence from the nationally representative PRAMS data. *BMC Pregnancy & Childbirth* 20(1), 557
- Kim J Ph.D and M P H; Lee S (2020) Daily Cigarette Consumption and Urine Cotinine Level between Dual Users of Electronic and Conventional Cigarettes, and Cigarette-Only Users. *Journal of Psychoactive Drugs* 52(1), 20-26
- Kim C Y and Paek Y J; Seo H G; Cheong Y S; Lee C M; Park S M; Park D W; Lee K (2020) Dual use of electronic and conventional cigarettes is associated with higher cardiovascular risk factors in Korean men. *Scientific Reports* 10(1), 5612

Kim C W and Jeong S C; Kim J Y; Lee J S; Lee J H; Jo S H; Kim S H; (2020) Associated factors for depression, suicidal ideation and suicide attempt among asthmatic adolescents with experience of electronic cigarette use. *Tobacco Induced Diseases* 18, 85

King J L, Reboussin B A; Spangler J and Cornacchione Ross ; J ; Sutfin E L; (2018) Tobacco product use and mental health status among young adults. *Addictive Behaviors* 77, 67-72

King J L, Reboussin B A; Wiseman K D; Ribisl K M; Seidenberg A B; Wagoner K G; Wolfson M and Sutfin E L; (2019) Adverse symptoms users attribute to e-cigarettes: Results from a national survey of US adults. *Drug & Alcohol Dependence* 196, 9-13

King J L and Reboussin B A; Merten J W; Wiseman K D; Wagoner K G; Sutfin E L; (2020) Negative health symptoms reported by youth e-cigarette users: Results from a national survey of US youth. *Addictive Behaviors* 104, 106315

Kinney W H, Beckstrom C and Snyder T ; Judiscak P ; Miller P ; Marett J ; Pessetto A ; Scherbak D ; (2020) Electronic-cigarette or vaping associated lung injury (EVALI). *Applied Radiology* 49(2), 42-44

Kite A C and Le B Q; Cumpston K L; Hieger M A; Feldman M J; Pozez A L; (2016) Blast Injuries Caused by Vape Devices: 2 Case Reports. *Annals of Plastic Surgery* 77(6), 620-622

Kizhakke Puliyakote, A S and Elliott A R; Sa R C; Anderson K M; Crotty Alexander ; L E ; Hopkins S R; (2020) Vaping Disrupts Ventilation-Perfusion Matching in Asymptomatic Users. *Journal of Applied Physiology* 12, 12

Klager S, Vallarino J and MacNaughton P ; Christiani D C; Lu Q ; Allen J G; (2017) Flavoring Chemicals and Aldehydes in E-Cigarette Emissions. *Environmental Science & Technology* 51(18), 10806-10813

Klein M D and Sokol N A; Stroud L R; (2019) Electronic Cigarettes: Common Questions and Answers. *American Family Physician* 100(4), 227-235

Kleinman M T, Arechavala R J; Herman D and Shi J ; Hasen I ; Ting A ; Dai W ; Carreno J ; Chavez J ; Zhao L ; Kloner R A; (2020) E-cigarette or Vaping Product Use-Associated Lung Injury Produced in an Animal Model From Electronic Cigarette Vapor Exposure Without Tetrahydrocannabinol or Vitamin E Oil. *Journal of the American Heart Association* 9(18), e017368

Kleinstreuer C and Feng Y (2013) Lung deposition analyses of inhaled toxic aerosols in conventional and less harmful cigarette smoke: A review. *International Journal of Environmental Research and Public Health* 10(9), 4454-4485

Kligerman S, Raptis C and Larsen B ; Henry T S; Caporale A ; Tazelaar H ; Schiebler M L; Wehrli F W; Klein J S; Kanne J ; (2020) Radiologic, Pathologic, Clinical, and Physiologic Findings of Electronic Cigarette or Vaping Product Use-associated Lung Injury (EVALI): Evolving Knowledge and Remaining Questions. *Radiology* 294(3), 491-505

Kocar T, Freudenmann R W and Spitzer M ; Graf H ; (2018) Switching From Tobacco Smoking to Electronic Cigarettes and the Impact on Clozapine Levels. *Journal of Clinical Psychopharmacology* 38(5), 528-529

Konstantinidou F, Stuppia L and Gatta V ; (2020) Looking Inside the World of Granulosa Cells: The Noxious Effects of Cigarette Smoke. *Biomedicines* 8(9), 27

Korukonda A, Zhang C and Rodriguez L ; Guerrero A ; Campos M ; Holt G ; Fregien N L; Conner G ; Mirsaedi M ; (2019) Electronic Cigarettes Enhance Replication of Mycobacterium abscessus in Airway Epithelial Cells. *American Journal of Respiratory Cell & Molecular Biology* 60(6), 717-719

Korzun T, Lazurko M and Munhenzva I ; Barsanti K C; Huang Y ; Jensen R P; Escobedo J O; Luo W ; Peyton D H; Strongin R M; (2018) E-Cigarette Airflow Rate Modulates Toxicant Profiles and Can Lead to Concerning Levels of Solvent Consumption. *ACS Omega* 3(1), 30-36

Korzun T, Munhenzva I and Escobedo J O; Strongin R M; (2019) Synthetic food dyes in electronic cigarettes. *Dyes and Pigments* 160, 509-513

Kosmider L, Kimber C F and Kurek J ; Corcoran O ; Dawkins L E; (2018) Compensatory Puffing With Lower Nicotine Concentration E-liquids Increases Carbonyl Exposure in E-cigarette Aerosols. *Nicotine & Tobacco Research* 20(8), 998-1003

Kosmider L, Cox S and Zaciera M ; Kurek J ; Goniewicz M L; McRobbie H ; Kimber C ; Dawkins L ; (2020) Daily exposure to formaldehyde and acetaldehyde and potential health risk associated with use of high and low nicotine e-liquid concentrations. *Scientific Reports* 10(1), 6546

Koszowski B, Salazar E and Thanner M H; Pickworth W B; Paredes A ; Schroeder M J; (2020) Electronic Nicotine Delivery Systems: Comparative Topography Assessments. *Tobacco Regulatory Science* 6(1), 54-65

- Kotandeniya D, Carmella S G and Pillsbury M E; Hecht S S; (2015) Combined analysis of N'-nitrosonornicotine and 4-(methylnitrosamino)-1-(3-pyridyl)-1-butanol in the urine of cigarette smokers and e-cigarette users. *Journal of Chromatography B: Analytical Technologies in the Biomedical & Life Sciences* 1007, 121-6
- Kotoulas S C, Pataka A and Domvri K; Spyratos D; Katsaounou P; Porpodis K; Fouka E; Markopoulou A; Passa-Fekete K; Grigoriou I; Kontakiotis T; Argyropoulou P; Papakosta D; (2020) Acute effects of e-cigarette vaping on pulmonary function and airway inflammation in healthy individuals and in patients with asthma. *Respirology* 25(10), 1037-1045
- Kovar L, Selzer D and Britz H; Benowitz N; St Helen G; Kohl Y; Bals R; Lehr T; (2020) Comprehensive Parent-Metabolite PBPK/PD Modeling Insights into Nicotine Replacement Therapy Strategies. *Clinical Pharmacokinetics* 59(9), 1119-1134
- Kowalcze M and Jakubowska M (2020) Voltammetric determination of nicotine in electronic cigarette liquids using a boron-doped diamond electrode (BDDE). *Diamond and Related Materials* 103, 8
- Krishnan N M and Han K D; Nahabedian M Y; (2016) Can E-Cigarettes Cause Free Flap Failure? A Case of Arterial Vasospasm Induced by Electronic Cigarettes Following Microsurgical Breast Reconstruction. *Plastic and Reconstructive Surgery - Global Open* 4(1), e596
- Krishnan S, Thind G S and Soliman M; Tolle L; Mireles-Cabodevila E; Adi A; Anandamurthy B; Bribriescio A; Yun J; (2020) A case of vaping-induced acute respiratory distress syndrome requiring extracorporeal life support. *Perfusion*, 267659120925634
- Krishnasamy V P, Hollowell B D; Ko J Y; Board A and Hartnett K P; Salvatore P P; Danielson M; Kite-Powell A; Twentymann E; Kim L; Cyrus A; Wallace M; Melstrom P; Haag B; King B A; Briss P; Jones C M; Pollack L A; Ellington S; Lung Injury Response Epidemiology; Surveillance Task Force; (2020) Update: Characteristics of a Nationwide Outbreak of E-cigarette, or Vaping, Product Use-Associated Lung Injury - United States, August 2019-January 2020. *MMWR - Morbidity & Mortality Weekly Report* 69(3), 90-94
- Krusemann E J. Z, Pennings J L. A; Cremers Jwjm and Bakker F; Boesveldt S; Talhout R; (2020) GC-MS analysis of e-cigarette refill solutions: A comparison of flavoring composition between flavor categories. *Journal of Pharmaceutical & Biomedical Analysis* 188, 113364
- Kubica P (2019) Ultrasound-Assisted Solvent Extraction of a Porous Membrane Packed Sample for the Determination of Tobacco-Specific Nitrosamines in the Replacement Liquids for E-Cigarettes. *Molecules* 24(24), 17
- Kuga K, Ito K and Yoo S J; Chen W; Wang P; Liao J; Fowles J; Shusterman D; Kumagai K; (2018) First- and second-hand smoke dispersion analysis from e-cigarettes using a computer-simulated person with a respiratory tract model. *Indoor and Built Environment* 27(7), 898-916
- Kuga K, Ito K and Chen W; Wang P; Kumagai K; (2020) A numerical investigation of the potential effects of e-cigarette smoking on local tissue dosimetry and the deterioration of indoor air quality. *Indoor Air* 30(5), 1018-1038
- Kumetz E A and Hurst N D; Cudnik R J; Rudinsky S L; (2016) Electronic cigarette explosion injuries. *American Journal of Emergency Medicine* 34(11), 3
- Kumral T L, Salturk Z and Yildirim G; Uyar Y; Berkiten G; Atar Y; Inan M; (2016) How does electronic cigarette smoking affect sinonasal symptoms and nasal mucociliary clearance?. *B-ENT* 12(1), 17-21
- Kuntic M, Oelze M and Steven S; Kroller-Schon S; Stamm P; Kalinovic S; Frenis K; Vujacic-Mirski K; Bayo Jimenez; M T; Kvandova M; Filippou K; Al Zuabi A; Bruckl V; Hahad O; Daub S; Varveri F; Gori T; Huesmann R; Hoffmann T; Schmidt F P; Keaney J F; Daiber A; Munzel T; (2020) Short-term e-cigarette vapour exposure causes vascular oxidative stress and dysfunction: evidence for a close connection to brain damage and a key role of the phagocytic NADPH oxidase (NOX-2). *European Heart Journal* 41(26), 2472-2483
- Kuntic M, Hahad O and Daiber A; Munzel T; (2020) Could E-cigarette vaping contribute to heart disease?. *Expert Review of Respiratory Medicine* 14(11), 1131-1139
- Kwan L Y, Eaton D L; Andersen S L; Dow-Edwards D and Levin E D; Talpos J; Vorhees C V; Li A A; (2020) This is your teen brain on drugs: In search of biological factors unique to dependence toxicity in adolescence. *Neurotoxicology & Teratology* 81, 106916
- Kwon M, Park E and Dickerson S S; (2019) Adolescent substance use and its association to sleep disturbances: A systematic review. *Sleep Health* 5(4), 382-394
- Lacasse Y, Legare M and Maltais F; (2015) E-cigarette use in patients receiving home oxygen therapy. *Canadian Respiratory Journal* 22(2), 83-5

- Lamb T, Muthumalage T and Rahman I ; (2020) Pod-based menthol and tobacco flavored e-cigarettes cause mitochondrial dysfunction in lung epithelial cells. *Toxicology Letters* 333, 303-311
- Lan K, Zhang G and Liu L ; Guo Z ; Luo X ; Guan H ; Yu Q ; Liu E ; (2020) Electronic cigarette exposure on insulin sensitivity of ApoE gene knockout mice. *Tobacco Induced Diseases* 18, 68
- Landman S T, Dhaliwal I and Mackenzie C A ; Martinu T ; Steele A ; Bosma K J ; (2019) Life-threatening bronchiolitis related to electronic cigarette use in a Canadian youth. *CMAJ Canadian Medical Association Journal* 191(48), E1321-E1331
- Lanza H I, Pittman P and Batshoun J ; (2017) Obesity and Cigarette Smoking: Extending the Link to E-cigarette/Vaping Use. *American Journal of Health Behavior* 41(3), 338-347
- Lappas A S and Tzortzi A S ; Konstantinidi E M ; Teloniatis S I ; Tzavara C K ; Gennimata S A ; Koulouris N G ; Behrakis P K ; (2018) Short-term respiratory effects of e-cigarettes in healthy individuals and smokers with asthma. *Respirology* 23(3), 291-297
- Larcombe A N, Janka M A ; Mullins B J ; Berry L J ; Bredin A and Franklin P J ; (2017) The effects of electronic cigarette aerosol exposure on inflammation and lung function in mice. *American Journal of Physiology - Lung Cellular & Molecular Physiology* 313(1), L67-L79
- Laube B L, Afshar-Mohajer N and Koehler K ; Chen G ; Lazarus P ; Collaco J M ; McGrath-Morrow S A ; (2017) Acute and chronic in vivo effects of exposure to nicotine and propylene glycol from an E-cigarette on mucociliary clearance in a murine model. *Inhalation Toxicology* 29(5), 197-205
- Laugesen M (2015) Nicotine and toxicant yield ratings of electronic cigarette brands in New Zealand. *New Zealand Medical Journal* 128(1411), 77-82
- Lauterstein D E, Tijerina P B ; Corbett K and Akgol Oksuz ; B ; Shen S S ; Gordon T ; Klein C B ; Zelikoff J T ; (2016) Frontal Cortex Transcriptome Analysis of Mice Exposed to Electronic Cigarettes During Early Life Stages. *International Journal of Environmental Research & Public Health [Electronic Resource]* 13(4), 417
- Layden J E, Ghinai I and Pray I ; Kimball A ; Layer M ; Tenforde M W ; Navon L ; Hoots B ; Salvatore P P ; Elderbrook M ; Haupt T ; Kanne J ; Patel M T ; Saathoff-Huber L ; King B A ; Schier J G ; Mikosz C A ; Meiman J ; (2020) Pulmonary Illness Related to E-Cigarette Use in Illinois and Wisconsin - Final Report. *New England Journal of Medicine* 382(10), 903-916
- Leavens E L. S, Ford B R ; Ojo-Fati O and Winkelman T N. A ; Vickery K D ; Japuntich S J ; Busch A M ; (2020) Electronic cigarette use patterns and chronic health conditions among people experiencing homelessness in MN: a statewide survey. *BMC Public Health* 20(1), 1889
- LeBouf R F, Burns D A ; Ranpara A and Attfield K ; Zwack L ; Stefaniak A B ; (2018) Headspace analysis for screening of volatile organic compound profiles of electronic juice bulk material. *Analytical & Bioanalytical Chemistry* 410(23), 5951-5960
- Lechasseur A, Jubinville E and Routhier J ; Berube J C ; Hamel-Auger M ; Talbot M ; Lamothe J ; Aubin S ; Pare M E ; Beaulieu M J ; Bosse Y ; Duchaine C ; Morissette M C ; (2017) Exposure to electronic cigarette vapors affects pulmonary and systemic expression of circadian molecular clock genes. *Physiological Reports* 5(19),
- Lechasseur A, Altmejd S and Turgeon N ; Buonanno G ; Morawska L ; Brunet D ; Duchaine C ; Morissette M C ; (2019) Variations in coil temperature/power and e-liquid constituents change size and lung deposition of particles emitted by an electronic cigarette. *Physiological Reports* 7(10), e14093
- Lechasseur A, Huppe C A and Talbot M ; Routhier J ; Aubin S ; Beaulieu M J ; Duchaine C ; Marsolais D ; Morissette M C ; (2020) Exposure to nicotine-free and flavor-free e-cigarette vapors modifies the pulmonary response to tobacco cigarette smoke in female mice. *American Journal of Physiology - Lung Cellular & Molecular Physiology* 319(4), L717-L727
- Lechner W V, Janssen T and Kahler C W ; Audrain-McGovern J ; Leventhal A M ; (2017) Bi-directional associations of electronic and combustible cigarette use onset patterns with depressive symptoms in adolescents. *Preventive Medicine* 96, 73-78
- Lee M S, LeBouf R F ; Son Y S ; Koutrakis P and Christiani D C ; (2017) Nicotine, aerosol particles, carbonyls and volatile organic compounds in tobacco- and menthol-flavored e-cigarettes. *Environmental Health: A Global Access Science Source* 16(1), 42
- Lee Y S and Kim K H ; Lee S S ; Brown R J. C ; Jo S H ; (2018) Analytical Method for Measurement of Tobacco-Specific Nitrosamines in E-Cigarette Liquid and Aerosol. *Applied Sciences-Basel* 8(12), 13
- Lee S M, Tenney R and Wallace A W ; Arjomandi M ; (2018) E-cigarettes versus nicotine patches for perioperative smoking cessation: a pilot randomized trial. *PeerJ* 6, e5609

- Lee M H and Szulejko J E; Kim K H; (2018) Determination of carbonyl compounds in electronic cigarette refill solutions and aerosols through liquid-phase dinitrophenyl hydrazine derivatization. *Environmental Monitoring & Assessment* 190(4), 200
- Lee L Y, Lin R L; Khosravi M and Xu F ; (2018) Reflex bronchoconstriction evoked by inhaled nicotine aerosol in guinea pigs: role of the nicotinic acetylcholine receptor. *Journal of Applied Physiology* 125(1), 117-123
- Lee H W, Park S H; Weng M W; Wang H T; Huang W C; Lepor H and Wu X R; Chen L C; Tang M S; (2018) E-cigarette smoke damages DNA and reduces repair activity in mouse lung, heart, and bladder as well as in human lung and bladder cells. *Proceedings of the National Academy of Sciences of the United States of America* 115(7), E1560-E1569
- Lee Y O and Morgan-Lopez A A; Nonnemaker J M; Pepper J K; Hensel E C; Robinson R J; (2019) Latent Class Analysis of E-cigarette Use Sessions in Their Natural Environments. *Nicotine & Tobacco Research* 21(10), 1408-1413
- Lee Y and Lee K S (2019) Association of Depression and Suicidality with Electronic and Conventional Cigarette Use in South Korean Adolescents. *Substance Use & Misuse* 54(6), 934-943
- Lee W H, Ong S G; Zhou Y and Tian L ; Bae H R; Baker N ; Whitlatch A ; Mohammadi L ; Guo H ; Nadeau K C; Springer M L; Schick S F; Bhatnagar A ; Wu J C; (2019) Modeling Cardiovascular Risks of E-Cigarettes With Human-Induced Pluripotent Stem Cell-Derived Endothelial Cells. *Journal of the American College of Cardiology* 73(21), 2722-2737
- Lee M S, Rees V W; Koutrakis P and Wolfson J M; Son Y S; Lawrence J ; Christiani D C; (2019) Cardiac Autonomic Effects of Secondhand Exposure to Nicotine from Electronic Cigarettes: An Exploratory Study. *Environmental Epidemiology* 3(1),
- Lee M S and Allen J G; Christiani D C; (2019) Endotoxin and (1->3)-beta-D-glucan contamination in electronic cigarette products sold in the United States. *Environmental Health Perspectives* 127(4),
- Lee A, Lee S Y and Lee K S; (2019) The Use of Heated Tobacco Products is Associated with Asthma, Allergic Rhinitis, and Atopic Dermatitis in Korean Adolescents. *Scientific Reports* 9(1), 17699
- Lee Y J, Na C J; Botao L and Kim K H; Son Y S; (2020) Quantitative insights into major constituents contained in or released by electronic cigarettes: Propylene glycol, vegetable glycerin, and nicotine. *Science of the Total Environment* 703, 134567
- Lee S, Oh Y and Kim H ; Kong M ; Moon J ; (2020) Implications of electronic cigarette use for depressive mood: A nationwide cross-sectional study. *Medicine* 99(40), e22514
- Lee M S and Christiani D C; (2020) Microbial Toxins in Nicotine Vaping Liquids. *American Journal of Respiratory & Critical Care Medicine* 201(6), 741-743
- Lee J W, Kim Y and Kim Y ; Yoo H ; Kang H T; (2020) Cigarette Smoking in Men and Women and Electronic Cigarette Smoking in Men are Associated with Higher Risk of Elevated Cadmium Level in the Blood. *Journal of Korean Medical Science* 35, e15
- Lee J H and Patra J K; Shin H S; (2020) Analytical methods for determination of carbonyl compounds and nicotine in electronic No-Smoking aid refill solutions. *Analytical Biochemistry* 588, 113470
- Lee J, You Y and Park J S; Min J H; Yoo I ; Jeong W ; Cho Y ; Ryu S ; Kim S ; Cho S U; Oh S K; Lee J ; Ahn H J; Jung S M; (2020) Liver Donation After Brain Death Following Intentional Ingestion of 99% E-Cigarette Liquid Nicotine 10 mL. *Experimental & Clinical Transplantation: Official Journal of the Middle East Society for Organ Transplantation* 18(1), 120-122
- Lee A C, Chakladar J and Li W T; Chen C ; Chang E Y; Wang-Rodriguez J ; Ongkeko W M; (2020) Tobacco, but Not Nicotine and Flavor-Less Electronic Cigarettes, Induces ACE2 and Immune Dysregulation. *International Journal of Molecular Sciences* 21(15), 31
- Lefever T W and Lee Y O; Kovach A L; Silinski M A; Marusich J A; Thomas B F; Wiley J L; (2017) Delivery of nicotine aerosol to mice via a modified electronic cigarette device. *Drug & Alcohol Dependence* 172, 80-87
- Lefever T W and Thomas B F; Kovach A L; Snyder R W; Wiley J L; (2019) Route of administration effects on nicotine discrimination in female and male mice. *Drug & Alcohol Dependence* 204, 107504
- Lei W, Lerner C and Sundar I K; Rahman I ; (2017) Myofibroblast differentiation and its functional properties are inhibited by nicotine and e-cigarette via mitochondrial OXPHOS complex III. *Scientific Reports* 7, 43213
- Leigh N J and Lawton R I; Hershberger P A; Goniewicz M L; (2016) Flavours significantly affect inhalation toxicity of aerosol generated from electronic nicotine delivery systems (ENDS). *Tobacco Control* 25(Suppl 2), ii81-ii87

- Leigh N J and Tran P L; O'Connor R J; Goniewicz M L; (2018) Cytotoxic effects of heated tobacco products (HTP) on human bronchial epithelial cells. *Tobacco Control* 27(Suppl 1), s26-s29
- Leigh N J and Goniewicz M L; (2020) Effect of aerosolized nicotine on human bronchial epithelial cells is amplified after co-administration with cannabidiol (CBD): a pilot in vitro study. *BMC Pharmacology & Toxicology* 21(1), 42
- Leigh N J and Goniewicz M L; (2020) Acute Effect of Electronic Cigarette-Generated Aerosol From Flavored CBD-Containing Refill Solutions on Human Bronchial Epithelial Cells. *Frontiers in Physiology* 11, 592321
- Lemay F, Baker P and McRobbie H; (2020) Electronic cigarettes: A narrative review of the implications for the pediatric anesthesiologist. *Paediatric Anaesthesia* 30(6), 653-659
- Leone F T, Carlsen K H; Folan P and Latzka K; Munzer A; Neptune E; Pakhale S; Sachs D P. L; Samet J; Upson D; White A; Comm A T. S. Tobacco Action; (2015) An Official American Thoracic Society Research Statement: Current Understanding and Future Research Needs in Tobacco Control and Treatment Executive Summary. *American Journal of Respiratory and Critical Care Medicine* 192(3), 374-383
- Leone F T, Carlsen K H; Chooljian D and Crotty Alexander; L E; Detterbeck F C; Eakin M N; Evers-Casey S; Farber H J; Folan P; Kathuria H; Latzka K; McDermott S; McGrath-Morrow S; Moazed F; Munzer A; Neptune E; Pakhale S; Sachs D P. L; Samet J; Sufian B; Upson D; (2018) Recommendations for the Appropriate Structure, Communication, and Investigation of Tobacco Harm Reduction Claims. An Official American Thoracic Society Policy Statement. *American Journal of Respiratory & Critical Care Medicine* 198(8), e90-e105
- Lequy E, Wiernik E and Cyr D; Nadif R; Lemogne C; Gomajee R; Goldberg M; Zins M; Airagnes G; (2019) Poor Perceived Health is Associated with Current use of Electronic Cigarette among Current and Former Smokers: Findings from the CONSTANCES Cohort. *European Addiction Research* 25(6), 310-319
- Lerner C A, Sundar I K; Yao H and Gerloff J; Ossip D J; McIntosh S; Robinson R; Rahman I; (2015) Vapors produced by electronic cigarettes and e-juices with flavorings induce toxicity, oxidative stress, and inflammatory response in lung epithelial cells and in mouse lung. *PLoS ONE [Electronic Resource]* 10(2), e0116732
- Lerner C A, Sundar I K; Watson R M; Elder A and Jones R; Done D; Kurtzman R; Ossip D J; Robinson R; McIntosh S; Rahman I; (2015) Environmental health hazards of e-cigarettes and their components: Oxidants and copper in e-cigarette aerosols. *Environmental Pollution* 198, 100-7
- Lerner C A, Rutagarama P and Ahmad T; Sundar I K; Elder A; Rahman I; (2016) Electronic cigarette aerosols and copper nanoparticles induce mitochondrial stress and promote DNA fragmentation in lung fibroblasts. *Biochemical & Biophysical Research Communications* 477(4), 620-625
- LeSage M G, Staley M and Muelken P; Smethells J R; Stepanov I; Vogel R I; Pentel P R; Harris A C; (2016) Abuse liability assessment of an e-cigarette refill liquid using intracranial self-stimulation and self-administration models in rats. *Drug & Alcohol Dependence* 168, 76-88
- Leslie L J, Vasanthi Bathrinayanan, P; Jackson P; Mabila Ma Muanda and J. A; Pallett R; Stillman C J. P; Marshall L J; (2017) A comparative study of electronic cigarette vapor extracts on airway-related cell lines in vitro. *Inhalation Toxicology* 29(3), 126-136
- Lestari K S and Humairo M V; Agustina U (2018) Formaldehyde Vapor Concentration in Electronic Cigarettes and Health Complaints of Electronic Cigarettes Smokers in Indonesia. *Journal Of Environmental & Public Health* 2018, 9013430
- Leventhal A M, Strong D R; Sussman S and Kirkpatrick M G; Unger J B; Barrington-Trimis J L; Audrain-McGovern J; (2016) Psychiatric comorbidity in adolescent electronic and conventional cigarette use. *Journal of Psychiatric Research* 73, 71-8
- Leventhal A M, Urman R and Barrington-Trimis J L; Goldenson N I; Gallegos K; Chou C P; Wang K; Berhane K; Cruz T B; Pentz M A; Unger J; McConnell R S; (2017) Perceived stress and poly-tobacco product use across adolescence: Patterns of association and gender differences. *Journal of Psychiatric Research* 94, 172-179
- Lewis N, McCaffrey K and Sage K; Cheng C J; Green J; Goldstein L; Campbell H; Ferrell D; Malan N; LaCross N; Maldonado A; Board A; Hanchey A; Harris D; Callahan S; Aberegg S; Risk I; Willardson S; Carter A; Nakashima A; Duncan J; Burnett C; Atkinson-Dunn R; Dunn A; (2019) E-cigarette Use, or Vaping, Practices and Characteristics Among Persons with Associated Lung Injury - Utah, April-October 2019. *MMWR - Morbidity & Mortality Weekly Report* 68(42), 953-956
- Li Q, Zhan Y and Wang L; Leischow S J; Zeng D D; (2016) Analysis of symptoms and their potential associations with e-liquids' components: a social media study. *BMC Public Health* 16, 674
- Li L, Lin Y and Xia T; Zhu Y; (2019) Effects of electronic cigarettes on indoor air quality and health. *Annual Review of Public Health* 41, 363-380

- Li L, Borland R and O'Connor R J; Fong G T; McNeill A; Driezen P; Cummings K M; (2019) How Are Self-Reported Physical and Mental Health Conditions Related to Vaping Activities among Smokers and Quitters: Findings from the ITC Four Country Smoking and Vaping Wave 1 Survey. *International Journal of Environmental Research & Public Health* [Electronic Resource] 16(8), 19
- Li G, Chan Y L and Nguyen L T; Mak C; Zaky A; Anwer A G; Shi Y; Nguyen T; Pollock C A; Oliver B G; Saad S; Chen H; (2019) Impact of maternal e-cigarette vapor exposure on renal health in the offspring. *Annals of the New York Academy of Sciences* 1452(1), 65-77
- Li Y, Burns A E and Burke G J. P; Poindexter M E; Madl A K; Pinkerton K E; Nguyen T B; (2020) Application of High-Resolution Mass Spectrometry and a Theoretical Model to the Quantification of Multifunctional Carbonyls and Organic Acids in e-Cigarette Aerosol. *Environmental Science & Technology* 54(9), 5640-5650
- Li L, Nguyen C and Lin Y; Guo Y; Fadel N A; Zhu Y; (2020) Impacts of electronic cigarettes usage on air quality of vape shops and their nearby areas. *Science of the Total Environment* , 143423
- Li L, Lee E S and Nguyen C; Zhu Y; (2020) Effects of propylene glycol, vegetable glycerin, and nicotine on emissions and dynamics of electronic cigarette aerosols. *Aerosol Science & Technology* 54(11), 1270-1281
- Li G, Chan Y L and Wang B; Saad S; Oliver B G; Chen H; (2020) Replacing smoking with vaping during pregnancy: Impacts on metabolic health in mice. *Reproductive Toxicology* 96, 293-299
- Li G, Chan Y L and Wang B; Saad S; George J; Oliver B G; Chen H; (2020) E-cigarettes damage the liver and alter nutrient metabolism in pregnant mice and their offspring. *Annals of the New York Academy of Sciences* 1475(1), 64-77
- Li D and Xie Z (2020) Cross-Sectional Association of Lifetime Electronic Cigarette Use with Wheezing and Related Respiratory Symptoms in U.S. Adults. *Nicotine & Tobacco Research* 22(Supplement_1), S85-S92
- Li D, Sundar I K and McIntosh S; Ossip D J; Goniewicz M L; O'Connor R J; Rahman I; (2020) Association of smoking and electronic cigarette use with wheezing and related respiratory symptoms in adults: cross-sectional results from the Population Assessment of Tobacco and Health (PATH) study, wave 2. *Tobacco Control* 29(2), 140-147
- Li D, Croft D P and Ossip D J; Xie Z; (2020) Are Vapers More Susceptible to COVID-19 Infection?. *MedRxiv : the Preprint Server for Health Sciences* 09, 09
- Lilly C M, Khan S and Waksmundzki-Silva K; Irwin R S; (2020) Vaping-Associated Respiratory Distress Syndrome: Case Classification and Clinical Guidance. *Critical Care Explorations* 2(2), e0081
- Lim H H and Shin H S; (2013) Measurement of Aldehydes in Replacement Liquids of Electronic Cigarettes by Headspace Gas Chromatography-mass Spectrometry. *Bulletin of the Korean Chemical Society* 34(9), 2691-2696
- Lim H B and Kim S H; (2014) Inhalation of e-Cigarette Cartridge Solution Aggravates Allergen-induced Airway Inflammation and Hyper-responsiveness in Mice. *Toxicological Research* 30(1), 13-8
- Lim H H and Shin H S; (2017) Determination of volatile organic compounds including alcohols in refill fluids and cartridges of electronic cigarettes by headspace solid-phase micro extraction and gas chromatography-mass spectrometry. *Analytical & Bioanalytical Chemistry* 409(5), 1247-1256
- Lin V Y, Fain M D; Jackson P L; Berryhill T F; Wilson L S; Mazur M and Barnes S J; Blalock J E; Raju S V; Rowe S M; (2019) Vaporized E-Cigarette Liquids Induce Ion Transport Dysfunction in Airway Epithelia. *American Journal of Respiratory Cell & Molecular Biology* 61(2), 162-173
- Lin C, Arrossi V and Yadav R; Choi H; (2020) Vaping-related pulmonary granulomatous disease. *Respiratory Medicine Case Reports* 31, 101179
- Lisko J G, Tran H and Stanfill S B; Blount B C; Watson C H; (2015) Chemical Composition and Evaluation of Nicotine, Tobacco Alkaloids, pH, and Selected Flavors in E-Cigarette Cartridges and Refill Solutions. *Nicotine & Tobacco Research* 17(10), 1270-8
- Lisko J G, Lee G E; Kimbrell J B; Rybak M E; Valentin-Blasini L and Watson C H; (2017) Caffeine Concentrations in Coffee, Tea, Chocolate, and Energy Drink Flavored E-liquids. *Nicotine & Tobacco Research* 19(4), 484-492
- Liu X, Lu W and Liao S; Deng Z; Zhang Z; Liu Y; Lu W; (2018) Efficiency and adverse events of electronic cigarettes: A systematic review and meta-analysis (PRISMA-compliant article). *Medicine* 97(19), e0324
- Liu Q, Huang C and Chris Le; X; (2020) Arsenic species in electronic cigarettes: Determination and potential health risk. *Journal of Environmental Sciences (China)* 91, 168-176

- Liu E M. N and McIntosh A (2020) First seizure in adolescent immediately following E-cigarette use: Two patient cases. *Neurology and Clinical Neuroscience* 8(3), 158-159
- Livingston C J and Freeman R J; Costales V C; Westhoff J L; Caplan L S; Sherin K M; Niebuhr D W; (2019) Electronic Nicotine Delivery Systems or E-cigarettes: American College of Preventive Medicine's Practice Statement. *American Journal of Preventive Medicine* 56(1), 167-178
- Loewen J M and Relich E E; (2019) Electronic Nicotine Delivery Systems: Current trends and patient education opportunities for dental hygienists. *Journal of Dental Hygiene* 93(1), 43-51
- Logue J M, Sleiman M and Montesinos V N; Russell M L; Litter M I; Benowitz N L; Gundel L A; Destailats H ; (2017) Emissions from Electronic Cigarettes: Assessing Vapers' Intake of Toxic Compounds, Secondhand Exposures, and the Associated Health Impacts. *Environmental Science & Technology* 51(16), 9271-9279
- Lohler J and Wollenberg B (2019) Are electronic cigarettes a healthier alternative to conventional tobacco smoking?. *European Archives of Oto-Rhino-Laryngology* 276(1), 17-25
- Lopez A A, Hiler M M; Soule E K; Ramoa C P; Karaoghlanian N V; Lipato T and Breland A B; Shihadeh A L; Eissenberg T ; (2016) Effects of Electronic Cigarette Liquid Nicotine Concentration on Plasma Nicotine and Puff Topography in Tobacco Cigarette Smokers: A Preliminary Report. *Nicotine & Tobacco Research* 18(5), 720-3
- Lorkiewicz P, Riggs D W and Keith R J; Conklin D J; Xie Z ; Sutaria S ; Lynch B ; Srivastava S ; Bhatnagar A ; (2019) Comparison of Urinary Biomarkers of Exposure in Humans Using Electronic Cigarettes, Combustible Cigarettes, and Smokeless Tobacco. *Nicotine & Tobacco Research* 21(9), 1228-1238
- Loupa G, Karali D and Rapsomanikis S ; (2019) The trace of airborne particulate matter from smoking e-cigarette, tobacco heating system, conventional and hand-rolled cigarettes in a residential environment. *Air Quality Atmosphere and Health* 12(12), 1449-1457
- LoVecchio F and Zoph O (2015) Incidence of electronic cigarette exposures in children skyrockets in Arizona. *American Journal of Emergency Medicine* 33(6), 834-5
- Lozier M J, Wallace B and Anderson K ; Ellington S ; Jones C M; Rose D ; Baldwin G ; King B A; Briss P ; Mikosz C A; Lung Injury Response Epidemiology; Surveillance Task Force; (2019) Update: Demographic, Product, and Substance-Use Characteristics of Hospitalized Patients in a Nationwide Outbreak of E-cigarette, or Vaping, Product Use-Associated Lung Injuries - United States, December 2019. *MMWR - Morbidity & Mortality Weekly Report* 68(49), 1142-1148
- Lozier M J, Wallace B and Anderson K ; Ellington S ; Jones C M; Rose D ; Baldwin G ; King B A; Briss P ; Mikosz C A; Lung Injury Response; Epidemiolog ; (2020) Update: Demographic, Product, and Substance-Use Characteristics of Hospitalized Patients in a Nationwide Outbreak of E-cigarette, or Vaping, Product Use-Associated Lung Injuries (vol 68, pg 44, 2020). *Mmwr-Morbidity and Mortality Weekly Report* 69(4), 117-117
- Lu W Y, Ferguson S G; Nichols D and Patel R ; Jacobson G A; (2015) DETERMINATION OF NICOTINE IN CARTRIDGE-BASED ELECTRONIC CIGARETTES. *Analytical Letters* 48(17), 2715-2722
- Lucas J H, Muthumalage T and Wang Q ; Friedman M R; Friedman A E; Rahman I ; (2020) E-Liquid Containing a Mixture of Coconut, Vanilla, and Cookie Flavors Causes Cellular Senescence and Dysregulated Repair in Pulmonary Fibroblasts: Implications on Premature Aging. *Frontiers in Physiology* 11, 924
- Lucchiari C, Masiero M and Mazzocco K ; Veronesi G ; Maisonneuve P ; Jemos C ; Omodeo Sale ; E ; Spina S ; Bertolotti R ; Pravettoni G ; (2020) Benefits of e-cigarettes in smoking reduction and in pulmonary health among chronic smokers undergoing a lung cancer screening program at 6 months. *Addictive Behaviors* 103, 106222
- Lunell E, Molander L and Andersson S B; (1997) Temperature dependency of the release and bioavailability of nicotine from a nicotine vapour inhaler; in vitro/in vivo correlation. *European Journal of Clinical Pharmacology* 52(6), 495-500
- Lunell E, Molander L and Ekberg K ; Wahren J ; (2000) Site of nicotine absorption from a vapour inhaler--comparison with cigarette smoking. *European Journal of Clinical Pharmacology* 55(10), 737-41
- Luo J, Chen L and Lu X ; Yuan J ; Xie Z ; Li D ; (2020) Analysis of potential associations of JUUL flavours with health symptoms based on user-generated data from Reddit. *Tobacco Control* 24, 24
- Ma T T, Wang D Z; Zhang Y H; Zhang S and Sun S H; Li X ; Zhang J X; (2020) Rapid Determination of Formaldehyde, Acetaldehyde and Acrolein in Electronic Cigarette Aerosols by Direct Mass Spectrometry with Evaluation of the Toxicity. *Analytical Letters* , 16
- Ma T, Wang X and Li L ; Sun B ; Zhu Y ; Xia T ; (2020) Electronic cigarette aerosols induce oxidative stress-dependent cell death and NF-kappaB mediated acute lung inflammation in mice. *Archives of Toxicology* 07, 07

- Macedonia T V and Krefft S D; Rose C S; (2020) Persistent Severe Fixed Airways Obstruction in a High-Dosing E-cigarette User. *Journal of General Internal Medicine* 35(1), 345-349
- MacLean R R, Gueorguieva R and DeVito E E; Peltier M R; Parida S ; Sofuoglu M ; (2020) The effects of inhaled flavors on intravenous nicotine. *Experimental & Clinical Psychopharmacology* 28, 28
- Madison M C, Landers C T; Gu B H; Chang C Y; Tung H Y; You R and Hong M J; Baghaei N ; Song L Z; Porter P ; Putluri N ; Salas R ; Gilbert B E; Levental I ; Campen M J; Corry D B; Kheradmand F ; (2019) Electronic cigarettes disrupt lung lipid homeostasis and innate immunity independent of nicotine. *Journal of Clinical Investigation* 129(10), 4290-4304
- Madsen L R, Krarup N H. V; Bergmann T K; Baerentzen S and Neghabat S ; Duval L ; Knudsen S T; (2016) A Cancer That Went Up in Smoke. *Chest* 149(3), E65-E67
- Maessen G C, Wijnhoven A M; Neijzen R L; Paulus M C; van Heel D A. M; Bomers B H. A; Boersma L E; Konya B and van der Heyden M A. G; (2020) Nicotine intoxication by e-cigarette liquids: a study of case reports and pathophysiology. *Clinical Toxicology: The Official Journal of the American Academy of Clinical Toxicology & European Association of Poisons Centres & Clinical Toxicologists* 58(1), 1-8
- Maina G, Castagnoli C and Passini V ; Crosera M ; Adami G ; Mauro M ; Filon F L; (2016) Transdermal nicotine absorption handling e-cigarette refill liquids. *Regulatory Toxicology & Pharmacology* 74, 31-3
- Maina G, Castagnoli C and Ghione G ; Passini V ; Adami G ; Larese Filon ; F ; Crosera M ; (2017) Skin contamination as pathway for nicotine intoxication in vapers. *Toxicology in Vitro* 41, 102-105
- Mainous A G, 3rd and Yadav S ; Hong Y R; Huo J ; (2020) e-Cigarette and Conventional Tobacco Cigarette Use, Dual Use, and C-Reactive Protein. *Journal of the American College of Cardiology* 75(17), 2271-2273
- Majchrzak D, Ezzo M C and Kiumarsi M ; (2020) The effect of tobacco-and electronic cigarettes use on the olfactory function in humans. *Food Quality and Preference* 86, 9
- Majeed B, Linder D and Eissenberg T ; Tarasenko Y ; Smith D ; Ashley D ; (2020) Cluster analysis of urinary tobacco biomarkers among U.S. adults: Population Assessment of Tobacco and Health (PATH) biomarker study (2013-2014). *Preventive Medicine* 140, 106218
- Makri O E, Pallikari A and Kagkellaris K ; Mastronikolis S N; Karanasios G ; Symeonidis C ; Plotas P ; Georgakopoulos C D; (2020) The Acute Effects of Electronic Cigarette Vaping and Tobacco Cigarette Smoking on Choroidal Thickness in Young, Healthy, Habitual, Dual Smokers. *Toxics* 8(4), 11
- Malek N, Nakkash R and Talih S ; Lotfi T ; Salman R ; Karaoghanian N ; El-Hage R ; Saliba N ; Eissenberg T ; Shihadeh A ; (2018) A Transdisciplinary Approach to Understanding Characteristics of Electronic Cigarettes. *Tobacco Regulatory Science* 4(3), 47-72
- Mallock N, Trieu H L and Macziol M ; Malke S ; Katz A ; Laux P ; Henkler-Stephani F ; Hahn J ; Hutzler C ; Luch A ; (2020) Trendy e-cigarettes enter Europe: chemical characterization of JUUL pods and its aerosols. *Archives of Toxicology* 94(6), 1985-1994
- Manigrasso M, Buonanno G and Stabile L ; Morawska L ; Avino P ; (2015) Particle doses in the pulmonary lobes of electronic and conventional cigarette users. *Environmental Pollution* 202, 24-31
- Manigrasso M, Buonanno G and Fuoco F C; Stabile L ; Avino P ; (2015) Aerosol deposition doses in the human respiratory tree of electronic cigarette smokers. *Environmental Pollution* 196, 257-67
- Manigrasso M, Buonanno G and Fuoco F C; Stabile L ; Avino P ; (2017) Electronic cigarettes: age-specific generation-resolved pulmonary doses. *Environmental Science & Pollution Research* 24(14), 13068-13079
- Manning K, Garey L and Mayorga N A; Shepherd J M; Zvolensky M J; (2019) The relation between fatigue severity and anxious arousal, negative affect, and emotion dysregulation among adult e-cigarette users. *Fatigue: Biomedicine and Health and Behavior* 7(2), 92-101
- Manuppello J R and Sullivan K M; (2015) Toxicity assessment of tobacco products in vitro. *ATLA Alternatives to Laboratory Animals* 43(1), 39-67
- Manzoli L, Flacco M E and Fiore M ; La Vecchia C ; Marzuillo C ; Gualano M R; Liguori G ; Cicolini G ; Capasso L ; D'Amario C ; Boccia S ; Siliquini R ; Ricciardi W ; Villari P ; (2015) Electronic Cigarettes Efficacy and Safety at 12 Months: Cohort Study. *PLoS ONE [Electronic Resource]* 10(6), e0129443

- Manzoli L, Flacco M E and Ferrante M ; La Vecchia C ; Siliquini R ; Ricciardi W ; Marzuillo C ; Villari P ; Fiore M ; Group Islese Working; (2017) Cohort study of electronic cigarette use: effectiveness and safety at 24 months. *Tobacco Control* 26(3), 284-292
- Maraqa T, Mohamed M A. T and Salib M ; Morris S ; Mercer L ; Sachwani-Daswani G R; (2018) Too Hot for Your Pocket! Burns From E-Cigarette Lithium Battery Explosions: A Case Series. *Journal of Burn Care & Research* 39(6), 1043-1047
- Marasco R D, Loizzi D and Ardo N P; Fatone F N; Sollitto F ; (2018) Spontaneous Pneumomediastinum After Electronic Cigarette Use. *Annals of Thoracic Surgery* 105(6), e269-e271
- Marcham C L and Springston J P; (2019) Electronic cigarettes in the indoor environment. *Reviews on Environmental Health* 34(2), 105-124
- Marcham C L, Floyd E L; Wood B L; Arnold S and Johnson D L; (2019) E-cigarette nicotine deposition and persistence on glass and cotton surfaces. *Journal of Occupational & Environmental Hygiene* 16(5), 349-354
- Marco E and Grimalt J O (2015) A rapid method for the chromatographic analysis of volatile organic compounds in exhaled breath of tobacco cigarette and electronic cigarette smokers. *Journal of Chromatography. A* 1410, 51-9
- Maridet C, Atge B and Amici J M; Taieb A ; Milpied B ; (2015) The electronic cigarette: the new source of nickel contact allergy of the 21st century?. *Contact Dermatitis* 73(1), 49-50
- Marini S, Buonanno G and Stabile L ; Ficco G ; (2014) Short-term effects of electronic and tobacco cigarettes on exhaled nitric oxide. *Toxicology & Applied Pharmacology* 278(1), 9-15
- Marsden D G, Loukas A and Chen B ; Perry C L; Wilkinson A V; (2019) Associations between frequency of cigarette and alternative tobacco product use and depressive symptoms: A longitudinal study of young adults. *Addictive Behaviors* 99, 106078
- Marshall K, Liu Z and Olfert I M; Gao W ; (2020) Chronic electronic cigarette use elicits molecular changes related to pulmonary pathogenesis. *Toxicology & Applied Pharmacology* 406, 115224
- Marsot A and Simon N (2016) Nicotine and Cotinine Levels With Electronic Cigarette: A Review. *International Journal of Toxicology* 35(2), 179-85
- Marsot A and Simon N (2016) Nicotine and Cotinine Levels with Electronic Cigarette. *International Journal of Toxicology* 35(2), 179-185
- Martin E M, Clapp P W; Rebuli M E; Pawlak E A; Glista-Baker E and Benowitz N L; Fry R C; Jaspers I ; (2016) E-cigarette use results in suppression of immune and inflammatory-response genes in nasal epithelial cells similar to cigarette smoke. *American Journal of Physiology - Lung Cellular & Molecular Physiology* 311(1), L135-44
- Martinez R E, Dhawan S and Sumner W ; Williams B J; (2015) On-Line Chemical Composition Analysis of Refillable Electronic Cigarette Aerosol-Measurement of Nicotine and Nicotyrine. *Nicotine & Tobacco Research* 17(10), 1263-9
- Martinez-Morata I, Sanchez T R and Shimbo D ; Navas-Acien A ; (2020) Electronic Cigarette Use and Blood Pressure Endpoints: a Systematic Review. *Current Hypertension Reports* 23(1), 2
- Martinez-Sanchez J M, Ballbe M and Perez-Ortuno R ; Fu M ; Sureda X ; Pascual J A; Peruga A ; Fernandez E ; (2019) Secondhand exposure to aerosol from electronic cigarettes: pilot study of assessment of tobacco-specific nitrosamine (NNAL) in urine. *Gaceta Sanitaria* 33(6), 575-578
- Marusich J A and Wiley J L; Silinski M A. R; Thomas B F; Meredith S E; Gahl R F; Jackson K J; (2019) Comparison of cigarette, little cigar, and waterpipe tobacco smoke condensate and e-cigarette aerosol condensate in a self-administration model. *Behavioural Brain Research* 372, 112061
- Massarsky A, Abdel A and Glazer L ; Levin E D; Di Giulio R T; (2017) Exposure to 1,2-Propanediol Impacts Early Development of Zebrafish (*Danio rerio*) and Induces Hyperactivity. *Zebrafish* 14(3), 216-222
- Massarsky A, Abdel A and Glazer L ; Levin E D; Di Giulio R T; (2018) Neurobehavioral effects of 1,2-propanediol in zebrafish (*Danio rerio*). *Neurotoxicology* 65, 111-124
- Mastrangeli S, Carnevale R and Cavarretta E ; Sciarretta S ; Peruzzi M ; Marullo A G. M; De Falco E ; Chimenti I ; Valenti V ; Bullen C ; Roeber L ; Frati G ; Biondi-Zoccai G ; (2018) Predictors of oxidative stress and vascular function in an experimental study of tobacco versus electronic cigarettes: A post hoc analysis of the SUR-VAPES 1 Study. *Tobacco Induced Diseases* 16, 18

- Mathur A and Dempsey O J (2018) Electronic cigarettes: a brief update. *Journal of the Royal College of Physicians of Edinburgh* 48(4), 346-351
- Matsumoto S, Fang X and Traber M G; Jones K D; Langelier C; Hayakawa Serpa; P; Calfee C S; Matthay M A; Gotts J E; (2020) Dose-Dependent Pulmonary Toxicity of Aerosolized Vitamin E Acetate. *American Journal of Respiratory Cell & Molecular Biology* 63(6), 748-757
- Mayorga N A, Chavez J and Garey L; Otto M W; Zvolensky M J; (2019) Affective Vulnerability across Non-Daily and Daily Electronic Cigarette Users. *Behavioral Medicine*, 1-9
- Mayyas F, Aldawod H and Alzoubi K H; Khabour O; Shihadeh A; Eissenberg T; (2020) Comparison of the cardiac effects of electronic cigarette aerosol exposure with waterpipe and combustible cigarette smoke exposure in rats. *Life Sciences* 251, 117644
- Mazer-Amirshahi M, Garlich F M and Calello D P; Stolbach A I; (2020) ACMT Position Statement: Limiting Harms of Vaping and E-cigarette Use. *Journal of Medical Toxicology: Official Journal of the American College of Medical Toxicology* 29, 29
- McCague Y (2018) Ocular Chemical Burns Secondary to Accidental Administration of e-Cigarette Liquid. *Advanced Emergency Nursing Journal* 40(2), 104-109
- McCauley L, Markin C and Hosmer D; (2012) An unexpected consequence of electronic cigarette use. *Chest* 141(4), 1110-1113
- McClelland M, Sesoko C and MacDonald D A; (2020) A Mixed Methods Pilot Study on the Short-Term Physiological Effects of Vaping and Attitudes Regarding Its Use and Health Effects in Samples of Young Adults. *Journal of Addictions Nursing* 31(2), 110-118
- McConnell R, Barrington-Trimis J L and Wang K; Urman R; Hong H; Unger J; Samet J; Leventhal A; Berhane K; (2017) Electronic Cigarette Use and Respiratory Symptoms in Adolescents. *American Journal of Respiratory & Critical Care Medicine* 195(8), 1043-1049
- McConnell D D and Carr S B; Litofsky N S; (2019) Potential effects of nicotine on glioblastoma and chemoradiotherapy: a review. *Expert Review of Neurotherapeutics* 19(6), 545-555
- McDonald C F, Jones S and Beckert L; Bonevski B; Buchanan T; Bozier J; Carson-Chahhoud K V; Chapman D G; Dobler C C; Foster J M; Hamor P; Hodge S; Holmes P W; Larcombe A N; Marshall H M; McCallum G B; Miller A; Pattemore P; Roseby R; See H V; Stone E; Thompson B R; Ween M P; Peters M J; (2020) Electronic cigarettes: A position statement from the Thoracic Society of Australia and New Zealand. *Respirology* 25(10), 1082-1089
- McDonnell B P, Dicker P and Regan C L; (2020) Electronic cigarettes and obstetric outcomes: a prospective observational study. *BJOG: An International Journal of Obstetrics & Gynaecology* 127(6), 750-756
- McFaul S R, Do M T; Champagne A and Bang F; (2020) Injuries and poisonings associated with e-cigarettes and vaping substances, electronic Canadian Hospitals Injury Reporting and Prevention Program, 2011-2019. *Health Promotion and Chronic Disease Prevention in Canada* 40(7-8), 250-254
- McGrath-Morrow S A, Hayashi M and Aherrera A; Lopez A; Malinina A; Collaco J M; Neptune E; Klein J D; Winickoff J P; Breysse P; Lazarus P; Chen G; (2015) The effects of electronic cigarette emissions on systemic cotinine levels, weight and postnatal lung growth in neonatal mice. *PLoS ONE [Electronic Resource]* 10(2), e0118344
- McGraw M D, Kim S Y; Reed C and Hernady E; Rahman I; Mariani T J; Finkelstein J N; (2020) Airway basal cell injury after acute diacetyl (2,3-butanedione) vapor exposure. *Toxicology Letters* 325, 25-33
- McRobbie H, Phillips A and Goniewicz M L; Smith K M; Knight-West O; Przulj D; Hajek P; (2015) Effects of Switching to Electronic Cigarettes with and without Concurrent Smoking on Exposure to Nicotine, Carbon Monoxide, and Acrolein. *Cancer Prevention Research* 8(9), 873-8
- Md Isa, N A and Koh P Y; Doraj P; (2019) The Tear Function in Electronic Cigarette Smokers. *Optometry and Vision Science* 96(9), 678-685
- Meernik C and Goldstein A O (2015) A critical review of smoking, cessation, relapse and emerging research in pregnancy and post-partum. *British Medical Bulletin* 114(1), 135-46
- Melstrom P, Koszowski B and Thanner M H; Hoh E; King B; Bunnell R; McAfee T; (2017) Measuring PM2.5, Ultrafine Particles, Nicotine Air and Wipe Samples Following the Use of Electronic Cigarettes. *Nicotine & Tobacco Research* 19(9), 1055-1061

Melstrom P, Sosnoff C and Koszowski B ; King B A; Bunnell R ; Le G ; Wang L ; Thanner M H; Kenemer B ; Cox S ; DeCastro B R; McAfee T ; (2018) Systemic absorption of nicotine following acute secondhand exposure to electronic cigarette aerosol in a realistic social setting. *International Journal of Hygiene & Environmental Health* 221(5), 816-822

Menakuru S, Inzamam Ali and M ; (2018) Beliefs and reality of e-cigarette smoking. *BMJ Case Reports* 02, 02

Meng Q Y, Schwander S and Son Y ; Rivas C ; Delnevo C ; Graber J ; Giovenco D ; Bruen U ; Mathew R ; Robson M ; (2016) Has the mist been peered through? Revisiting the building blocks of human health risk assessment for electronic cigarette use. *Human and Ecological Risk Assessment* 22(2), 558-579

Menicagli R, Marotta O and Serra R ; (2020) Free Radical Production in the Smoking of E-Cigarettes and their Possible Effects in Human Health. *International Journal of Preventive Medicine* 11, 53

Meo S A and Al Asiri S A; (2014) Effects of electronic cigarette smoking on human health. *European Review for Medical & Pharmacological Sciences* 18(21), 3315-9

Meo S A and Ansary M A; Barayan F R; Almusallam A S; Almehaid A M; Alarifi N S; Alsohaibani T A; Zia I (2018) Electronic Cigarettes: Impact on Lung Function and Fractional Exhaled Nitric Oxide Among Healthy Adults. *American Journal of Mens Health* 13(1), 6

Meyer L and Burjonrappa S (2020) Tetrahydrocannabinol (THC) cartridge ingestion. *Journal of Pediatric Surgery Case Reports* 54 (no pagination),

Miao S, Beach E S and Sommer T J; Zimmerman J B; Jordt S E; (2016) High-Intensity Sweeteners in Alternative Tobacco Products. *Nicotine & Tobacco Research* 18(11), 2169-2173

Michael R, Ebraheim N and Maier J ; Tanios M ; Kouri A ; (2019) Electronic Cigarette Burns: A Case Report and Review of Current Literature. *Case Reports in Orthopedics* 2019, 4231764

Michaels B M, Craft P and Michaels J A; Csank G A; (2018) Is Nicotine Replacement a Safe Alternative to Smoking in Plastic Surgery Patients? *Plastic and Reconstructive Surgery - Global Open* 6(12), e2017

Middlekauff H R, Park J and Moheimani R S; (2014) Adverse effects of cigarette and noncigarette smoke exposure on the autonomic nervous system: mechanisms and implications for cardiovascular risk. *Journal of the American College of Cardiology* 64(16), 1740-50

Middlekauff H R, William K J; Su B and Haptonstall K ; Araujo J A; Wu X ; Kim J ; Sallam T ; (2020) Changes in lipid composition associated with electronic cigarette use. *Journal of Translational Medicine* 18(1), 379

Mikheev V B and Brinkman M C; Granville C A; Gordon S M; Clark P I; (2016) Real-Time Measurement of Electronic Cigarette Aerosol Size Distribution and Metals Content Analysis. *Nicotine & Tobacco Research* 18(9), 1895-1902

Mikheev V B, Ivanov A and Lucas E A; South P L; Colijn H O; Clark P I; (2018) Aerosol size distribution measurement of electronic cigarette emissions using combined differential mobility and inertial impaction methods: Smoking machine and puff topography influence. *Aerosol Science & Technology* 52(11), 1233-1248

Mikosz C A, Danielson M and Anderson K N; Pollack L A; Currie D W; Njai R ; Evans M E; Goodman A B; Twentyman E ; Wiltz J L; Rose D A; Krishnasamy V ; King B A; Jones C M; Briss P ; Lozier M ; Ellington S ; Lung Injury Response Epidemiology; Surveillance Task Force; (2020) Characteristics of Patients Experiencing Rehospitalization or Death After Hospital Discharge in a Nationwide Outbreak of E-cigarette, or Vaping, Product Use-Associated Lung Injury - United States, 2019. *MMWR - Morbidity & Mortality Weekly Report* 68(5152), 1183-1188

Miler J A and Hajek P (2017) Resolution of recurrent tonsillitis in a non-smoker who became a vaper. A case study and new hypothesis. *Medical Hypotheses* 109, 17-18

Miler J A and Hajek P (2018) Resolution of chronic nasal *Staphylococcus aureus* infection in a non-smoker who started to use glycerine based e-cigarettes: Antibacterial effects of vaping?. *Medical Hypotheses* 118, 42-43

Miliano C, Scott E R and Murdaugh L B; Gnatowski E R; Faunce C L; Anderson M S; Reyes M M; Gregus A M; Buczynski M W; (2020) Modeling drug exposure in rodents using e-cigarettes and other electronic nicotine delivery systems. *Journal of Neuroscience Methods* 330, 108458

Miller D R, Buettner-Schmidt K and Orr M ; Rykal K ; Niewojna E ; (2020) A systematic review of refillable e-liquid nicotine content accuracy. *Journal of the American Pharmacists Association: JAPhA* 02, 02

Mishra V K, Kim K H; Samaddar P and Kumar S ; Aggarwal M L; Chacko K M; (2017) Review on metallic components released due to the use of electronic cigarettes. *Environmental Engineering Research* 22(2), 131-140

- Mittal A, Baig A and Zulfikar R ; Sharma S ; (2020) Chronic Vaping Related Tracheomalacia (TM): A Case of Vaping Induced Altered Innate Immunity that Culminated in Severe TM. *Cureus* 12(4), e7571
- Miyashita L, Suri R and Dearing E ; Mudway I ; Dove R E; Neill D R; Van Zyl-Smit R ; Kadioglu A ; Grigg J ; (2018) E-cigarette vapour enhances pneumococcal adherence to airway epithelial cells. *European Respiratory Journal* 51(2), 02
- Mobarrez F, Antoniewicz L and Hedman L ; Bosson J A; Lundback M ; (2020) Electronic cigarettes containing nicotine increase endothelial and platelet derived extracellular vesicles in healthy volunteers. *Atherosclerosis* 301, 93-100
- Mohamed M H. N, Rahman A and Jamshed S ; Mahmood S ; (2018) Effectiveness and safety of electronic cigarettes among sole and dual user vapers in Kuantan and Pekan, Malaysia: a six-month observational study. *BMC Public Health* 18(1), 1028
- Moheimani R S, Bhetraratana M and Yin F ; Peters K M; Gornbein J ; Araujo J A; Middlekauff H R; (2017) Increased Cardiac Sympathetic Activity and Oxidative Stress in Habitual Electronic Cigarette Users: Implications for Cardiovascular Risk. *JAMA Cardiology* 2(3), 278-284
- Moheimani R S, Bhetraratana M and Peters K M; Yang B K; Yin F ; Gornbein J ; Araujo J A; Middlekauff H R; (2017) Sympathomimetic Effects of Acute E-Cigarette Use: Role of Nicotine and Non-Nicotine Constituents. *Journal of the American Heart Association* 6(9), 20
- Mokeem S A, Alasqah M N; Michelogiannakis D and Al-Kheraif A A; Romanos G E; Javed F ; (2018) Clinical and radiographic periodontal status and whole salivary cotinine, IL-1beta and IL-6 levels in cigarette- and waterpipe-smokers and E-cig users. *Environmental Toxicology & Pharmacology* 61, 38-43
- Mokeem S A, Abduljabbar T and Al-Kheraif A A; Alasqah M N; Michelogiannakis D ; Samaranayake L P; Javed F ; (2019) Oral Candida carriage among cigarette- and waterpipe-smokers, and electronic cigarette users. *Oral Diseases* 25(1), 319-326
- Monakhova Y B, Tsikin A M; Kuballa T and Lachenmeier D W; Mushtakova S P; (2014) Independent component analysis (ICA) algorithms for improved spectral deconvolution of overlapped signals in 1H NMR analysis: application to foods and related products. *Magnetic Resonance in Chemistry* 52(5), 231-40
- Monroy A E, Hommel E and Smith S T; Raji M ; (2012) Paroxysmal atrial fibrillation following electronic cigarette use in an elderly woman. *Clinical Geriatrics* 20(3), 28-32
- Montanari C, Kelley L K and Kerr T M; Cole M ; Gilpin N W; (2020) Nicotine e-cigarette vapor inhalation effects on nicotine & cotinine plasma levels and somatic withdrawal signs in adult male Wistar rats. *Psychopharmacology* 237(3), 613-625
- Montigaud Y, Manzotti B and Chevrel S ; Leclerc L ; Sarry G ; Clotagatide A ; Pourchez J ; Prevot N ; (2020) Aerosol regional deposition of electronic cigarette emissions using an original ex vivo respiratory model. *Journal of Aerosol Science* 151 (no pagination),
- Moon J, Lee H and Kong M ; Kim H ; Oh Y ; (2020) Association Between Electronic Cigarette Use and Levels of High-Sensitivity C-Reactive Protein and Uric Acid. *Asia-Pacific Journal of Public Health* 32(1), 35-41
- Moore J, Mihalache G and Messahel A ; (2016) "Exploding" electronic cigarette: a case report. *British Journal of Oral & Maxillofacial Surgery* 54(9), 1056-1057
- Moritz E D, Zapata L B; Lekiachvili A and Glidden E ; Annor F B; Werner A K; Ussery E N; Hughes M M; Kimball A ; DeSisto C L; Kenemer B ; Shamout M ; Garcia M C; Reagan-Steiner S ; Petersen E E; Koumans E H; Ritchey M D; King B A; Jones C M; Briss P A; Delaney L ; Patel A ; Polen K D; Sives K ; Meaney-Delman D ; Chatham-Stephens K ; Lung Injury Response Epidemiology; Surveillance Group ; Lung Injury Response Epidemiology; Surveillance Task Force; (2019) Update: Characteristics of Patients in a National Outbreak of E-cigarette, or Vaping, Product Use-Associated Lung Injuries - United States, October 2019. *MMWR - Morbidity & Mortality Weekly Report* 68(43), 985-989
- Morley S, Slaughter J and Smith P R; (2017) Death from Ingestion of E-Liquid. *Journal of Emergency Medicine* 53(6), 862-864
- Moses E, Wang T and Corbett S ; Jackson G R; Drizik E ; Perdomo C ; Perdomo C ; Kleerup E ; Brooks D ; O'Connor G ; Dubinett S ; Hayden P ; Lenburg M E; Spira A ; (2017) Molecular Impact of Electronic Cigarette Aerosol Exposure in Human Bronchial Epithelium. *Toxicological Sciences* 155(1), 248-257
- Motooka Y, Matsui T and Slaton R M; Umetsu R ; Fukuda A ; Naganuma M ; Hasegawa S ; Sasaoka S ; Hatahira H ; Iguchi K ; Nakamura M ; (2018) Adverse events of smoking cessation treatments (nicotine replacement therapy and non-nicotine prescription medication) and electronic cigarettes in the Food and Drug Administration Adverse Event Reporting System, 2004-2016. *SAGE Open Medicine* 6, 2050312118777953

- Mulder H A, Patterson J L; Halquist M S; Kosmider L and Turner J B. M; Poklis J L; Poklis A ; Peace M R; (2019) The Effect of Electronic Cigarette User Modifications and E-liquid Adulteration on the Particle Size Profile of an Aerosolized Product. *Scientific Reports* 9(1), 10221
- Mulder H A, Stewart J B; Blue I P; Krakowiak R I; Patterson J L; Karin K N; Royals J M; DuPont A C; Forsythe K E; Poklis J L; Poklis A and Butler S N; Turner J B. M; Peace M R; (2020) Characterization of E-cigarette coil temperature and toxic metal analysis by infrared temperature sensing and scanning electron microscopy - energy-dispersive X-ray. *Inhalation Toxicology* , 1-9
- Munsamy A, Bhanprakash B and Sirkhot A ; Mlambo L ; Dlamuka S ; Mhlongo N ; Naidoo R ; (2019) A pre-test post-test assessment of non-invasive keratograph break up time and corneal epithelial thickness after vaping. *African Health Sciences* 19(4), 2926-2933
- Muthumalage T, Prinz M and Ansah K O; Gerloff J ; Sundar I K; Rahman I ; (2017) Inflammatory and Oxidative Responses Induced by Exposure to Commonly Used e-Cigarette Flavoring Chemicals and Flavored e-Liquids without Nicotine. *Frontiers in Physiology* 8, 1130
- Muthumalage T, Lamb T and Friedman M R; Rahman I ; (2019) E-cigarette flavored pods induce inflammation, epithelial barrier dysfunction, and DNA damage in lung epithelial cells and monocytes. *Scientific Reports* 9(1), 19035
- Muthumalage T, Lucas J H and Wang Q ; Lamb T ; McGraw M D; Rahman I ; (2020) Pulmonary Toxicity and Inflammatory Response of E-Cigarette Vape Cartridges Containing Medium-Chain Triglycerides Oil and Vitamin E Acetate: Implications in the Pathogenesis of EVALI. *Toxics* 8(3), 28
- Muthumalage T, Friedman M R and McGraw M D; Ginsberg G ; Friedman A E; Rahman I ; (2020) Chemical Constituents Involved in E-Cigarette, or Vaping Product Use-Associated Lung Injury (EVALI). *Toxics* 8(2), 03
- Na C J and Jo S H; Kim K H; Sohn J R; Son Y S; (2019) The transfer characteristics of heavy metals in electronic cigarette liquid. *Environmental Research* 174, 152-159
- Nagpal T S and Green C R; Cook J L; (2020) Vaping During Pregnancy: What Are the Potential Health Outcomes and Perceptions Pregnant Women Have?. *Journal of Obstetrics & Gynaecology Canada: JOGC* 05, 05
- Nair V, Tran M and Behar R Z; Zhai S ; Cui X ; Phandthong R ; Wang Y ; Pan S ; Luo W ; Pankow J F; Volz D C; Talbot P ; (2020) Menthol in electronic cigarettes: A contributor to respiratory disease?. *Toxicology & Applied Pharmacology* 407, 115238
- Nair N, Hurley M and Gates S ; Davies P ; Chen I L; Todd I ; Fairclough L ; Bush A ; Bhatt J M; (2020) Life-threatening hypersensitivity pneumonitis secondary to e-cigarettes. *Archives of Disease in Childhood* 105(11), 1114-1116
- Nanco C R, Poklis J L; Hiler M M; Breland A B; Eissenberg T and Wolf C E; (2019) An Ultra-High-Pressure Liquid Chromatographic Tandem Mass Spectrometry Method for the Analysis of Benzoyl Ester Derivatized Glycols and Glycerol. *Journal of Analytical Toxicology* 43(9), 720-725
- Nansseu J R and Bigna J J; (2016) Electronic Cigarettes for Curbing the Tobacco-Induced Burden of Noncommunicable Diseases: Evidence Revisited with Emphasis on Challenges in Sub-Saharan Africa. *Pulmonary Medicine* 2016, 4894352
- Nardone N, Helen G S and Addo N ; Meighan S ; Benowitz N L; (2019) JUUL electronic cigarettes: Nicotine exposure and the user experience. *Drug & Alcohol Dependence* 203, 83-87
- Narimani M and da Silva G (2020) Does 'Dry Hit' vaping of vitamin E acetate contribute to EVALI? Simulating toxic ketene formation during e-cigarette use. *PLoS ONE [Electronic Resource]* 15(9), e0238140
- Navas-Acien A, Martinez-Morata I and Hilpert M ; Rule A ; Shimbo D ; Lolocono N J; (2020) Early Cardiovascular Risk in E-cigarette Users: the Potential Role of Metals. *Current Environmental Health Reports* , 9
- Nelson J M and Cuadra G A; Palazzolo D L; (2019) A Comparison of Flavorless Electronic Cigarette-Generated Aerosol and Conventional Cigarette Smoke on the Planktonic Growth of Common Oral Commensal Streptococci. *International Journal of Environmental Research & Public Health [Electronic Resource]* 16(24), 09
- Nemeh H, Coba V and Chulkov M ; Gupta A ; Yeldo N ; Chamogeorgakis T ; Tanaka D ; Allenspach L ; Simanovski J ; Shanti C ; (2020) Lung Transplantation for the Treatment of Vaping Induced, Irreversible, End Stage Lung Injury. *Annals of Thoracic Surgery* 29, 29
- Neu H M, Lee A and Brandis J E. P; Patel V ; Schneider A ; Kane M A; Dalby R N; Michel S L. J; (2020) Cigalike electronic nicotine delivery systems e-liquids contain variable levels of metals. *Scientific Reports* 10(1), 11907

- Nga J D. L and Hakim S L; Bilal S (2020) Comparison of End Tidal Carbon Monoxide Levels between Conventional Cigarette, Electronic Cigarette and Heated Tobacco Product among Asiatic Smokers. *Substance Use & Misuse* 55(12), 1943-1948
- Nguyen T, Li G E and Chen H ; Cranfield C G; McGrath K C; Gorrie C A; (2018) Maternal E-Cigarette Exposure Results in Cognitive and Epigenetic Alterations in Offspring in a Mouse Model. *Chemical Research in Toxicology* 31(7), 601-611
- Nguyen T, Li G E and Chen H ; Cranfield C G; McGrath K C; Gorrie C A; (2019) Neurological effects in the offspring after switching from tobacco cigarettes to e-cigarettes during pregnancy in a mouse model. *Toxicological Sciences* 28, 28
- Nguyen C, Li L and Sen C A; Ronquillo E ; Zhu Y ; (2019) Fine and ultrafine particles concentrations in vape shops. *Atmospheric Environment* 211, 159-169
- Ni F, Ogura T and Lin W ; (2020) Electronic Cigarette Liquid Constituents Induce Nasal and Tracheal Sensory Irritation in Mice in Regionally Dependent Fashion. *Nicotine & Tobacco Research* 22(Supplement_1), S35-S44
- Nicoll K J, Rose A M; Khan M A; Quaba O and Lowrie A G; (2016) Thigh burns from exploding e-cigarette lithium ion batteries: First case series. *Burns* 42(4), e42-6
- Nima R S and Aziz D Z; (2020) The oxidative stress induced by the vapours of electronic-hookah on mice liver tissues. *Systematic Reviews in Pharmacy* 11(9), 420-423
- Noble M J, Longstreet B and Hendrickson R G; Gerona R ; (2017) Unintentional Pediatric Ingestion of Electronic Cigarette Nicotine Refill Liquid Necessitating Intubation. *Annals of Emergency Medicine* 69(1), 94-97
- Noble M J (2017) The New Dangers of Electronic Cigarettes. *Clinical Pediatric Emergency Medicine* 18(3), 163-172
- Nocella C, Biondi-Zoccai G and Sciarretta S ; Peruzzi M ; Pagano F ; Loffredo L ; Pignatelli P ; Bullen C ; Frati G ; Carnevale R ; (2018) Impact of Tobacco Versus Electronic Cigarette Smoking on Platelet Function. *American Journal of Cardiology* 122(9), 1477-1481
- Noel A, Verret C M and Hasan F ; Lomnicki S ; Morse J ; Robichaud A ; Penn A L; (2018) Generation of Electronic Cigarette Aerosol by a Third-Generation Machine-Vaping Device: Application to Toxicological Studies. *Journal of Visualized Experiments* 138(08), 25
- Noel J C, Ruzsanyi V and Rainer M ; Bonn G ; (2019) Investigation of the evaporation behavior of aroma compounds in e-cigarettes. *Analytical & Bioanalytical Chemistry* 411(14), 3029-3035
- Noel J C, Rainer D and Gstir R ; Rainer M ; Bonn G ; (2020) Quantification of selected aroma compounds in e-cigarette products and toxicity evaluation in HUVEC/Tert2 cells. *Biomedical Chromatography* 34(3), e4761
- Noel A, Hossain E and Perveen Z ; Zaman H ; Penn A L; (2020) Sub-ohm vaping increases the levels of carbonyls, is cytotoxic, and alters gene expression in human bronchial epithelial cells exposed at the air-liquid interface. *Respiratory Research* 21(1), 305
- Noel A, Hansen S and Zaman A ; Perveen Z ; Pinkston R ; Hossain E ; Xiao R ; Penn A ; (2020) In utero exposures to electronic-cigarette aerosols impair the Wnt signaling during mouse lung development. *American Journal of Physiology - Lung Cellular & Molecular Physiology* 318(4), L705-L722
- Nollen N L, Mayo M S; Clark L and Cox L S; Khariwala S S; Pulvers K ; Benowitz N L; Ahluwalia J S; (2017) Tobacco toxicant exposure in cigarette smokers who use or do not use other tobacco products. *Drug & Alcohol Dependence* 179, 330-336
- Norii T and Plate A (2017) Electronic Cigarette Explosion Resulting in a C1 and C2 Fracture: A Case Report. *Journal of Emergency Medicine* 52(1), 86-88
- Nowak D, Jorres R A and Ruther T ; (2014) E-Cigarettes - Prevention, pulmonary health, and addiction. *Deutsches Arzteblatt International* 111(20), 349-355
- Nyakutsikwa B, Britton J and Bogdanovica I ; Langley T ; (2020) Vitamin E acetate is not present in licit e-cigarette products available on the UK market. *Addiction* 115(4), 782-783
- Nystoriak M A, Kilfoil P J; Lorkiewicz P K; Ramesh B and Kuehl P J; McDonald J ; Bhatnagar A ; Conklin D J; (2019) Comparative effects of parent and heated cinnamaldehyde on the function of human iPSC-derived cardiac myocytes. *Toxicology in Vitro* 61, 104648
- O'Carroll O, Sharma K and Fabre A ; Murphy D J; Keane M P; McCarthy C ; (2020) Vaping-associated lung injury. *Thorax* 75(8), 706-707

Obertova N, Navratil T and Zak I ; Zakharov S ; (2020) Acute exposures to e-cigarettes and heat-not-burn products reported to the Czech Toxicological Information Centre over a 7-year period (2012-2018). *Basic & Clinical Pharmacology & Toxicology* 127(1), 39-46

Obisesan O H, Mirbolouk M and Osei A D; Orimoloye O A; Uddin S M. I; Dzaye O ; El Shahawy O ; Al Rifai M ; Bhatnagar A ; Stokes A ; Benjamin E J; DeFilippis A P; Blaha M J; (2019) Association Between e-Cigarette Use and Depression in the Behavioral Risk Factor Surveillance System, 2016-2017. *JAMA Network Open* 2(12), e1916800

Ocran C, Chaum E and Sobel R K; (2020) Vaping May Be Hazardous to Your Eye. *Ophthalmology* 127(12), 1756

Offermann F (2014) Hazards of E-Cigarettes Response. *Ashrae Journal* 56(8), 8-+

Offermann F J (2015) Chemical emissions from e-cigarettes: Direct and indirect (passive) exposures. *Building and Environment* 93, 101-105

Ogunwale M A, Li M and Ramakrishnam Raju ; M V ; Chen Y ; Nantz M H; Conklin D J; Fu X A; (2017) Aldehyde Detection in Electronic Cigarette Aerosols. *ACS Omega* 2(3), 1207-1214

Ogunwale M A, Chen Y and Theis W S; Nantz M H; Conklin D J; Fu X A; (2017) A novel method of nicotine quantification in electronic cigarette liquids and aerosols. *Analytical Methods* 9(29), 4261-4266

Oh J A and Shin H S; (2015) Identification and Quantification of Several Contaminated Compounds in Replacement Liquids of Electronic Cigarettes by Gas Chromatography-Mass Spectrometry. *Journal of Chromatographic Science* 53(6), 841-8

Oh S S and Jang J E; Lee D W; Park E C; Jang S I; (2020) Cigarette type or smoking history: Which has a greater impact on the metabolic syndrome and its components?. *Scientific Reports* 10(1), 10467

Ohta K, Uchiyama S and Inaba Y ; Nakagome H ; Kunugita N ; (2011) Determination of Carbonyl Compounds Generated from the Electronic Cigarette Using Coupled Silica Cartridges Impregnated with Hydroquinone and 2,4-Dinitrophenylhydrazine. *Bunseki Kagaku* 60(10), 791-797

Okuni-Watanabe M, Kurata K and Yakushijin K ; (2019) The First Case of E-Cigarette-Induced Polycythemia. *Case Reports in Hematology Print* 2019, 2084325

Okunna N (2020) A Comparison of Mental and Behavioral Health Risks Factors Associated With Current Dual Use of Electronic Cigarette and Conventional Tobacco Cigarettes With Exclusive Tobacco Cigarette Use and Nonuse Among Adults in the United States. *American Journal on Addictions* 03, 03

Olfert I M, DeVallance E and Hoskinson H ; Branyan K W; Clayton S ; Pitzer C R; Sullivan D P; Breit M J; Wu Z ; Klinkhachorn P ; Mandler W K; Erdreich B H; Ducatman B S; Bryner R W; Dasgupta P ; Chantler P D; (2018) Chronic exposure to electronic cigarettes results in impaired cardiovascular function in mice. *Journal of Applied Physiology* 124(3), 573-582

Olmedo P, Navas-Acien A and Hess C ; Jarmul S ; Rule A ; (2016) A direct method for e-cigarette aerosol sample collection. *Environmental Research* 149, 151-156

Olmedo P, Goessler W and Tanda S ; Grau-Perez M ; Jarmul S ; Aherrera A ; Chen R ; Hilpert M ; Cohen J E; Navas-Acien A ; Rule A M; (2018) Metal Concentrations in e-Cigarette Liquid and Aerosol Samples: The Contribution of Metallic Coils. *Environmental Health Perspectives* 126(2), 027010

Omaiye E E, Cordova I and Davis B ; Talbot P ; (2017) Counterfeit Electronic Cigarette Products with Mislabeled Nicotine Concentrations. *Tobacco Regulatory Science* 3(3), 347-357

Omaiye E E, McWhirter K J; Luo W and Tierney P A; Pankow J F; Talbot P ; (2019) High concentrations of flavor chemicals are present in electronic cigarette refill fluids. *Scientific Reports* 9(1), 2468

Omaiye E E, McWhirter K J; Luo W and Pankow J F; Talbot P ; (2019) High-Nicotine Electronic Cigarette Products: Toxicity of JUUL Fluids and Aerosols Correlates Strongly with Nicotine and Some Flavor Chemical Concentrations. *Chemical Research in Toxicology* 32(6), 1058-1069

Omaiye E E, Luo W and McWhirter K J; Pankow J F; Talbot P ; (2020) Electronic Cigarette Refill Fluids Sold Worldwide: Flavor Chemical Composition, Toxicity, and Hazard Analysis. *Chemical Research in Toxicology* 23, 23

Omelekhina Y, Eriksson A and Canonaco F ; Prevot A S. H; Nilsson P ; Isaxon C ; Pagels J ; Wierzbicka A ; (2020) Cooking and electronic cigarettes leading to large differences between indoor and outdoor particle composition and concentration measured by aerosol mass spectrometry. *Environmental Science. Processes & Impacts* 22(6), 1382-1396

- Oncken C A and Litt M D; McLaughlin L D; Burki N A; (2015) Nicotine concentrations with electronic cigarette use: effects of sex and flavor. *Nicotine & Tobacco Research* 17(4), 473-8
- Ooi B G, Dutta D and Kazipeta K; Chong N S; (2019) Influence of the E-Cigarette Emission Profile by the Ratio of Glycerol to Propylene Glycol in E-Liquid Composition. *ACS Omega* 4(8), 13338-13348
- Ordonez J E and Kleinschmidt K C; Forrester M B; (2015) Electronic cigarette exposures reported to Texas poison centers. *Nicotine & Tobacco Research* 17(2), 209-11
- Orimoloye O A, Uddin S M. I; Chen L C; Osei A D; Mirbolouk M and Malovichko M V; Sithu I D; Dzaye O; Conklin D J; Srivastava S; Blaha M J; (2019) Electronic cigarettes and insulin resistance in animals and humans: Results of a controlled animal study and the National Health and Nutrition Examination Survey (NHANES 2013-2016). *PLoS ONE [Electronic Resource]* 14(12), e0226744
- Ormerod E and Stone N (2017) Contact allergy and electronic cigarettes (and eyelash curlers). *Clinical & Experimental Dermatology* 42(6), 682-683
- Orr M S (2014) Electronic cigarettes in the USA: a summary of available toxicology data and suggestions for the future. *Tobacco Control* 23 Suppl 2, ii18-22
- Orzabal M R, Lunde-Young E R; Ramirez J I; Howe S Y. F; Naik V D; Lee J and Heaps C L; Threadgill D W; Ramadoss J; (2019) Chronic exposure to e-cig aerosols during early development causes vascular dysfunction and offspring growth deficits. *Translational Research: The Journal Of Laboratory & Clinical Medicine* 207, 70-82
- Osei A D, Mirbolouk M and Orimoloye O A; Dzaye O; Uddin S M. I; Dardari Z A; DeFilippis A P; Bhatnagar A; Blaha M J; (2019) The association between e-cigarette use and asthma among never combustible cigarette smokers: behavioral risk factor surveillance system (BRFSS) 2016 & 2017. *BMC Pulmonary Medicine* 19(1), 180
- Osei A D, Mirbolouk M and Orimoloye O A; Dzaye O; Uddin S M. I; Benjamin E J; Hall M E; DeFilippis A P; Stokes A; Bhatnagar A; Nasir K; Blaha M J; (2019) Association Between E-Cigarette Use and Cardiovascular Disease Among Never and Current Combustible-Cigarette Smokers. *American Journal of Medicine* 132(8), 949-954.e2
- Osei A D, Mirbolouk M and Orimoloye O A; Dzaye O; Uddin S M. I; Benjamin E J; Hall M E; DeFilippis A P; Bhatnagar A; Biswal S S; Blaha M J; (2020) Association Between E-Cigarette Use and Chronic Obstructive Pulmonary Disease by Smoking Status: Behavioral Risk Factor Surveillance System 2016 and 2017. *American Journal of Preventive Medicine* 58(3), 336-342
- Osinski K, Ross H and Clarke L; Dear J; Veiraiah A; (2020) A case of ingestion of two vape cartridges. *Clinical Toxicology: The Official Journal of the American Academy of Clinical Toxicology & European Association of Poisons Centres & Clinical Toxicologists*, 1-2
- Otero C E and Noeker J A; Brown M M; Wavreil F D. M; Harvey W A; Mitchell K A; Heggland S J; (2019) Electronic cigarette liquid exposure induces flavor-dependent osteotoxicity and increases expression of a key bone marker, collagen type I. *Journal of Applied Toxicology* 39(6), 888-898
- Pacifici R, Pichini S and Graziano S; Pellegrini M; Massaro G; Beatrice F; (2015) Successful Nicotine Intake in Medical Assisted Use of E-Cigarettes: A Pilot Study. *International Journal of Environmental Research & Public Health [Electronic Resource]* 12(7), 7638-46
- Pagano T, Bida M R and Robinson R J; (2015) Laboratory Activity for the Determination of Nicotine in Electronic Cigarette Liquids using Gas Chromatography-Mass Spectrometry. *Journal of Laboratory Chemical Education* 3(3), 37-43
- Pagano T, DiFrancesco A G and Smith S B; George J; Wink G; Rahman I; Robinson R J; (2016) Determination of Nicotine Content and Delivery in Disposable Electronic Cigarettes Available in the United States by Gas Chromatography-Mass Spectrometry. *Nicotine & Tobacco Research* 18(5), 700-7
- Page F, Hamnett N and Wearn C; Hardwicke J; Moiemem N; (2016) The acute effects of electronic cigarette smoking on the cutaneous circulation. *Journal of Plastic and Reconstructive & Aesthetic Surgery: JPRAS* 69(4), 575-7
- Paik J H, Kang S and Durey A; Kim J H; Kim A J; (2018) Symptomatic bradycardia due to nicotine intoxication. *Revista Brasileira de Terapia Intensiva* 30(1), 121-126
- Palamidas A, Tsirikla S and Katsaounou P A; Vakali S; Gennimata S A; Kaltsakas G; Gratziou C; Koulouris N; (2017) Acute effects of short term use of ecigarettes on Airways Physiology and Respiratory Symptoms in Smokers with and without Airway Obstructive Diseases and in Healthy non smokers. *Tobacco Prevention & Cessation* 3, 5
- Palazzolo D L (2013) Electronic cigarettes and vaping: a new challenge in clinical medicine and public health. A literature review. *Frontiers in Public Health* 1, 56

- Palazzolo D L and Crow A P; Nelson J M; Johnson R A; (2016) Trace Metals Derived from Electronic Cigarette (ECIG) Generated Aerosol: Potential Problem of ECIG Devices That Contain Nickel. *Frontiers in Physiology* 7, 663
- Palazzolo D L, Nelson J M; Ely E A; Crow A P; Distin J and Kunigelis S C; (2017) The Effects of Electronic Cigarette (ECIG)-Generated Aerosol and Conventional Cigarette Smoke on the Mucociliary Transport Velocity (MTV) Using the Bullfrog (*R. catesbiana*) Palate Paradigm. *Frontiers in Physiology* 8, 1023
- Palazzolo D, Nelson J M and Hudson Z; (2019) The Use of HPLC-PDA in Determining Nicotine and Nicotine-Related Alkaloids from E-Liquids: A Comparison of Five E-Liquid Brands Purchased Locally. *International Journal of Environmental Research & Public Health* [Electronic Resource] 16(17), 21
- Paley G L, Echaliier E and Eck T W; Hong A R; Farooq A V; Gregory D G; Lubniewski A J; (2016) Corneoscleral Laceration and Ocular Burns Caused by Electronic Cigarette Explosions. *Cornea* 35(7), 1015-8
- Palmisani J, Di Gilio A and Palmieri L; Abenavoli C; Famele M; Draisci R; de Gennaro G; (2019) Evaluation of Second-Hand Exposure to Electronic Cigarette Vaping under a Real Scenario: Measurements of Ultrafine Particle Number Concentration and Size Distribution and Comparison with Traditional Tobacco Smoke. *Toxics* 7(4), 25
- Palmisani J, Abenavoli C and Famele M; Di Gilio A; Palmieri L; de Gennaro G; Draisci R; (2020) Chemical Characterization of Electronic Cigarette (e-cigs) Refill Liquids Prior to EU Tobacco Product Directive Adoption: Evaluation of BTEX Contamination by HS-SPME-GC-MS and Identification of Flavoring Additives by GC-MS-O. *Atmosphere* 11(4), 21
- Palpant N J, Hofsteen P and Pabon L; Reinecke H; Murry C E; (2015) Cardiac development in zebrafish and human embryonic stem cells is inhibited by exposure to tobacco cigarettes and e-cigarettes. *PLoS ONE* [Electronic Resource] 10(5), e0126259
- Panitz D, Swamy H and Nehrke K; (2015) A *C. elegans* model of electronic cigarette use: Physiological effects of e-liquids in nematodes. *BMC Pharmacology & Toxicology* 16, 32
- Pankow J F, Kim K and McWhirter K J; Luo W; Escobedo J O; Strongin R M; Duell A K; Peyton D H; (2017) Benzene formation in electronic cigarettes. *PLoS ONE* [Electronic Resource] 12(3), e0173055
- Pankow J F (2017) Calculating Compound Dependent Gas-Droplet Distributions in Aerosols of Propylene Glycol and Glycerol from Electronic Cigarettes. *Journal of Aerosol Science* 107, 9-13
- Pankow J F, Kim K and Luo W; McWhirter K J; (2018) Gas/Particle Partitioning Constants of Nicotine, Selected Toxicants, and Flavor Chemicals in Solutions of 50/50 Propylene Glycol/Glycerol As Used in Electronic Cigarettes. *Chemical Research in Toxicology* 31(9), 985-990
- Pankow J F and Duell A K; Peyton D H; (2020) Free-Base Nicotine Fraction α (fb) in Non-Aqueous versus Aqueous Solutions: Electronic Cigarette Fluids Without versus With Dilution with Water. *Chemical Research in Toxicology* 33(7), 1729-1735
- Panse P M and Feller F F; Butt Y M; Smith M L; Larsen B T; Tazelaar H D; Harvin H J; Gotway M B; (2020) Radiologic and Pathologic Correlation in EVALI. *AJR. American Journal of Roentgenology* 215(5), 1057-1064
- Papaefstathiou E, Stylianou M and Andreou C; Agapiou A; (2020) Breath analysis of smokers, non-smokers, and e-cigarette users. *Journal of Chromatography B: Analytical Technologies in the Biomedical & Life Sciences* 1160, 122349
- Papaefstathiou E, Bezantakos S and Stylianou M; Biskos G; Agapiou A; (2020) Comparison of particle size distributions and volatile organic compounds exhaled by e-cigarette and cigarette users. *Journal of Aerosol Science* 141 (no pagination),
- Papaseit E, Farre M and Graziano S; Pacifici R; Perez-Mana C; Garcia-Algar O; Pichini S; (2017) Monitoring nicotine intake from e-cigarettes: measurement of parent drug and metabolites in oral fluid and plasma. *Clinical Chemistry & Laboratory Medicine* 55(3), 415-423
- Papousek R, Pataj Z and Novakova P; Lemr K; Bartak P; (2014) Determination of acrylamide and acrolein in smoke from tobacco and E-cigarettes. *Chromatographia* 77(17-18), 1145-1151
- Parekh T, Pemmasani S and Desai R; (2020) Risk of Stroke With E-Cigarette and Combustible Cigarette Use in Young Adults. *American Journal of Preventive Medicine* 58(3), 446-452
- Parekh T, Owens C and Fay K; Phillips J; Kitsantas P; (2020) Use of e-Cigarettes and Development of Respiratory Conditions in Women of Childbearing Age. *Southern Medical Journal* 113(10), 488-494
- Park S H, Lee L and Shearston J A; Weitzman M; (2017) Patterns of electronic cigarette use and level of psychological distress. *PLoS ONE* [Electronic Resource] 12(3), e0173625

- Park E J and Min Y G; (2018) The Emerging Method of Suicide by Electronic Cigarette Liquid: a Case Report. *Journal of Korean Medical Science* 33(11), e52
- Park M B and Choi J K; (2019) Differences between the effects of conventional cigarettes, e-cigarettes and dual product use on urine cotinine levels. *Tobacco Induced Diseases* 17, 12
- Park H R, O'Sullivan M and Vallarino J ; Shumyatcher M ; Himes B E; Park J A; Christiani D C; Allen J ; Lu Q ; (2019) Transcriptomic response of primary human airway epithelial cells to flavoring chemicals in electronic cigarettes. *Scientific Reports* 9(1), 1400
- Paschke M, Hutzler C and Henkler F ; Luch A ; (2015) Toward the stereochemical identification of prohibited characterizing flavors in tobacco products: the case of strawberry flavor. *Archives of Toxicology* 89(8), 1241-55
- Patel V N, Rouse M and Brown C ; Pandya S ; (2020) Ground Glass Opacities Observed in a 26-Year-Old Coronavirus Disease 2019 (COVID-19) Rule-Out Patient With a History of Vape Use. *Cureus* 12(9), e10302
- Patel S, Wooles N and Martin T ; (2020) A systematic review of the impact of cigarettes and electronic cigarettes in otology. *Journal of Laryngology & Otology* , 1-6
- Patterson S B, Beckett A R; Lintner A and Leahey C ; Greer A ; Brevard S B; Simmons J D; Kahn S A; (2017) A Novel Classification System for Injuries After Electronic Cigarette Explosions. *Journal of Burn Care & Research* 38(1), e95-e100
- Patterson C M, Valchanov K and Barker A ; Goddard M ; Yang H ; Butchart A G; (2020) Severe acute respiratory distress syndrome requiring extracorporeal membrane oxygenation support: a consequence of vaping. *Erj Open Research* 6(2),
- Payne J D, Michaels D and Orellana-Barrios M ; Nugent K ; (2017) Electronic Cigarette Toxicity. *Journal of Primary Care & Community Health* 8(2), 100-102
- Peace M R, Baird T R; Smith N and Wolf C E; Poklis J L; Poklis A ; (2016) Concentration of Nicotine and Glycols in 27 Electronic Cigarette Formulations. *Journal of Analytical Toxicology* 40(6), 403-7
- Peace M R, Krakowiak R I; Wolf C E; Poklis A and Poklis J L; (2017) Identification of MDMB-FUBINACA in commercially available e-liquid formulations sold for use in electronic cigarettes. *Forensic Science International* 271, 92-97
- Peace M R, Mulder H A; Baird T R; Butler K E; Friedrich A K; Stone J W; Turner J B. M; Poklis A and Poklis J L; (2018) Evaluation of Nicotine and the Components of e-Liquids Generated from e-Cigarette Aerosols. *Journal of Analytical Toxicology* 42(8), 537-543
- Peace M R and Smith M E; Poklis J L; (2020) The analysis of commercially available natural products recommended for use in electronic cigarettes. *Rapid Communications in Mass Spectrometry* 34(11), e8771
- Pearce K, Gray N and Gaur P ; Jeon J ; Suarez A ; Shannahan J ; Pappas R S; Watson-Wright C ; (2020) Toxicological analysis of aerosols derived from three electronic nicotine delivery systems using normal human bronchial epithelial cells. *Toxicology in Vitro* 69, 104997
- Pellegrino R M, Tinghino B and Mangiaracina G ; Marani A ; Vitali M ; Protano C ; Osborn J F; Cattaruzza M S; (2012) Electronic cigarettes: an evaluation of exposure to chemicals and fine particulate matter (PM). *Annali di Igiene* 24(4), 279-88
- Pepper J K and Eissenberg T (2014) Waterpipes and electronic cigarettes: increasing prevalence and expanding science. *Chemical Research in Toxicology* 27(8), 1336-43
- Perez M F, Atuegwu N C; Oncken C and Mead E L; Mortensen E M; (2019) Association between Electronic Cigarette Use and Asthma in Never-Smokers. *Annals of the American Thoracic Society* 16(11), 1453-1456
- Perez M F, Atuegwu N C; Mead E L; Oncken C and Mortensen E M; (2019) Adult E-Cigarettes Use Associated with a Self-Reported Diagnosis of COPD. *International Journal of Environmental Research & Public Health* [Electronic Resource] 16(20), 16
- Perez M F and Atuegwu N C; Mortensen E M; Oncken C (2020) The inflammatory biomarker YKL-40 is elevated in the serum, but not the sputum, of E-cigarette users. *Experimental Lung Research* , 1-12
- Perrine C G, Pickens C M; Boehmer T K; King B A; Jones C M; DeSisto C L; Duca L M; Lekichvili A and Kenemer B ; Shamout M ; Landen M G; Lynfield R ; Ghinai I ; Heinzerling A ; Lewis N ; Pray I W; Tanz L J; Patel A ; Briss P A; Lung Injury Response Epidemiology; Surveillance Group ; (2019) Characteristics of a Multistate Outbreak of Lung Injury Associated with E-cigarette Use, or Vaping - United States, 2019. *MMWR - Morbidity & Mortality Weekly Report* 68(39), 860-864

Peruga A, Eissenberg T and WHO ; (2019) Clinical pharmacology of nicotine in electronic nicotine delivery systems. In: , editors. WHO Study Group on Tobacco Product Regulation: Report on the Scientific Basis of Tobacco Product Regulation: Seventh Report of a WHO Study Group. Geneva: World Health Organization, p31-74

Peruzzi M, Cavarretta E and Frati G ; Carnevale R ; Miraldi F ; Biondi-Zoccai G ; Sciarretta S ; Versaci F ; Cammalleri V ; Avino P ; Protano C ; Vitali M ; (2020) Comparative Indoor Pollution from Glo, Iqos, and Juul, Using Traditional Combustion Cigarettes as Benchmark: Evidence from the Randomized SUR-VAPES AIR Trial. *International Journal of Environmental Research & Public Health* [Electronic Resource] 17(17), 19

Peruzzi M, Biondi-Zoccai G and Carnevale R ; Cavarretta E ; Frati G ; Versaci F ; (2020) Vaping Cardiovascular Health Risks: an Updated Umbrella Review. *Current Emergency and Hospital Medicine Reports* , 1-7

Peterson E, Ugonabo N and Franks A G ; Lo Sicco ; K ; (2019) Case report of discoid lupus erythematosus in association with electronic cigarette use. *JAAD Case Reports* 5(12), 1030-1032

Pham T, Williams J V. A and Bhattarai A ; Dores A K ; Isherwood L J ; Patten S B ; (2020) Electronic cigarette use and mental health: A Canadian population-based study. *Journal of Affective Disorders* 260, 646-652

Pham K, Huynh D and Le L ; Delitto D ; Yang L ; Huang J ; Kang Y ; Steinberg M B ; Li J ; Zhang L ; Liu D ; Tang M S ; Liu C ; Wang H ; (2020) E-cigarette promotes breast carcinoma progression and lung metastasis: Macrophage-tumor cells crosstalk and the role of CCL5 and VCAM-1. *Cancer Letters* 491, 132-145

Pinkston R, Zaman H and Hossain E ; Penn A L ; Noel A ; (2020) Cell-specific toxicity of short-term JUUL aerosol exposure to human bronchial epithelial cells and murine macrophages exposed at the air-liquid interface. *Respiratory Research* 21(1), 269

Pintado-Palomino K, de Almeida Cvnb and Oliveira-Santos C ; Pires-de-Souza F P ; Tirapelli C ; (2019) The effect of electronic cigarettes on dental enamel color. *Journal of Esthetic & Restorative Dentistry: Official Publication of the American Academy of Esthetic Dentistry* 31(2), 160-165

Pisinger C and Dossing M (2014) A systematic review of health effects of electronic cigarettes. *Preventive Medicine* 69, 248-60

Podzolkov V I and Bragina A E ; Druzhinina N A ; Vasil'eva L V ; Osadchiy K K ; Dubchak A E ; Khvalin E I ; (2020) Relation between Tobacco Smoking/Electronic Smoking and Albuminuria/Vascular Stiffness in Young People without Cardiovascular Diseases. *Kidney & Blood Pressure Research* 45(3), 467-476

Poklis J L, Wolf C E ; 2nd and Peace M R ; (2017) Ethanol concentration in 56 refillable electronic cigarettes liquid formulations determined by headspace gas chromatography with flame ionization detector (HS-GC-FID). *Drug Testing & Analysis* 9(10), 1637-1640

Poklis J L, Mulder H A ; Halquist M S ; Wolf C E ; Poklis A and Peace M R ; (2017) The Blue Lotus Flower (*Nymphaea caerulea*) Resin Used in a New Type of Electronic Cigarette, the Re-Buildable Dripping Atomizer. *Journal of Psychoactive Drugs* 49(3), 175-181

Ponzoni L, Moretti M and Sala M ; Fasoli F ; Muchietto V ; Lucini V ; Cannazza G ; Gallesi G ; Castellana C N ; Clementi F ; Zoli M ; Gotti C ; Braida D ; (2015) Different physiological and behavioural effects of e-cigarette vapour and cigarette smoke in mice. *European Neuropsychopharmacology* 25(10), 1775-86

Ponzoni L, Moretti M and Braida D ; Zoli M ; Clementi F ; Viani P ; Sala M ; Gotti C ; (2019) Increased sensitivity to Delta(9)-THC-induced rewarding effects after seven-week exposure to electronic and tobacco cigarettes in mice. *European Neuropsychopharmacology* 29(4), 566-576

Ponzoni L, Braida D and Carboni L ; Moretti M ; Viani P ; Clementi F ; Zoli M ; Gotti C ; Sala M ; (2020) Persistent cognitive and affective alterations at late withdrawal stages after long-term intermittent exposure to tobacco smoke or electronic cigarette vapour: Behavioural changes and their neurochemical correlates. *Pharmacological Research* 158, 104941

Popa C, Banita S and Patachia M ; Matei C ; Bratu A M ; Petrus M ; Dumitras D C ; (2015) CO2 LASER-PHOTOACOUSTIC STUDY OF EXHALED BREATH PRODUCED BY ELECTRONIC vs. TRADITIONAL CIGARETTES. *Romanian Reports in Physics* 67(3), 946-953

Popa C (2015) Infrared spectroscopy study of the influence of inhaled vapors/smoke produced by cigarettes of active smokers. *Journal of Biomedical Optics* 20(5), 051003

Porpora M G, Piacenti I and Scaramuzzino S ; Masciullo L ; Rech F ; Panici P B ; (2019) Environmental contaminants exposure and preterm birth: A systematic review. *Toxics* 7(1),

Poschenrieder F, Rotter M and Gschwendtner A ; Hamer O W ; (2020) E-cigarette-induced lung disease: from acute to chronic. *Lancet* 396(10250), 564

- Poulianiti K, Karatzaferi C and Flouris A D; Fatouros I G; Koutedakis Y; Jamurtas A Z; (2016) Antioxidant responses following active and passive smoking of tobacco and electronic cigarettes. *Toxicology Mechanisms & Methods* 26(6), 455-61
- Pourchez J, Parisse S and Sarry G ; Perinel-Ragey S ; Vergnon J M; Clotagatide A ; Prevot N ; (2018) Impact of power level and refill liquid composition on the aerosol output and particle size distribution generated by a new-generation e-cigarette device. *Aerosol Science and Technology* 52(4), 359-369
- Pramod S, Safriadi F and Hernowo B ; Dwiyana R ; Batista B ; (2020) Smoking history, smoking intensity, and type of cigarette as risk factors of bladder cancer: A literature review. *Urological Science* 31(4), 147-155
- Prasedya E S, Ambana Y and Martyasari N W. R; Aprizal Y ; Nurrijawati ; Sunarpi ; (2020) Short-term E-cigarette toxicity effects on brain cognitive memory functions and inflammatory responses in mice. *Toxicological Research* 36(3), 267-273
- Pratt S I, Sargent J and Daniels L ; Santos M M; Brunette M ; (2016) Appeal of electronic cigarettes in smokers with serious mental illness. *Addictive Behaviors* 59, 30-4
- Prevot N, de Oliveira F and Perinel-Ragey S ; Basset T ; Vergnon J M; Pourchez J ; (2017) Nicotine delivery from the refill liquid to the aerosol via high-power e-cigarette device. *Scientific Reports* 7(1), 2592
- Protano C, Manigrasso M and Avino P ; Sernia S ; Vitali M ; (2016) Second-hand smoke exposure generated by new electronic devices (IQOS R and e-cigs) and traditional cigarettes: submicron particle behaviour in human respiratory system. *Annali di Igiene* 28(2), 109-12
- Protano C, Manigrasso M and Avino P ; Vitali M ; (2017) Second-hand smoke generated by combustion and electronic smoking devices used in real scenarios: Ultrafine particle pollution and age-related dose assessment. *Environment International* 107, 190-195
- Protano C, Avino P and Manigrasso M ; Vivaldi V ; Perna F ; Valeriani F ; Vitali M ; (2018) Environmental Electronic Vape Exposure from Four Different Generations of Electronic Cigarettes: Airborne Particulate Matter Levels. *International Journal of Environmental Research & Public Health* [Electronic Resource] 15(10), 03
- Protano C, Manigrasso M and Cammalleri V ; Biondi Zoccai G; Frati G ; Avino P ; Vitali M ; (2020) Impact of Electronic Alternatives to Tobacco Cigarettes on Indoor Air Particular Matter Levels. *International Journal of Environmental Research & Public Health* [Electronic Resource] 17(8), 24
- Przybyla R J, Wright J and Parthiban R ; Nazemidashtarjandi S ; Kaya S ; Farnoud A M; (2017) Electronic cigarette vapor alters the lateral structure but not tensiometric properties of calf lung surfactant. *Respiratory Research* 18(1), 193
- Pulvers K, Emami A S and Nollen N L; Romero D R; Strong D R; Benowitz N L; Ahluwalia J S; (2018) Tobacco Consumption and Toxicant Exposure of Cigarette Smokers Using Electronic Cigarettes. *Nicotine & Tobacco Research* 20(2), 206-214
- Pulvers K, Nollen N L and Rice M ; Schmid C H; Qu K ; Benowitz N L; Ahluwalia J S; (2020) Effect of Pod e-Cigarettes vs Cigarettes on Carcinogen Exposure Among African American and Latinx Smokers: A Randomized Clinical Trial. *JAMA Network Open* 3(11), e2026324
- Pushalkar S, Paul B and Li Q ; Yang J ; Vasconcelos R ; Makwana S ; Gonzalez J M; Shah S ; Xie C ; Janal M N; Queiroz E ; Bederoff M ; Leinwand J ; Solarewicz J ; Xu F ; Aboseria E ; Guo Y ; Aguillo D ; Gomez C ; Kamer A ; Shelley D ; Aphinyanaphongs Y ; Barber C ; Gordon T ; Corby P ; Li X ; Saxena D ; (2020) Electronic Cigarette Aerosol Modulates the Oral Microbiome and Increases Risk of Infection. *iScience* 23(3), 100884
- Putzhammer R, Doppler C and Jakschitz T ; Heinz K ; Forste J ; Danzl K ; Messner B ; Bernhard D ; (2016) Vapours of US and EU Market Leader Electronic Cigarette Brands and Liquids Are Cytotoxic for Human Vascular Endothelial Cells. *PLoS ONE* [Electronic Resource] 11(6), e0157337
- Pywell M J, Wordsworth M and Kwasnicki R M; Chadha P ; Hettiaratchy S ; Halsey T ; (2018) The Effect of Electronic Cigarettes on Hand Microcirculation. *Journal of Hand Surgery - American Volume* 43(5), 432-438
- Qasim H, Karim Z A and Silva-Espinoza J C; Khasawneh F T; Rivera J O; Ellis C C; Bauer S L; Almeida I C; Alshbool F Z; (2018) Short-Term E-Cigarette Exposure Increases the Risk of Thrombogenesis and Enhances Platelet Function in Mice. *Journal of the American Heart Association* 7(15), 18
- Qiu J, Barnes S and Wijesinghe R ; Limaye S ; Reddel S W; (2020) Vaping and e-cigarettes: a life-threatening hypersensitivity reaction. *Internal Medicine Journal* 50(10), 1294-1295
- Qu Y, Kim K H and Szulejko J E; (2018) The effect of flavor content in e-liquids on e-cigarette emissions of carbonyl compounds. *Environmental Research* 166, 324-333

- Qu Y, Szulejko J E and Kim K H; Jo S H; (2019) The effect of varying battery voltage output on the emission rate of carbonyls released from e-cigarette smoke. *Microchemical Journal* 145, 47-54
- Quintana P J. E, Hoh E and Dodder N G; Matt G E; Zakarian J M; Anderson K A; Akins B; Chu L; Hovell M F; (2019) Nicotine levels in silicone wristband samplers worn by children exposed to secondhand smoke and electronic cigarette vapor are highly correlated with child's urinary cotinine. *Journal of Exposure Science & Environmental Epidemiology* 29(6), 733-741
- Quintana P J. E, Lopez-Galvez N and Dodder N G; Hoh E; Matt G E; Zakarian J M; Vyas M; Chu L; Akins B; Padilla S; Anderson K A; Hovell M F; (2020) Nicotine, Cotinine, and Tobacco-Specific Nitrosamines Measured in Children's Silicone Wristbands in Relation to Secondhand Smoke and E-cigarette Vapor Exposure. *Nicotine & Tobacco Research* 03, 03
- Quiroga L, Asif M and Lagziel T; Bhat D; Caffrey J; (2019) E-Cigarette Battery Explosions: Review of the Acute Management of the Burns and the Impact on Our Population. *Cureus* 11(8), e5355
- Rader F, Rashid M and Nguyen T T; Luong E; Kim A; Kim E; Elashoff R; Davoren K; Moy N; Nafeh F; Merz N B; Ebinger J; Hamburg N; Lindner J; Cheng S; (2020) E-Cigarette Use and Subclinical Cardiac Effects. *Circulation Research* 127(12), 1566-1567
- Raez-Villanueva S, Ma C and Kleiboer S; Holloway A C; (2018) The effects of electronic cigarette vapor on placental trophoblast cell function. *Reproductive Toxicology* 81, 115-121
- Rahali D, Jrad-Lamine A and Dallagi Y; Bdiri Y; Ba N; El May M; El Fazaa S; El Golli N; (2018) Semen Parameter Alteration, Histological Changes and Role of Oxidative Stress in Adult Rat Epididymis on Exposure to Electronic Cigarette Refill Liquid. *Chinese Journal of Physiology* 61(2), 75-84
- Rahman M A, Hann N and Wilson A; Worrall-Carter L; (2014) Electronic cigarettes: patterns of use, health effects, use in smoking cessation and regulatory issues. *Tobacco Induced Diseases* 12(1), 21
- Raja J, Khouzam A and Khouzam N; Khouzam R N; (2020) Smoke and Heart Should Stay Apart: A Look at E Cigarettes and Other Alternatives to Conventional Cigarettes, and Their Impact on Cardiovascular Health. *Current Problems in Cardiology*, 100640
- Ralho A, Coelho A and Ribeiro M; Paula A; Amaro I; Sousa J; Marto C; Ferreira M; Carrilho E; (2019) Effects of Electronic Cigarettes on Oral Cavity: A Systematic Review. *The Journal of Evidencebased Dental Practice* 19(4), 101318
- Ramanathan G, Craver-Hoover B and Arechavala R J; Herman D A; Chen J H; Lai H Y; Renusch S R; Kleinman M T; Fleischman A G; (2020) E-Cigarette Exposure Decreases Bone Marrow Hematopoietic Progenitor Cells. *Cancers* 12(8), 14
- Ramirez J I, Ridgway C A; Lee J G; Potenza B M; Sen S and Palmieri T L; Greenhalgh D G; Maguina P; (2017) The Unrecognized Epidemic of Electronic Cigarette Burns. *Journal of Burn Care & Research* 38(4), 220-224
- Ramirez J E. M, Karim Z A; Alarabi A B; Hernandez K R; Ben Taleb and Z; Rivera J O; Khasawneh F T; Alshbool F Z; (2020) The JUUL E-Cigarette Elevates the Risk of Thrombosis and Potentiates Platelet Activation. *Journal of Cardiovascular Pharmacology and Therapeutics* 25(6), 578-586
- Ramoia C P, Hiler M M; Spindle T R; Lopez A A; Karaoghlanian N and Lipato T; Breland A B; Shihadeh A; Eissenberg T; (2016) Electronic cigarette nicotine delivery can exceed that of combustible cigarettes: a preliminary report. *Tobacco Control* 25(e1), e6-9
- Rankin G D, Wingfors H and Uski O; Hedman L; Ekstrand-Hammarstrom B; Bosson J; Lundback M; (2019) The toxic potential of a fourth-generation E-cigarette on human lung cell lines and tissue explants. *Journal of Applied Toxicology* 39(8), 1143-1154
- Rao P, Liu J and Springer M L; (2020) JUUL and Combusted Cigarettes Comparably Impair Endothelial Function. *Tobacco Regulatory Science* 6(1), 30-37
- Rao D R, Maple K L; Dettori A and Afolabi F; Francis J K. R; Artunduaga M; Lieu T J; Aldy K; Cao D J; Hsu S; Feng S Y; Mittal V; (2020) Clinical Features of E-cigarette, or Vaping, Product Use-Associated Lung Injury in Teenagers. *Pediatrics* 146(1), 07
- Rapp J L, Alpert N and Flores R M; Taioli E; (2020) Serum cotinine levels and nicotine addiction potential of e-cigarettes: an NHANES analysis. *Carcinogenesis* 41(10), 1454-1459
- Rasanen M, Helantera I and Kalliomaki J; Savikko J; Parry M; Lempinen M; (2017) A Case Report of Successful Kidney Donation After Brain Death Following Nicotine Intoxication. *Transplantation Proceedings* 49(1), 229-231

- Rau A S, Reinikovaite V and Schmidt E P; Taraseviciene-Stewart L ; Deleyiannis F W; (2017) Electronic Cigarettes Are as Toxic to Skin Flap Survival as Tobacco Cigarettes. *Annals of Plastic Surgery* 79(1), 86-91
- Raymond B H, Collette-Merrill K and Harrison R G; Jarvis S ; Rasmussen R J; (2018) The Nicotine Content of a Sample of E-cigarette Liquid Manufactured in the United States. *Journal of Addiction Medicine* 12(2), 127-131
- Reagan-Steiner S, Gary J and Matkovic E ; Ritter J M; Shieh W J; Martines R B; Werner A K; Lynfield R ; Holzbauer S ; Bull-ock H ; Denison A M; Bhatnagar J ; Bollweg B C; Patel M ; Evans M E; King B A; Rose D A; Baldwin G T; Jones C M; Krish-nasamy V ; Briss P A; Weissman D N; Meaney-Delman D ; Zaki S R; Lung Injury Response Pathology Working Group ; (2020) Pathological findings in suspected cases of e-cigarette, or vaping, product use-associated lung injury (EVALI): a case series. *The Lancet Respiratory Medicine* 8(12), 1219-1232
- Rebuli M E, Glista-Baker E and Hoffman J R; Duffney P F; Robinette C ; Speen A M; Pawlak E A; Dhingra R ; Noah T L; Jas-pers I ; (2020) E-cigarette Use Alters Nasal Mucosal Immune Response to Live-Attenuated Influenza Virus (LAIV). *American Journal of Respiratory Cell & Molecular Biology* 23, 23
- Regueiro J, Giri A and Wenzl T ; (2016) Optimization of a Differential Ion Mobility Spectrometry-Tandem Mass Spec-trometry Method for High-Throughput Analysis of Nicotine and Related Compounds: Application to Electronic Cigarette Refill Liquids. *Analytical Chemistry* 88(12), 6500-8
- Rehan H S, Maini J and Hungin A P. S; (2018) Vaping versus Smoking: A Quest for Efficacy and Safety of E-cigarette. *Cur-rent Drug Safety* 13(2), 92-101
- Rehder Silinski, M A and Uenoyama T ; Coleman D P; Blake J C; Thomas B F; Marusich J A; Jackson K J; Meredith S E; Gahl R F; (2020) Analysis of Nicotine and Non-nicotine Tobacco Constituents in Aqueous Smoke/Aerosol Extracts by UHPLC and Ultrapformance Convergence Chromatography-Tandem Mass Spectrometry. *Chemical Research in Toxicology* 23, 23
- Reidel B, Radicioni G and Clapp P W; Ford A A; Abdelwahab S ; Rebuli M E; Haridass P ; Alexis N E; Jaspers I ; Kesimer M ; (2018) E-Cigarette Use Causes a Unique Innate Immune Response in the Lung, Involving Increased Neutrophilic Activa-tion and Altered Mucin Secretion. *American Journal of Respiratory & Critical Care Medicine* 197(4), 492-501
- Reilly S M, Bitzer Z T; Goel R and Trushin N ; Richie J P; (2019) Free Radical, Carbonyl, and Nicotine Levels Produced by Juul Electronic Cigarettes. *Nicotine & Tobacco Research* 21(9), 1274-1278
- Reinikovaite V, Rodriguez I E and Karoor V ; Rau A ; Trinh B B; Deleyiannis F W; Taraseviciene-Stewart L ; (2018) The effects of electronic cigarette vapour on the lung: direct comparison to tobacco smoke. *European Respiratory Journal* 51(4), 04
- Reuther W J, Hale B and Matharu J ; Blythe J N; Brennan P A; (2016) Do you mind if I vape? Immediate effects of elec-tronic cigarettes on perfusion in buccal mucosal tissue--a pilot study. *British Journal of Oral & Maxillofacial Surgery* 54(3), 338-41
- Rice S J, Hyland V and Behera M ; Ramalingam S S; Bunn P ; Belani C P; (2020) Guidance on the Clinical Management of Electronic Cigarette or Vaping-Associated Lung Injury. *Journal of Thoracic Oncology: Official Publication of the Interna-tional Association for the Study of Lung Cancer* 15(11), 1727-1737
- Richmond S A, Pike I and Maguire J L; Macpherson A ; (2018) E-cigarettes: A new hazard for children and adolescents. *Paediatrics & Child Health* 23(4), 255-259
- Richter P, Baalbaki R and Djordjevic M ; El Hage R ; Hearn B ; El Hellani A ; Hou H W; Hu Q Y; Klerx W ; Kunugita N ; Lisko J ; Perez J ; Saliba N A; Uchiyama S ; Visser W ; Watson C ; Zhang L Q; Who ; (2017) Possible application of WHO Tobacco Laboratory Network standard operating procedures to evaluation of electronic nicotine delivery systems. In: , editors. *Who Study Group on Tobacco Product Regulation: Report on the Scientific Basis of Tobacco Product Regulation: Sixth Report of a Who Study Group*. Geneva: World Health Organization, p41-69
- Riehm K E, Rojo-Wissar D M; Feder K A; Mojtabei R and Spira A P; Thrul J ; Crum R M; (2019) E-cigarette use and sleep-related complaints among youth. *Journal of Adolescence* 76, 48-54
- Riggare S, Unruh K T and Sturr J ; Domingos J ; Stamford J A; Svenningsson P ; Hagglund M ; (2017) Patient-driven N-of-1 in Parkinson's Disease. Lessons Learned from a Placebo-controlled Study of the Effect of Nicotine on Dyskinesia. *Methods of Information in Medicine* 56(99), e123-e128
- Riley H E, Berry-Bibee E and England L J; Jamieson D J; Marchbanks P A; Curtis K M; (2016) Hormonal contraception among electronic cigarette users and cardiovascular risk: a systematic review. *Contraception* 93(3), 190-208
- Robinson R J and Hensel E C; Morabito P N; Roundtree K A; (2015) Electronic Cigarette Topography in the Natural Envi-ronment. *PLoS ONE [Electronic Resource]* 10(6), e0129296

- Robinson R J and Hensel E C; Roundtree K A; DiFrancesco A G; Nonnemaker J M; Lee Y O; (2016) Week Long Topography Study of Young Adults Using Electronic Cigarettes in Their Natural Environment. *PLoS ONE* [Electronic Resource] 11(10), e0164038
- Robinson R J and Hensel E C; Al-Olayan A A; Nonnemaker J M; Lee Y O; (2018) Effect of e-liquid flavor on electronic cigarette topography and consumption behavior in a 2-week natural environment switching study. *PLoS ONE* [Electronic Resource] 13(5), e0196640
- Robinson R J, Eddingsaas N C; DiFrancesco A G; Jayasekera S and Hensel E C, Jr ; (2018) A framework to investigate the impact of topography and product characteristics on electronic cigarette emissions. *PLoS ONE* [Electronic Resource] 13(11), e0206341
- Robinson R J and Hensel E C; (2019) Behavior-based yield for electronic cigarette users of different strength e liquids based on natural environment topography. *Inhalation Toxicology* 31(13-14), 484-491
- Roger J M, Abayon M and Elad S ; Kolokythas A ; (2016) Oral Trauma and Tooth Avulsion Following Explosion of E-Cigarette. *Journal of Oral & Maxillofacial Surgery* 74(6), 1181-5
- Rollins L G, Sokol N A; McCallum M and England L ; Matteson K ; Werner E ; Stroud L R; (2020) Electronic Cigarette Use During Preconception and/or Pregnancy: Prevalence, Characteristics, and Concurrent Mental Health Conditions. *Journal of Women's Health* 29(6), 780-788
- Rosbrook K, Erythropel H C and DeWinter T M; Falinski M ; O'Malley S ; Krishnan-Sarin S ; Anastas P T; Zimmerman J B; Green B G; (2017) The effect of sucralose on flavor sweetness in electronic cigarettes varies between delivery devices. *PLoS ONE* [Electronic Resource] 12(10), e0185334
- Rosshem M E, Soule E K; Thombs D L; Barnett T E; Livingston M D; Gimm G and Emechebe O C; (2020) Electronic Cigarette Explosion and Burn Injuries. *Tobacco Regulatory Science* 6(3), 179-186
- Rosshem M E and McDonald K K; Soule E K; Gimm G W; Livingston M D; Barnett T E; Jernigan D H; Thombs D L; (2020) Electronic cigarette explosion/burn and poisoning related emergency department visits, 2018-2019. *American Journal of Emergency Medicine* 38(12), 2637-2640
- Rostron B L and Corey C G; Chang J T; van Bommel D M; Miller M E; Chang C M; (2019) Associations of Cigarettes Smoked Per Day with Biomarkers of Exposure Among U.S. Adult Cigarette Smokers in the Population Assessment of Tobacco and Health (PATH) Study Wave 1 (2013-2014). *Cancer Epidemiology and Biomarkers & Prevention* 28(9), 1443-1453
- Rostron B L, Coleman B and Cheng Y C; Kimmel H L; Oniyide O ; Wang L ; Chang C M; (2020) Nicotine Exposure by Device Type among Adult Electronic Nicotine Delivery System Users in the Population Assessment of Tobacco and Health Study, 2015-2016. *Cancer Epidemiology and Biomarkers & Prevention* 29(10), 1968-1972
- Rouabhia M and Semlali A () Electronic cigarette vapor increases *Streptococcus mutans* growth, adhesion, biofilm formation, and expression of the biofilm-associated genes. *Oral Diseases* , 9
- Rouabhia M, Park H J and Semlali A ; Zakrzewski A ; Chmielewski W ; Chakir J ; (2017) E-Cigarette Vapor Induces an Apoptotic Response in Human Gingival Epithelial Cells Through the Caspase-3 Pathway. *Journal of Cellular Physiology* 232(6), 1539-1547
- Rouabhia M, Alanazi H and Park H J; Goncalves R B; (2019) Cigarette Smoke and E-Cigarette Vapor Dysregulate Osteoblast Interaction With Titanium Dental Implant Surface. *Journal of Oral Implantology* 45(1), 2-11
- Rouabhia M, Piche M and Corriveau M N; Chakir J ; (2020) Effect of e-cigarettes on nasal epithelial cell growth, Ki67 expression, and pro-inflammatory cytokine secretion. *American Journal of Otolaryngology* 41(6), 102686
- Rouabhia M (2020) Impact of Electronic Cigarettes on Oral Health: a Review. *Journal (Canadian Dental Association)* 86, k7
- Rowell T R and Tarran R (2015) Will chronic e-cigarette use cause lung disease?. *American Journal of Physiology - Lung Cellular & Molecular Physiology* 309(12), L1398-409
- Rowell T R and Reeber S L; Lee S L; Harris R A; Nethery R C; Herring A H; Glish G L; Tarran R (2017) Flavored e-cigarette liquids reduce proliferation and viability in the CALU3 airway epithelial cell line. *American Journal of Physiology - Lung Cellular & Molecular Physiology* 313(1), L52-L66
- Rowell T R and Keating J E; Zorn B T; Glish G L; Shears S B; Tarran R (2020) Flavored e-liquids increase cytoplasmic Ca²⁺ levels in airway epithelia. *American Journal of Physiology - Lung Cellular & Molecular Physiology* 318(2), L226-L241

- Rubenstein D A, Hom S and Ghebrehiwet B ; Yin W ; (2015) Tobacco and e-cigarette products initiate Kupffer cell inflammatory responses. *Molecular Immunology* 67(2 Pt B), 652-60
- Rubinstein M L, Delucchi K and Benowitz N L; Ramo D E; (2018) Adolescent Exposure to Toxic Volatile Organic Chemicals From E-Cigarettes. *Pediatrics* 141(4), 04
- Rudy S F and Durmowicz E L; (2016) Electronic nicotine delivery systems: overheating, fires and explosions. *Tobacco Control* 09, 09
- Ruprecht A A, De Marco C and Pozzi P ; Munarini E ; Mazza R ; Angellotti G ; Turla F ; Boffi R ; (2014) Comparison between particulate matter and ultrafine particle emission by electronic and normal cigarettes in real-life conditions. *Tumori* 100(1), e24-7
- Ruprecht A A, De Marco C and Saffari A ; Pozzi P ; Mazza R ; Veronese C ; Angellotti G ; Munarini E ; Ogliari A C ; Westerdahl D ; Hasheminassab S ; Shafer M M ; Schauer J J ; Repace J ; Sioutas C ; Boffi R ; (2017) Environmental pollution and emission factors of electronic cigarettes, heat-not-burn tobacco products, and conventional cigarettes. *Aerosol Science and Technology* 51(6), 674-684
- Ruther T, Wissen F and Linhardt A ; Aichert D S ; Pogarell O ; de Vries H ; (2016) Electronic Cigarettes-Attitudes and Use in Germany. *Nicotine & Tobacco Research* 18(5), 660-9
- Ruther T, Hagedorn D and Schiela K ; Schettgen T ; Osiander-Fuchs H ; Schober W ; (2018) Nicotine delivery efficiency of first- and second-generation e-cigarettes and its impact on relief of craving during the acute phase of use. *International Journal of Hygiene & Environmental Health* 221(2), 191-198
- Rutledge K J and Plath D L; (2020) Acute Psychosis in Withdrawal from Nicotine Vaping in a Young Man with Comorbid Diabetic Ketoacidosis and Cannabis Use. *Case Reports Psychiatry* 2020, 5710810
- Saeed O B, Chavan B and Haile Z T; (2020) Association Between E-cigarette Use and Depression in US Adults. *Journal of Addiction Medicine* 14(5), 393-400
- Saffari A, Daher N and Ruprecht A ; De Marco C ; Pozzi P ; Boffi R ; Hamad S H ; Shafer M M ; Schauer J J ; Westerdahl D ; Sioutas C ; (2014) Particulate metals and organic compounds from electronic and tobacco-containing cigarettes: comparison of emission rates and secondhand exposure. *Environmental Science. Processes & Impacts* 16(10), 2259-67
- Sailer S, Sebastiani G and Andreu-Fernandez V ; Garcia-Algar O ; (2019) Impact of Nicotine Replacement and Electronic Nicotine Delivery Systems on Fetal Brain Development. *International Journal of Environmental Research & Public Health* [Electronic Resource] 16(24), 14
- Sakamaki-Ching S, Williams M and Hua M ; Li J ; Bates S M ; Robinson A N ; Lyons T W ; Goniewicz M L ; Talbot P ; (2020) Correlation between biomarkers of exposure, effect and potential harm in the urine of electronic cigarette users. *BMJ open respiratory research* 7(1), 02
- Sakhamuri S, Goji S and Teelucksingh S ; (2020) Case Report: Flavored Vaping-Associated Hypokalemia. *American Family Physician* 102(2), 74-76
- Sakla N M, Gattu R and Singh G ; Sadler M ; (2020) Vaping-associated acute respiratory distress syndrome. *Emergency Radiology* 27(1), 103-106
- Sala C, Medana C and Pellegrino R ; Aigotti R ; Bello F D ; Bianchi G ; Davoli E ; (2017) Dynamic measurement of newly formed carbonyl compounds in vapors from electronic cigarettes. *European Journal of Mass Spectrometry* 23(2), 64-69
- Salam S, Saliba N A and Shihadeh A ; Eissenberg T ; El-Hellani A ; (2020) Flavor-Toxicant Correlation in E-cigarettes: A Meta-Analysis. *Chemical Research in Toxicology* 13, 13
- Salamanca J C, Munhenzva I and Escobedo J O ; Jensen R P ; Shaw A ; Campbell R ; Luo W ; Peyton D H ; Strongin R M ; (2017) Formaldehyde Hemiacetal Sampling, Recovery, and Quantification from Electronic Cigarette Aerosols. *Scientific Reports* 7(1), 11044
- Salamanca J C, Meehan-Atrash J and Vreeke S ; Escobedo J O ; Peyton D H ; Strongin R M ; (2018) E-cigarettes can emit formaldehyde at high levels under conditions that have been reported to be non-averse to users. *Scientific Reports* 8(1), 7559
- Saleh Q M and Hensel E C ; Robinson R J ; (2020) Method for Quantifying Variation in the Resistance of Electronic Cigarette Coils. *International Journal of Environmental Research & Public Health* [Electronic Resource] 17(21), 24

- Saliba N A, El Hellani A and Honein E ; Salman R ; Talih S ; Zeaiter J ; Shihadeh A ; (2018) Surface Chemistry of Electronic Cigarette Electrical Heating Coils: Effects of Metal Type on Propylene Glycol Thermal Decomposition. *Journal of Analytical & Applied Pyrolysis* 134, 520-525
- Salturk Z, Cakir C and Sunnetci G ; Atar Y ; Kumral T L ; Yildirim G ; Berkiten G ; Uyar Y ; (2015) Effects of Electronic Nicotine Delivery System on Larynx: Experimental Study. *Journal of Voice* 29(5), 560-3
- Salzman G A, Alqawasma M and Asad H ; (2019) Vaping Associated Lung Injury (EVALI): An Explosive United States Epidemic. *Missouri Medicine* 116(6), 492-496
- Samburova V, Bhattarai C and Strickland M ; Darrow L ; Angermann J ; Son Y ; Khlystov A ; (2018) Aldehydes in Exhaled Breath during E-Cigarette Vaping: Pilot Study Results. *Toxics* 6(3), 07
- Sancilio S, Gallorini M and Cataldi A ; di Giacomo V ; (2016) Cytotoxicity and apoptosis induction by e-cigarette fluids in human gingival fibroblasts. *Clinical Oral Investigations* 20(3), 477-83
- Sancilio S, Gallorini M and Cataldi A ; Sancilio L ; Rana R A ; di Giacomo V ; (2017) Modifications in Human Oral Fibroblast Ultrastructure, Collagen Production, and Lysosomal Compartment in Response to Electronic Cigarette Fluids. *Journal of Periodontology* 88(7), 673-680
- Sanford Z and Goebel L (2014) E-cigarettes: an up to date review and discussion of the controversy. *West Virginia Medical Journal* 110(4), 10-5
- Sangani R, Rojas E and Forte M ; Zulfikar R ; Prince N ; Tasoglou A ; Goldsmith T ; Casuccio G ; Boyd J ; Olfert I M ; Flanagan M ; Sharma S ; (2021) Electronic Cigarettes and Vaping Associated Lung Injury (EVALI): Rural Appalachian Experience. *Hospital practice* 02, 02
- Sanou A Z, Ziadeh C and Stahlman S ; Clausen S S ; (2020) Acute Respiratory Infections Among Active Component Service Members Who Use Combustible Tobacco Products and/or E-cigarette/Vaping Products, U.S. Armed Forces, 2018-2019. *MSMR* 27(11), 2-7
- Sassano M F and Davis E S ; Keating J E ; Zorn B T ; Kochar T K ; Wolfgang M C ; Glish G L ; Tarran R (2018) Evaluation of e-liquid toxicity using an open-source high-throughput screening assay. *Plos Biology* 16(3), e2003904
- Satteson E S and Walker N J ; Tuohy C J ; Molnar J A ; (2018) Extensive Hand Thermal and Blast Injury From Electronic Cigarette Explosion: A Case Report. *Hand* 13(3), NP1-NP5
- Savdie J, Canha N and Buitrago N ; Almeida S M ; (2020) Passive Exposure to Pollutants from a New Generation of Cigarettes in Real Life Scenarios. *International Journal of Environmental Research & Public Health* [Electronic Resource] 17(10), 15
- Scarpino M, Rosso T and Lanzo G ; Lolli F ; Bonizzoli M ; Lazzeri C ; Mannaioni G ; Baronti R ; Fattapposta F ; Grippo A ; (2020) Severe neurological nicotine intoxication by e-cigarette liquids: Systematic literature review. *Acta Neurologica Scandinavica* 31, 31
- Scarpino M, Bonizzoli M and Lanzi C ; Lanzo G ; Lazzeri C ; Cianchi G ; Gambassi F ; Lolli F ; Grippo A ; (2020) Brain death following ingestion of E-cigarette liquid nicotine refill solution. *Brain and Behavior* 10(9), e01744
- Scheffler S, Dieken H and Krischenowski O ; Forster C ; Branscheid D ; Aufderheide M ; (2015) Evaluation of E-cigarette liquid vapor and mainstream cigarette smoke after direct exposure of primary human bronchial epithelial cells. *International Journal of Environmental Research & Public Health* [Electronic Resource] 12(4), 3915-25
- Scheffler S, Dieken H and Krischenowski O ; Aufderheide M ; (2015) Cytotoxic Evaluation of e-Liquid Aerosol using Different Lung-Derived Cell Models. *International Journal of Environmental Research & Public Health* [Electronic Resource] 12(10), 12466-74
- Schipper E M, de Graaff L C ; Koch B C ; Brkic Z and Wilms E B ; Alisma J ; Schuit S C ; (2014) A new challenge: suicide attempt using nicotine fillings for electronic cigarettes. *British Journal of Clinical Pharmacology* 78(6), 1469-71
- Schneller L M, Quinones Tavaréz and Z ; Goniewicz M L ; Xie Z ; McIntosh S ; Rahman I ; O'Connor R J ; Ossip D J ; Li D ; (2020) Cross-Sectional Association Between Exclusive and Concurrent Use of Cigarettes, ENDS, and Cigars, the Three Most Popular Tobacco Products, and Wheezing Symptoms Among U.S. Adults. *Nicotine & Tobacco Research* 22(Supplement_1), S76-S84
- Schober W, Szendrei K and Matzen W ; Oslander-Fuchs H ; Heitmann D ; Schettgen T ; Jorres R A ; Fromme H ; (2014) Use of electronic cigarettes (e-cigarettes) impairs indoor air quality and increases FeNO levels of e-cigarette consumers. *International Journal of Hygiene & Environmental Health* 217(6), 628-37

- Schober W, Fembacher L and Frenzen A ; Fromme H ; (2019) Passive exposure to pollutants from conventional cigarettes and new electronic smoking devices (IQOS, e-cigarette) in passenger cars. *International Journal of Hygiene & Environmental Health* 222(3), 486-493
- Schripp T, Markewitz D and Uhde E ; Salthammer T ; (2013) Does e-cigarette consumption cause passive vaping?. *Indoor Air* 23(1), 25-31
- Schroeder M J and Hoffman A C; (2014) Electronic cigarettes and nicotine clinical pharmacology. *Tobacco Control* 23 Suppl 2, ii30-5
- Schweitzer K S, Chen S X; Law S and Van Demark M ; Poirier C ; Justice M J; Hubbard W C; Kim E S; Lai X ; Wang M ; Kranz W D; Carroll C J; Ray B D; Bittman R ; Goodpaster J ; Petrache I ; (2015) Endothelial disruptive proinflammatory effects of nicotine and e-cigarette vapor exposures. *American Journal of Physiology - Lung Cellular & Molecular Physiology* 309(2), L175-87
- Schweitzer R J, Wills T A; Tam E and Pagano I ; Choi K ; (2017) E-cigarette use and asthma in a multiethnic sample of adolescents. *Preventive Medicine* 105, 226-231
- Schaal C and Chellappan S (2016) Nicotine-Mediated Regulation of Nicotinic Acetylcholine Receptors in Non-Small Cell Lung Adenocarcinoma by E2F1 and STAT1 Transcription Factors. *PLoS ONE [Electronic Resource]* 11(5), e0156451
- Schaal C M, Bora-Singhal N and Kumar D M; Chellappan S P; (2018) Regulation of Sox2 and stemness by nicotine and electronic-cigarettes in non-small cell lung cancer. *Molecular Cancer* 17(1), 149
- Scott A, Lugg S T and Aldridge K ; Lewis K E; Bowden A ; Mahida R Y; Grudzinska F S; Dosanjh D ; Parekh D ; Foronjy R ; Sapey E ; Naidu B ; Thickett D R; (2018) Pro-inflammatory effects of e-cigarette vapour condensate on human alveolar macrophages. *Thorax* 73(12), 1161-1169
- Scungio M, Stabile L and Buonanno G ; (2018) Measurements of electronic cigarette-generated particles for the evaluation of lung cancer risk of active and passive users. *Journal of Aerosol Science* 115, 1-11
- Seiler-Ramadas R, Sandner I and Haider S ; Grabovac I ; Dorner T E; (2020) Health effects of electronic cigarette (e-cigarette) use on organ systems and its implications for public health. *Wiener Klinische Wochenschrift* 20, 20
- Seitz C M and Kabir Z (2018) Burn injuries caused by e-cigarette explosions: A systematic review of published cases. *Tobacco Prevention & Cessation* 4, 32
- Seo A D and Kim D C; Yu H J; Kang M J; (2016) Accidental ingestion of E-cigarette liquid nicotine in a 15-month-old child: an infant mortality case of nicotine intoxication. *Korean Journal of Pediatrics* 59(12), 490-493
- Serpa G L, Renton N D; Lee N and Crane M J; Jamieson A M; (2020) Electronic Nicotine Delivery System Aerosol-induced Cell Death and Dysfunction in Macrophages and Lung Epithelial Cells. *American Journal of Respiratory Cell & Molecular Biology* 63(3), 306-316
- Serra R, Menicagli R and Marotta O ; (2020) Free radical production in the smoking of e-cigarettes and their possible effects in human health. *International Journal of Preventive Medicine* 11(1),
- Serror K, Chaouat M and De Runz A ; Mimoun M ; Boccara D ; (2017) Thigh deep burns caused by electronic vaping devices (e-cigarettes): A new mechanism. *Burns* 43(5), 1133-1135
- Serror K, Chaouat M and Legrand M M; Depret F ; Haddad J ; Malca N ; Mimoun M ; Boccara D ; (2018) Burns caused by electronic vaping devices (e-cigarettes): A new classification proposal based on mechanisms. *Burns* 44(3), 544-548
- Serror K, Chaouat M and Depret F ; Dutot M C; Chatelain S ; Boccara D ; Mimoun M ; (2020) Burns caused by electronic vaping devices (e-cigarettes): Discussion about a new classification proposal based on mechanisms. *Burns* 46(1), 243-244
- Shahab L, Goniewicz M L and Blount B C; Brown J ; McNeill A ; Alwis K U; Feng J ; Wang L ; West R ; (2017) Nicotine, Carcinogen, and Toxin Exposure in Long-Term E-Cigarette and Nicotine Replacement Therapy Users: A Cross-sectional Study. *Annals of Internal Medicine* 166(6), 390-400
- Shaito A, Saliba J and Husari A ; El-Harakeh M ; Chhoury H ; Hashem Y ; Shihadeh A ; El-Sabban M ; (2017) Electronic Cigarette Smoke Impairs Normal Mesenchymal Stem Cell Differentiation. *Scientific Reports* 7(1), 14281
- Shao X M, Lopez-Valdes H E; Liang J and Feldman J L; (2017) Inhaled nicotine equivalent to cigarette smoking disrupts systemic and uterine hemodynamics and induces cardiac arrhythmia in pregnant rats. *Scientific Reports* 7(1), 16974

- Shao X M, Liu S and Lee E S; Fung D ; Pei H ; Liang J ; Mudgway R ; Zhang J ; Feldman J L; Zhu Y ; Louie S ; Xie X S; (2018) Chronic intermittent nicotine delivery via lung alveolar region-targeted aerosol technology produces circadian pharmacokinetics in rats resembling human smokers. *Journal of Applied Physiology* 125(5), 1555-1562
- Shao X M, Lopez B and Nathan D ; Wilson J ; Bankole E ; Tumoyan H ; Munoz A ; Espinoza-Derout J ; Hasan K M; Chang S ; Du C ; Sinha-Hikim A P; Lutfy K ; Friedman T C; (2019) A mouse model for chronic intermittent electronic cigarette exposure exhibits nicotine pharmacokinetics resembling human vapers. *Journal of Neuroscience Methods* 326, 108376
- Shao X S. M and Friedman T C; (2020) Pod-mod vs. conventional e-cigarettes: nicotine chemistry, pH, and health effects. *Journal of Applied Physiology* 128(4), 1056-1058
- Sharma H and Verma S (2020) 'Vaping'- a trojan horse against fight toward tobacco use and cancer: A systematic review of the existing evidence. *Indian Journal of Medical and Paediatric Oncology* 41(3), 321-327
- Shastry S and Langdorf M I (2016) Electronic Vapor Cigarette Battery Explosion Causing Shotgun-like Superficial Wounds and Contusion. *The Western Journal of Emergency Medicine* 17(2), 177-80
- Shea J B, Aguilar M and Sauer W H; Tedrow U ; (2020) Unintentional magnet reversion of an implanted cardiac defibrillator by an electronic cigarette. *HeartRhythm Case Reports* 6(3), 121-123
- Shekter C, Chattopadhyay A and Paro J ; Karanas Y ; (2016) Burns resulting from spontaneous combustion of electronic cigarettes: a case series. *Burns & Trauma* 4, 35
- Shehata M and Kocher T (2020) Vaping-associated diffuse alveolar hemorrhage - A case report. *Respiratory Medicine Case Reports* 30, 101038
- Sheikh S and Baig M A (2020) Breakout of Vaping-associated Lung Injuries (VALI) 2019: A Public Health Threat. *Jcp and Journal of the College of Physicians & Surgeons - Pakistan* 30(11), 1238-1239
- Shen Y, Wolkowicz M J and Kotova T ; Fan L ; Timko M P; (2016) Transcriptome sequencing reveals e-cigarette vapor and mainstream-smoke from tobacco cigarettes activate different gene expression profiles in human bronchial epithelial cells. *Scientific Reports* 6, 23984
- Sherwood C L and Boitano S (2016) Airway epithelial cell exposure to distinct e-cigarette liquid flavorings reveals toxicity thresholds and activation of CFTR by the chocolate flavoring 2,5-dimethylpyrazine. *Respiratory Research* 17(1), 57
- Shi H, Fan X and Horton A ; Haller S T; Kennedy D J; Schiefer I T; Dworkin L ; Cooper C J; Tian J ; (2019) The Effect of Electronic-Cigarette Vaping on Cardiac Function and Angiogenesis in Mice. *Scientific Reports* 9(1), 4085
- Shi H, Tavarez Z Q and Xie Z ; Schneller L M; Croft D P; Goniewicz M L; McIntosh S ; O'Connor R J; Ossip D J; Rahman I ; Li D ; (2020) Association of flavored electronic nicotine delivery system (ENDS) use with self-reported chronic obstructive pulmonary disease (COPD): Results from the Population Assessment of Tobacco and Health (PATH) study, Wave 4. *Tobacco Induced Diseases* 18, 82
- Shields C L, Kim M and Lally S E; Chevez-Barrios P ; Shields J A; (2020) Eye cancer in a young male with a vaping history. *Indian Journal of Ophthalmology* 68(8), 1699-1701
- Shim T N and Kosztuova T (2018) Allergic Contact Dermatitis to Electronic Cigarette. *Dermatitis* 29(2), 94-95
- Shin J W, Jo S H; Kim K H; Song H N; Kang C H; Bolan N and Hong J ; (2018) Are glass fiber particles released during the use of electronic cigarettes? Development of a semi-quantitative approach to detect glass particle emission due to vaping. *Environmental Research* 165, 267-273
- Shivalingappa P C, Hole R and Westphal C V; Vij N ; (2016) Airway Exposure to E-Cigarette Vapors Impairs Autophagy and Induces Aggresome Formation. *Antioxidants & Redox Signaling* 24(4), 186-204
- Sifat A E, Vaidya B and Kaiser M A; Cucullo L ; Abbruscato T J; (2018) Nicotine and electronic cigarette (E-Cig) exposure decreases brain glucose utilization in ischemic stroke. *Journal of Neurochemistry* 147(2), 204-221
- Sifat A E, Nozohouri S and Villalba H ; Al Shoyaib A ; Vaidya B ; Karamyan V T; Abbruscato T ; (2020) Prenatal electronic cigarette exposure decreases brain glucose utilization and worsens outcome in offspring hypoxic-ischemic brain injury. *Journal of Neurochemistry* 153(1), 63-79
- Signes-Costa J, de Granda-Orive J I and Ramos Pinedo ; A ; Camarasa Escrig ; A ; de Higes Martinez E; Rabade Castedo C; Cabrera Cesar ; E ; Jimenez-Ruiz C A; (2019) Official Statement of the Spanish Society of Pulmonology and Thoracic Surgery (SEPAR) on Electronic Cigarettes and IQOS R. *Archivos de Bronconeumologia* 55(11), 581-586

- Silva Alod and Moreira J C (2019) The ban of electronic cigarettes in Brazil: success or failure?. *Ciencia & Saude Coletiva* 24(8), 3013-3024
- Silverman A L, Siddique H and Kumar V ; Le T H; Ng J ; (2020) Vaping induced pneumonitis: a small community hospital's case series and analysis. *BMC Pulmonary Medicine* 20(1), 118
- Simpson L J and Lye G (2019) Burns injuries from e-cigarettes kept in pockets. *BMJ* 364, 1554
- Singh J, Luquet E and Smith D P. T; Potgieter H J; Ragazzon P ; (2016) Toxicological and analytical assessment of e-cigarette refill components on airway epithelia. *Science Progress* 99(4), 351-398
- Singh K P, Lawyer G and Muthumalage T ; Maremanda K P; Khan N A; McDonough S R; Ye D ; McIntosh S ; Rahman I ; (2019) Systemic biomarkers in electronic cigarette users: implications for noninvasive assessment of vaping-associated pulmonary injuries. *Erj Open Research* 5(4),
- Singh K P, Maremanda K P; Li D and Rahman I ; (2020) Exosomal microRNAs are novel circulating biomarkers in cigarette, waterpipe smokers, E-cigarette users and dual smokers. *BMC Medical Genomics [Electronic Resource]* 13(1), 128
- Singh A, Sharin F and Singhavi H ; Sathe P ; Gnanamoorthy A ; Chaturvedi P ; (2020) Addictions causing head-and-neck cancers. *Indian Journal of Medical and Paediatric Oncology* 41(4), 510-518
- Sinha D K, Vishal and Kumar A ; Khan M ; Kumari R ; Kesari M ; (2020) Evaluation of tumor necrosis factor-alpha (TNF-alpha) and interleukin (IL)-1beta levels among subjects vaping e-cigarettes and nonsmokers. *Journal of Family Medicine & Primary Care* 9(2), 1072-1075
- Sivandzade F and Cucullo L (2019) Assessing the protective effect of rosiglitazone against electronic cigarette/tobacco smoke-induced blood-brain barrier impairment. *BMC Neuroscience* 20(1), 15
- Skertich N J and Sullivan G A; Madonna M B; Shah A N; (2019) Vaping is a risk factor for spontaneous pneumothorax: Two cases. *Journal of Pediatric Surgery Case Reports* 50, 3
- Skotsimara G, Antonopoulos A S and Oikonomou E ; Siasos G ; Ioakeimidis N ; Tsalamandris S ; Charalambous G ; Galitsatos N ; Vlachopoulos C ; Tousoulis D ; (2019) Cardiovascular effects of electronic cigarettes: A systematic review and meta-analysis. *European Journal of Preventive Cardiology* 26(11), 1219-1228
- Sleiman M, Logue J M and Montesinos V N; Russell M L; Litter M I; Gundel L A; Destailats H ; (2016) Emissions from Electronic Cigarettes: Key Parameters Affecting the Release of Harmful Chemicals. *Environmental Science & Technology* 50(17), 9644-51
- Smith D, Herrera A and Lopez A ; Neptune E ; Winickoff J P; Klein J D; Chen G ; Lazarus P ; Collaco J M; McGrath-Morrow S A ; (2015) Adult Behavior in Male Mice Exposed to E-Cigarette Nicotine Vapors during Late Prenatal and Early Postnatal Life. *PLoS ONE [Electronic Resource]* 10(9), e0137953
- Smith S L, Smith C and Cheatham M ; Smith H G; (2017) Electronic Cigarettes: A Burn Case Series. *Jnp-Journal for Nurse Practitioners* 13(10), 693-699
- Smith D M and Schneller L M; O'Connor R J; Goniewicz M L; (2019) Are E-Cigarette Flavors Associated with Exposure to Nicotine and Toxicants? Findings from Wave 2 of the Population Assessment of Tobacco and Health (PATH) Study. *International Journal of Environmental Research & Public Health [Electronic Resource]* 16(24), 11
- Smith L C, Kallupi M and Tieu L ; Shankar K ; Jaquish A ; Barr J ; Su Y ; Velarde N ; Sedighim S ; Carrette L L. G; Klodnicki M ; Sun X ; de Guglielmo G ; George O ; (2020) Validation of a nicotine vapor self-administration model in rats with relevance to electronic cigarette use. *Neuropsychopharmacology* 45(11), 1909-1919
- Smith D M, Shahab L and Blount B C; Gawron M ; Kosminder L ; Sobczak A ; Xia B ; Sosnoff C S; Goniewicz M L; (2020) Differences in Exposure to Nicotine, Tobacco-Specific Nitrosamines, and Volatile Organic Compounds among Electronic Cigarette Users, Tobacco Smokers, and Dual Users from Three Countries. *Toxics* 8(4), 14
- So C J, Meers J M; Alfano C A; Garey L and Zvolensky M J; (2020) Main and Interactive Effects of Nicotine Product Type on Sleep Health Among Dual Combustible and E-Cigarette Users. *American Journal on Addictions* 24, 24
- Soar K, Kimber C and McRobbie H ; Dawkins L E; (2019) Nicotine absorption from e-cigarettes over 12months. *Addictive Behaviors* 91, 102-105
- Solinas A, Paoletti G and Firinu D ; Di Pino M ; Tusconi M ; Mura J F; Del Giacco S ; Marongiu F ; (2020) Vaping effects on asthma: results from a web survey and clinical investigation. *Internal & Emergency Medicine* 15(4), 663-671

- Solleti S K, Bhattacharya S and Ahmad A ; Wang Q ; Mereness J ; Rangasamy T ; Mariani T J ; (2017) MicroRNA expression profiling defines the impact of electronic cigarettes on human airway epithelial cells. *Scientific Reports* 7(1), 1081
- Sommerfeld K, Lukasik-Glebocka M and Kulza M ; Druzdz A ; Panienski P ; Florek E ; Zielinska-Psuja B ; (2016) Intravenous and oral suicidal e-liquid poisonings with confirmed nicotine and cotinine concentrations. *Forensic Science International* 262, e15-20
- Sommerfeld C G, Weiner D J ; Nowalk A and Larkin A ; (2018) Hypersensitivity Pneumonitis and Acute Respiratory Distress Syndrome From E-Cigarette Use. *Pediatrics* 141(6), 06
- Son Y, Wackowski O and Weisel C ; Schwander S ; Mainelis G ; Delnevo C ; Meng Q ; (2018) Evaluation of E-Vapor Nicotine and Nicotyrine Concentrations under Various E-Liquid Compositions, Device Settings, and Vaping Topographies. *Chemical Research in Toxicology* 31(9), 861-868
- Son Y, Mishin V and Laskin J D ; Mainelis G ; Wackowski O A ; Delnevo C ; Schwander S ; Khlystov A ; Samburova V ; Meng Q ; (2019) Hydroxyl Radicals in E-Cigarette Vapor and E-Vapor Oxidative Potentials under Different Vaping Patterns. *Chemical Research in Toxicology* 32(6), 1087-1095
- Son Y, Weisel C and Wackowski O ; Schwander S ; Delnevo C ; Meng Q ; (2020) The Impact of Device Settings, Use Patterns, and Flavorings on Carbonyl Emissions from Electronic Cigarettes. *International Journal of Environmental Research & Public Health* [Electronic Resource] 17(16), 05
- Son Y, Mainelis G and Delnevo C ; Wackowski O A ; Schwander S ; Meng Q ; (2020) Investigating E-Cigarette Particle Emissions and Human Airway Depositions under Various E-Cigarette-Use Conditions. *Chemical Research in Toxicology* 33(2), 343-352
- Son Y, Gioenco D P and Delnevo C ; Khlystov A ; Samburova V ; Meng Q ; (2020) Indoor Air Quality and Passive E-cigarette Aerosol Exposures in Vape-Shops. *Nicotine & Tobacco Research* 22(10), 1772-1779
- Son Y, Bhattarai C and Samburova V ; Khlystov A ; (2020) Carbonyls and Carbon Monoxide Emissions from Electronic Cigarettes Affected by Device Type and Use Patterns. *International Journal of Environmental Research & Public Health* [Electronic Resource] 17(8), 17
- Song J J, Go Y Y ; Mun J Y ; Lee S and Im G J ; Kim Y Y ; Lee J H ; Chang J ; (2018) Effect of electronic cigarettes on human middle ear. *International Journal of Pediatric Otorhinolaryngology* 109, 67-71
- Song M A and Reisinger S A ; Freudenheim J L ; Brasky T M ; Mathe E A ; McElroy J P ; Nickerson Q A ; Weng D Y ; Wewers M D ; Shields P G ; (2020) Effects of Electronic Cigarette Constituents on the Human Lung: A Pilot Clinical Trial. *Cancer Prevention Research* 13(2), 145-152
- Song M A and Freudenheim J L ; Brasky T M ; Mathe E A ; McElroy J P ; Nickerson Q A ; Reisinger S A ; Smiraglia D J ; Weng D Y ; Ying K L ; Wewers M D ; Shields P G ; (2020) Biomarkers of Exposure and Effect in the Lungs of Smokers, Nonsmokers, and Electronic Cigarette Users. *Cancer Epidemiology and Biomarkers & Prevention* 29(2), 443-451
- Song J J, Go Y Y ; Lee J K ; Lee B S ; Park S K ; Jung H and Lee J H ; Chang J ; (2020) Transcriptomic analysis of tobacco-flavored E-cigarette and menthol-flavored E-cigarette exposure in the human middle ear. *Scientific Reports* 10(1), 20799
- Sosnowski T R and Kramek-Romanowska K (2016) Predicted Deposition of E-Cigarette Aerosol in the Human Lungs. *Journal of aerosol medicine & pulmonary drug delivery* 29(3), 299-309
- Soule E K, Nasim A and Rosas S ; (2016) Adverse Effects of Electronic Cigarette Use: A Concept Mapping Approach. *Nicotine & Tobacco Research* 18(5), 678-85
- Soule E K and Maloney S F ; Spindle T R ; Rudy A K ; Hiler M M ; Cobb C O ; (2017) Electronic cigarette use and indoor air quality in a natural setting. *Tobacco Control* 26(1), 109-112
- Soule E K, Bode K M ; Desrosiers A C ; Guy M and Breland A ; Fagan P ; (2020) User-Perceived Negative Respiratory Symptoms Associated with Electronic Cigarette Use. *Nicotine & Tobacco Research* 22(Supplement_1), S45-S53
- Soussy S, El-Hellani A and Baalbaki R ; Salman R ; Shihadeh A ; Saliba N A ; (2016) Detection of 5-hydroxymethylfurfural and furfural in the aerosol of electronic cigarettes. *Tobacco Control* 25(Suppl 2), ii88-ii93
- Spindle T R and Breland A B ; Karaoghlanian N V ; Shihadeh A L ; Eissenberg T (2015) Preliminary results of an examination of electronic cigarette user puff topography: the effect of a mouthpiece-based topography measurement device on plasma nicotine and subjective effects. *Nicotine & Tobacco Research* 17(2), 142-9
- Spindle T R and Hiler M M ; Breland A B ; Karaoghlanian N V ; Shihadeh A L ; Eissenberg T (2017) The Influence of a Mouthpiece-Based Topography Measurement Device on Electronic Cigarette User's Plasma Nicotine Concentration,

- Heart Rate, and Subjective Effects Under Directed and Ad Libitum Use Conditions. *Nicotine & Tobacco Research* 19(4), 469-476
- Spindle T R, Talih S and Hiler M M; Karaoghlanian N ; Halquist M S; Breland A B; Shihadeh A ; Eissenberg T ; (2018) Effects of electronic cigarette liquid solvents propylene glycol and vegetable glycerin on user nicotine delivery, heart rate, subjective effects, and puff topography. *Drug & Alcohol Dependence* 188, 193-199
- Srbinoska M, Kavrakovski Z and Rafajlovska V ; Simonovska J ; (2019) Determined and declared nicotine content in refill liquids for electronic cigarettes marketed in North Macedonia. *Arhiv Za Higijenu Rada i Toksikologiju* 70(2), 130-133
- SS A LHarthi, BinShabaib M and Akram Z ; Rahman I ; Romanos G E; Javed F ; (2019) Impact of cigarette smoking and vaping on the outcome of full-mouth ultrasonic scaling among patients with gingival inflammation: a prospective study. *Clinical Oral Investigations* 23(6), 2751-2758
- St Helen G, Ross K C and Dempsey D A; Havel C M; Jacob P ; 3rd ; Benowitz N L; (2016) Nicotine Delivery and Vaping Behavior During ad Libitum E-cigarette Access. *Tobacco Regulatory Science* 2(4), 363-376
- St Helen G, Havel C and Dempsey D A; Jacob P ; 3rd ; Benowitz N L; (2016) Nicotine delivery, retention and pharmacokinetics from various electronic cigarettes. *Addiction* 111(3), 535-44
- St Helen G, Dempsey D A and Havel C M; Jacob P ; 3rd ; Benowitz N L; (2017) Impact of e-liquid flavors on nicotine intake and pharmacology of e-cigarettes. *Drug & Alcohol Dependence* 178, 391-398
- St Helen G, Shahid M and Chu S ; Benowitz N L; (2018) Impact of e-liquid flavors on e-cigarette vaping behavior. *Drug & Alcohol Dependence* 189, 42-48
- St Helen G, Nardone N and Addo N ; Dempsey D ; Havel C ; Jacob P ; 3rd ; Benowitz N L; (2020) Differences in nicotine intake and effects from electronic and combustible cigarettes among dual users. *Addiction* 115(4), 757-767
- St Helen G, Liakoni E and Nardone N ; Addo N ; Jacob P ; 3rd ; Benowitz N L; (2020) Comparison of Systemic Exposure to Toxic and/or Carcinogenic Volatile Organic Compounds (VOC) during Vaping, Smoking, and Abstention. *Cancer Prevention Research* 13(2), 153-162
- Staudt M R, Salit J and Kaner R J; Hollmann C ; Crystal R G; (2018) Altered lung biology of healthy never smokers following acute inhalation of E-cigarettes. *Respiratory Research* 19(1), 78
- Stellefson M, Wang M Q and Balanay J A. G; Wu R ; (2020) Health Risk Disparities among Employed Adults with COPD Living in Central Appalachian U.S. States. *American Journal of Health Education* 51(5), 265-277
- Stepanov I and Fujioka N (2015) Bringing attention to e-cigarette pH as an important element for research and regulation. *Tobacco Control* 24(4), 413-4
- Stephens W E (2017) Comparing the cancer potencies of emissions from vapourised nicotine products including e-cigarettes with those of tobacco smoke. *Tobacco Control* 04, 04
- Stephens W E, de Falco B and Fiore A ; (2019) A Strategy for Efficiently Collecting Aerosol Condensate Using Silica Fibers: Application to Carbonyl Emissions from E-Cigarettes. *Chemical Research in Toxicology* 32(10), 2053-2062
- Stewart C J, Auchtung T A; Ajami N J; Velasquez K and Smith D P; De La Garza R ; 2nd ; Salas R ; Petrosino J F; (2018) Effects of tobacco smoke and electronic cigarette vapor exposure on the oral and gut microbiota in humans: a pilot study. *PeerJ* 6, e4693
- Stoces M and Svancara I (2014) Electrochemical Behavior of Nicotine at Unmodified Carbon Paste Electrode and Its Determination in a Set of Refilling Liquids for Electronic Cigarettes. *Electroanalysis* 26(12), 2655-2663
- Striley C W and Nutley S K; (2020) World vaping update. *Current Opinion in Psychiatry* 33(4), 360-368
- Su W C and Wong S W; Buu A (2020) Deposition of E-cigarette aerosol in human airways through passive vaping. *Indoor Air* 05, 05
- Suhling H, Welte T and Fuehner T ; (2020) Three Patients With Acute Pulmonary Damage Following the Use of E-Cigarettes-A Case Series. *Deutsches Arzteblatt International* 117(11), 177-182
- Sumartiningih S, Lin H F and Lin J C; (2019) Cigarette Smoking Blunts Exercise-Induced Heart Rate Response among Young Adult Male Smokers. *International Journal of Environmental Research & Public Health* [Electronic Resource] 16(6), 21

- Sun Y W, Kosinska W and Guttenplan J B; (2019) E-cigarette Aerosol Condensate Enhances Metabolism of Benzo(a)pyrene to Genotoxic Products, and Induces CYP1A1 and CYP1B1, Likely by Activation of the Aryl Hydrocarbon Receptor. *International Journal of Environmental Research & Public Health* [Electronic Resource] 16(14), 11
- Sundahl M, Berg E and Svensson M; (2017) Aerodynamic particle size distribution and dynamic properties in aerosols from electronic cigarettes. *Journal of Aerosol Science* 103, 141-150
- Sundar I K, Javed F and Romanos G E; Rahman I; (2016) E-cigarettes and flavorings induce inflammatory and pro-senescence responses in oral epithelial cells and periodontal fibroblasts. *Oncotarget* 7(47), 77196-77204
- Suparwito F A. A and Kurniawati N D; Rachmawati P D; (2020) Does the behaviour of using electronic cigarette correlates with respiratory disease symptoms?. *International Journal of Pharmaceutical Research* 12(4), 1741-1746
- Suryadinata R V, Wirjatmadi B and Adriani M; Sumarmi S; (2019) The effects of exposure duration to electronic cigarette smoke on differences in superoxide dismutase and malondialdehyde in blood of wistar rats. *International Journal of Current Pharmaceutical Research* 11(3), 13-16
- Suryadinata R V, Adriani M and Martini S; Sumarmi S; Wirjatmadi B; (2019) The role of selenium micronutrients as antioxidants in exposure to e-cigarette smoke. *Asian Journal of Pharmaceutical and Clinical Research* 12(8), 265-268
- Suryadinata R V and Wirjatmadi B (2020) Selenium Linked to Increased Antioxidant Levels and Decreased Free Radicals in Lung Tissue of Wistar Rats Exposed to E-Cigarette Smoke. *Journal of Global Pharma Technology* 12(9), 32-39
- Sussan T E, Gajghate S and Thimmulappa R K; Ma J; Kim J H; Sudini K; Consolini N; Cormier S A; Lomnicki S; Hasan F; Pekosz A; Biswal S; (2015) Exposure to electronic cigarettes impairs pulmonary anti-bacterial and anti-viral defenses in a mouse model. *PLoS ONE* [Electronic Resource] 10(2), e0116861
- Suter M A and Aagaard K M; (2020) The impact of tobacco chemicals and nicotine on placental development. *Prenatal Diagnosis* 40(9), 1193-1200
- Syversen U, Nordsletten L and Falch J A; Madsen J E; Nilsen O G; Waldum H L; (1999) Effect of lifelong nicotine inhalation on bone mass and mechanical properties in female rat femurs. *Calcified Tissue International* 65(3), 246-9
- Szafran B N, Pinkston R and Perveen Z; Ross M K; Morgan T; Paulsen D B; Penn A L; Kaplan B L. F; Noel A; (2020) Electronic-Cigarette Vehicles and Flavoring Affect Lung Function and Immune Responses in a Murine Model. *International Journal of Molecular Sciences* 21(17), 21
- Szukalska M, Szyfter K and Flore E; Rodrigo J P; Rinaldo A; Makitie A A; Strojanc P; Takes R P; Suarez C; Saba N F; Braakhuis B J. M; Ferlito A; (2020) Electronic Cigarettes and Head and Neck Cancer Risk-Current State of Art. *Cancers* 12(11), 05
- Szumilas K, Szumilas P and Grzywacz A; Wilk A; (2020) The Effects of E-Cigarette Vapor Components on the Morphology and Function of the Male and Female Reproductive Systems: A Systematic Review. *International Journal of Environmental Research & Public Health* [Electronic Resource] 17(17), 24
- Tackett A P, Leavens E L. S; Wiedenmann A and Perez M N; Baker A; Mayes S; Mullins L L; Wagener T L; (2019) Preliminary exploration of secondhand smoke exposure in youth with Sickle Cell Disease: biochemical verification, pulmonary functioning, and health care utilization. *Psychology Health & Medicine* 24(1), 35-42
- Tackett A P, Keller-Hamilton B and Smith C E; Hebert E T; Metcalf J P; Queimado L; Stevens E M; Wallace S W; McQuaid E L; Wagener T L; (2020) Evaluation of Respiratory Symptoms Among Youth e-Cigarette Users. *JAMA Network Open* 3(10), e2020671
- Taha H R and Al-Sawalha N A; Alzoubi K H; Khabour O F; (2020) Effect of E-Cigarette aerosol exposure on airway inflammation in a murine model of asthma. *Inhalation Toxicology*, 1-9
- Talih S, Balhas Z and Eissenberg T; Salman R; Karaoghlanian N; El Hellani A; Baalbaki R; Saliba N; Shihadeh A; (2015) Effects of user puff topography, device voltage, and liquid nicotine concentration on electronic cigarette nicotine yield: measurements and model predictions. *Nicotine & Tobacco Research* 17(2), 150-7
- Talih S, Balhas Z and Salman R; Karaoghlanian N; Shihadeh A; (2016) "Direct Dripping": A High-Temperature, High-Formaldehyde Emission Electronic Cigarette Use Method. *Nicotine & Tobacco Research* 18(4), 453-9
- Talih S, Salman R and Karaoghlanian N; El-Hellani A; Saliba N; Eissenberg T; Shihadeh A; (2017) "Juice Monsters": Sub-Ohm Vaping and Toxic Volatile Aldehyde Emissions. *Chemical Research in Toxicology* 30(10), 1791-1793

- Talih S, Balhas Z and Salman R ; El-Hage R ; Karaoghlanian N ; El-Hellani A ; Baassiri M ; Jaroudi E ; Eissenberg T ; Saliba N ; Shihadeh A ; (2017) Transport phenomena governing nicotine emissions from electronic cigarettes: model formulation and experimental investigation. *Aerosol Science & Technology* 51(1), 1-11
- Talih S, Salman R and El-Hage R ; Karam E ; Karaoghlanian N ; El-Hellani A ; Saliba N ; Shihadeh A ; (2019) Characteristics and toxicant emissions of JUUL electronic cigarettes. *Tobacco Control* 28(6), 678-680
- Talih S, Salman R and Karam E ; El-Hourani M ; El-Hage R ; Karaoghlanian N ; El-Hellani A ; Saliba N ; Shihadeh A ; (2020) Hot Wires and Film Boiling: Another Look at Carbonyl Formation in Electronic Cigarettes. *Chemical Research in Toxicology* 22, 22
- Talih S, Salman R and El-Hage R ; Karaoghlanian N ; El-Hellani A ; Saliba N ; Shihadeh A ; (2020) Effect of free-base and protonated nicotine on nicotine yield from electronic cigarettes with varying power and liquid vehicle. *Scientific Reports* 10(1), 16263
- Talih S, Salman R and El-Hage R ; Karam E ; Salam S ; Karaoghlanian N ; El-Hellani A ; Saliba N ; Shihadeh A ; (2020) A comparison of the electrical characteristics, liquid composition, and toxicant emissions of JUUL USA and JUUL UK e-cigarettes. *Scientific Reports* 10(1), 7322
- Talih S, Salman R and El-Hage R ; Karam E ; Karaoghlanian N ; El-Hellani A ; Saliba N ; Eissenberg T ; Shihadeh A ; (2020) Might limiting liquid nicotine concentration result in more toxic electronic cigarette aerosols?. *Tobacco Control* 10, 10
- Talio M C, Alesso M and Acosta M ; Wills V S ; Fernandez L P ; (2017) Sequential determination of nickel and cadmium in tobacco, molasses and refill solutions for e-cigarettes samples by molecular fluorescence. *Talanta* 174, 221-227
- Talio M C, Pereyra F and Acosta M ; Fernandez L P ; (2019) Lead monitoring and control in tobacco products and E-cigarettes by molecular fluorescence. *Microchemical Journal* 147, 1-6
- Talio M C, Acosta M and Fernandez L P ; (2019) Comparative study of antimony exposition by cigarettes and alternatives of tobacco consumption. *Microchemical Journal* 145, 622-629
- Tanaka S, Dohi T and Aizawa S I ; Kemmei T ; Terashima H ; Taga A ; Yamamoto A ; Kodama S ; (2017) Simultaneous determination of alcohols including diols and triols by HPLC with ultraviolet detection based on the formation of a copper(II) complex. *Journal of Separation Science* 40(21), 4168-4175
- Tang M S, Wu X R ; Lee H W ; Xia Y and Deng F M ; Moreira A L ; Chen L C ; Huang W C ; Lepor H ; (2019) Electronic-cigarette smoke induces lung adenocarcinoma and bladder urothelial hyperplasia in mice. *Proceedings of the National Academy of Sciences of the United States of America* 116(43), 21727-21731
- Tattan-Birch H, Perski O and Jackson S ; Shahab L ; West R ; Brown J ; (2020) COVID-19, smoking, vaping and quitting: a representative population survey in England. *Addiction* 11, 11
- Tatullo M, Gentile S and Paduano F ; Santacroce L ; Marrelli M ; (2016) Crosstalk between oral and general health status in e-smokers. *Medicine* 95(49), e5589
- Taylor J, Wiens T and Peterson J ; Saravia S ; Lunda M ; Hanson K ; Wogen M ; D'Heilly P ; Margetta J ; Bye M ; Cole C ; Mumm E ; Schwerzler L ; Makhtal R ; Danila R ; Lynfield R ; Holzbauer S ; Lung Injury Response Task; Force ; (2019) Characteristics of E-cigarette, or Vaping, Products Used by Patients with Associated Lung Injury and Products Seized by Law Enforcement - Minnesota, 2018 and 2019. *MMWR - Morbidity & Mortality Weekly Report* 68(47), 1096-1100
- Teasdale J E and Newby A C ; Timpson N J ; Munafo M R ; White S J ; (2016) Cigarette smoke but not electronic cigarette aerosol activates a stress response in human coronary artery endothelial cells in culture. *Drug & Alcohol Dependence* 163, 256-60
- Tellez C S, Juri D E ; Phillips L M ; Do K and Yingling C M ; Thomas C L ; Dye W W ; Wu G ; Kishida S ; Kiyono T ; Belinsky S A ; (2020) Cytotoxicity and Genotoxicity of E-Cigarette Generated Aerosols Containing Diverse Flavoring Products and Nicotine in Oral Epithelial Cell Lines. *Toxicological Sciences* 23, 23
- Temas D and Meyer A (2020) E-Cigarette- and Vaping-Related Lung Injury (EVALI) at a Regional Hospital System in South Carolina. *Case Reports in Pulmonology* 2020, 5370606
- Thakrar P D, Boyd K P ; Swanson C P ; Wideburg E and Kumbhar S S ; (2020) E-cigarette, or vaping, product use-associated lung injury in adolescents: a review of imaging features. *Pediatric Radiology* 50(3), 338-344
- Thornton S L, Oller L and Sawyer T ; (2014) Fatal intravenous injection of electronic nicotine delivery system refilling solution. *Journal of Medical Toxicology: Official Journal of the American College of Medical Toxicology* 10(2), 202-4

- Thota D and Latham E (2014) Case report of electronic cigarettes possibly associated with eosinophilic pneumonitis in a previously healthy active-duty sailor. *Journal of Emergency Medicine* 47(1), 15-7
- Tierney P A, Karpinski C D; Brown J E; Luo W and Pankow J F; (2016) Flavour chemicals in electronic cigarette fluids. *Tobacco Control* 25(e1), e10-5
- Tigova O, Amalia B and Castellano Y ; Fu M ; Nogueira S O; Kyriakos C N; Mons U ; Trofor A C; Zatonski W A; Przewozniak K ; Demjen T ; Tountas Y ; Quah A C. K; Fong G T; Fernandez E ; Vardavas C I; consortium Eurest-Plus ; (2018) Secondhand exposure to e-cigarette aerosols among smokers: A cross-sectional study in six European countries of the EUREST-PLUS ITC Europe Surveys. *Tobacco Induced Diseases* 16, A11
- Ting C Y, Ahmad Sabri and N A ; Tiong L L; Zailani H ; Wong L P; Agha Mohammadi ; N ; Anchah L ; (2020) Heavy metals (Cr, Pb, Cd, Ni) in aerosols emitted from electronic cigarettes sold in Malaysia. *Journal of Environmental Science and Health - Part A Toxic/Hazardous Substances and Environmental Engineering* 55(1), 55-62
- Tobore T O (2019) On the potential harmful effects of E-Cigarettes (EC) on the developing brain: The relationship between vaping-induced oxidative stress and adolescent/young adults social maladjustment. *Journal of Adolescence* 76, 202-209
- Tommasi S, Bates S E and Behar R Z; Talbot P ; Besaratinia A ; (2017) Limited mutagenicity of electronic cigarettes in mouse or human cells in vitro. *Lung Cancer* 112, 41-46
- Tommasi S, Caliri A W and Caceres A ; Moreno D E; Li M ; Chen Y ; Siegmund K D; Besaratinia A ; (2019) Deregulation of Biologically Significant Genes and Associated Molecular Pathways in the Oral Epithelium of Electronic Cigarette Users. *International Journal of Molecular Sciences* 20(3), 10
- Toy J, Dong F and Lee C ; Zappa D ; Le T ; Archambeau B ; Culhane J T; Neeki M M; (2017) Alarming increase in electronic nicotine delivery systems-related burn injuries: A serious unregulated public health issue. *American Journal of Emergency Medicine* 35(11), 1781-1782
- Tran L, Tran P and Tran L ; (2020) A cross-sectional analysis of electronic cigarette use in US adults by asthma status. *The clinical respiratory journal* 14(10), 991-997
- Trehy M L, Ye W and Hadwiger M E; Moore T W; Allgire J F; Woodruff J T; Ahadi S S; Black J C; Westenberger B J; (2011) Analysis of electronic cigarette cartridges, refill solutions, and smoke for nicotine and nicotine related impurities. *Journal of Liquid Chromatography and Related Technologies* 34(14), 1442-1458
- Treitl D, Solomon R and Davare D L; Sanchez R ; Kiffin C ; (2017) Full and Partial Thickness Burns from Spontaneous Combustion of E-Cigarette Lithium-Ion Batteries with Review of Literature. *Journal of Emergency Medicine* 53(1), 121-125
- Trigger S and Coleman B (2019) Social Media Mentions of Electronic Nicotine Delivery Systems (ENDS) Battery-Related Overheating, Fires, and Explosions: Findings from a Pilot Study. *International Journal of Environmental Research & Public Health [Electronic Resource]* 16(8), 12
- Troiano C, Jaleel Z and Spiegel J H; (2019) Association of Electronic Cigarette Vaping and Cigarette Smoking With Decreased Random Flap Viability in Rats. *JAMA Facial Plastic Surgery* 21(1), 5-10
- Troutt W D and DiDonato M D; (2017) Carbonyl Compounds Produced by Vaporizing Cannabis Oil Thinning Agents. *Journal of Alternative & Complementary Medicine* 23(11), 879-884
- Trtchounian A, Williams M and Talbot P ; (2010) Conventional and electronic cigarettes (e-cigarettes) have different smoking characteristics. *Nicotine & Tobacco Research* 12(9), 905-12
- Trtchounian A and Talbot P (2011) Electronic nicotine delivery systems: is there a need for regulation?. *Tobacco Control* 20(1), 47-52
- Truman P, Stanfill S and Heydari A ; Silver E ; Fowles J ; (2019) Monoamine oxidase inhibitory activity of flavoured e-cigarette liquids. *Neurotoxicology* 75, 123-128
- Tsai K Y. F, Budge K M. H; Lepre A P; Rhees M S; Ajdaharian J and Geiler J ; Epperson D G; Astle K J; Winden D R; Arroyo J A; Reynolds P R; () Cell invasion, RAGE expression, and inflammation in oral squamous cell carcinoma (OSCC) cells exposed to e-cigarette flavoring. *Clinical and Experimental Dental Research* , 8
- Tsai M, Song M A and McAndrew C ; Brasky T M; Freudenheim J L; Mathe E ; McElroy J ; Reisinger S A; Shields P G; Wewers M D; (2019) Electronic versus Combustible Cigarette Effects on Inflammasome Component Release into Human Lung. *American Journal of Respiratory & Critical Care Medicine* 199(7), 922-925

- Tsai M, Byun M K and Shin J ; Crotty Alexander ; L E ; (2020) Effects of e-cigarettes and vaping devices on cardiac and pulmonary physiology. *Journal of Physiology* 598(22), 5039-5062
- Tuhanioglu B, Erkan S O and Ozdas T ; Derici C ; Tuzun K ; Senkal O A ; (2019) The Effect of Electronic Cigarettes on Voice Quality. *Journal of Voice* 33(5), 811.e13-811.e17
- Twohig P, Rivington J and Cook W ; (2019) Are E-Cigarettes the Answer? A Novel Case of Methemoglobinemia. *American Journal of Medicine* 132(8), e648-e649
- Tzortzi A, Teloniatis S I and Matiampa G ; Bakelas G ; Vyzikidou V K ; Vardavas C ; Behrakis P K ; Fernandez E ; (2018) Passive exposure to e-cigarette emissions: Immediate respiratory effects. *Tobacco Prevention & Cessation* 4, 18
- Tzortzi A, Teloniatis S and Matiampa G ; Bakelas G ; Tzavara C ; Vyzikidou V K ; Vardavas C ; Behrakis P ; Fernandez E ; Tack S H. S. Project Investigators; (2020) Passive exposure of non-smokers to E-Cigarette aerosols: Sensory irritation, timing and association with volatile organic compounds. *Environmental Research* 182, 108963
- Tzortzi A, Kapetanstratiki M and Evangelopoulou V ; Beghrakis P ; (2020) A Systematic Literature Review of E-Cigarette-Related Illness and Injury: Not Just for the Respirologist. *International Journal of Environmental Research & Public Health [Electronic Resource]* 17(7), 27
- Uchiyama S, Ohta K and Inaba Y ; Kunugita N ; (2013) Determination of Carbonyl Compounds Generated from the E-cigarette Using Coupled Silica Cartridges Impregnated with Hydroquinone and 2,4-Dinitrophenylhydrazine, Followed by High-Performance Liquid Chromatography. *Analytical Sciences* 29(12), 1219-1222
- Uchiyama S, Noguchi M and Sato A ; Ishitsuka M ; Inaba Y ; Kunugita N ; (2020) Determination of Thermal Decomposition Products Generated from E-Cigarettes. *Chemical Research in Toxicology* 33(2), 576-583
- Urena J F, Ebersol L A ; Silakov A and Elias R J ; Lambert J D ; (2020) Impact of Atomizer Age and Flavor on In Vitro Toxicity of Aerosols from a Third-Generation Electronic Cigarette against Human Oral Cells. *Chemical Research in Toxicology* 33(10), 2527-2537
- Uryupin A B, Peregudov A S ; Kochetkov K A ; Bulatnikova L N ; Kiselev S S ; Nekrasov Yu and S ; (2013) Qualitative and quantitative compositions of fluids for electronic cigarettes. *Pharmaceutical Chemistry Journal* 46(11), 687-692
- Vakkalanka J P, Hardison L S ; Jr and Holstege C P ; (2014) Epidemiological trends in electronic cigarette exposures reported to U.S. Poison Centers. *Clinical Toxicology: The Official Journal of the American Academy of Clinical Toxicology & European Association of Poisons Centres & Clinical Toxicologists* 52(5), 542-8
- Valentine G W, Jatlow P I ; Coffman M and Nadim H ; Gueorguieva R ; Sofuoglu M ; (2016) The effects of alcohol-containing e-cigarettes on young adult smokers. *Drug & Alcohol Dependence* 159, 272-6
- van Drooge B L, Marco E and Perez N ; Grimalt J O ; (2019) Influence of electronic cigarette vaping on the composition of indoor organic pollutants, particles, and exhaled breath of bystanders. *Environmental Science & Pollution Research* 26(5), 4654-4666
- Vannier S, Ronziere T and Ferre J C ; Lassalle V ; Verin M ; (2015) Reversible cerebral vasoconstriction syndrome triggered by an electronic cigarette: case report. *European Journal of Neurology* 22(5), e64-5
- Vansickel A R and Cobb C O ; Weaver M F ; Eissenberg T E ; (2010) A clinical laboratory model for evaluating the acute effects of electronic "cigarettes": nicotine delivery profile and cardiovascular and subjective effects. *Cancer Epidemiology and Biomarkers & Prevention* 19(8), 1945-53
- Vansickel A R and Weaver M F ; Eissenberg T (2012) Clinical laboratory assessment of the abuse liability of an electronic cigarette. *Addiction* 107(8), 1493-500
- Vansickel A R and Eissenberg T (2013) Electronic cigarettes: effective nicotine delivery after acute administration. *Nicotine & Tobacco Research* 15(1), 267-70
- Vardavas C I, Anagnostopoulos N and Kougiass M ; Evangelopoulou V ; Connolly G N ; Behrakis P K ; (2012) Short-term pulmonary effects of using an electronic cigarette: impact on respiratory flow resistance, impedance, and exhaled nitric oxide. *Chest* 141(6), 1400-1406
- Vardavas C I, Girvalaki C and Filippidis F T ; Oder M ; Kastanje R ; de Vries I ; Scholtens L ; Annas A ; Plackova S ; Turk R ; Gruzdyte L ; Rato F ; Genser D ; Schiel H ; Balazs A ; Donohoe E ; Vardavas A I ; Tzatzarakis M N ; Tsatsakis A M ; Behrakis P K ; (2017) Characteristics and outcomes of e-cigarette exposure incidents reported to 10 European Poison Centers: a retrospective data analysis. *Tobacco Induced Diseases* 15, 36

Vardavas C, Girvalaki C and Vardavas A ; Papadakis S ; Tzatzarakis M ; Behrakis P ; Tsatsakis A ; (2017) Respiratory irritants in e-cigarette refill liquids across nine European countries: a threat to respiratory health?. *European Respiratory Journal* 50(6), 12

Vardavas C I, Girvalaki C and Odani S ; Nikitara K ; de Vries I ; van Riel A ; van Sommeren-de Potter I ; Grass J N ; Grassi M C ; Deim S ; Balazs A ; Fosztó S ; Schiel H ; Arif T ; Eronen A K ; Alonso A A ; Menor J L. C ; Arrieta R M ; Babic Z ; Turk R ; Vardavas A I ; Tsatsakis A ; (2020) Profile of incidental exposures to e-cigarette liquids in Europe, 2018-2019. *Human & Experimental Toxicology* , 960327120975828

Vargas Trassierra, C and Cardellini F ; Buonanno G ; De Felice P ; (2014) On the interaction between radon progeny and particles generated by electronic and traditional cigarettes. *Atmospheric Environment*. 07,

Vargas-Rivera M, Ebrahimi Kalan and M ; Ward-Peterson M ; Osibogun O ; Li W ; Brown D ; Eissenberg T ; Maziak W ; (2020) Effect of flavour manipulation on ENDS (JUUL) users' experiences, puffing behaviour and nicotine exposure among US college students. *Tobacco Control* 23, 23

Vasanthi Bathrinarayanan, P and Brown J E. P; Marshall L J; Leslie L J; (2018) An investigation into E-cigarette cytotoxicity in-vitro using a novel 3D differentiated co-culture model of human airways. *Toxicology in Vitro* 52, 255-264

Vaught B, Spellman J and Shah A ; Stewart A ; Mullin D ; (2017) Facial trauma caused by electronic cigarette explosion. *Ear, Nose and & Throat Journal* 96(3), 139-142

Veldheer S, Yingst J and Midya V ; Hummer B ; Lester C ; Krebs N ; Hrabovsky S ; Wilhelm A ; Liao J ; Yen M S ; Cobb C ; Eissenberg T ; Foulds J ; (2019) Pulmonary and other health effects of electronic cigarette use among adult smokers participating in a randomized controlled smoking reduction trial. *Addictive Behaviors* 91, 95-101

Velez de Mendizabal, N, Jones D R; Jahn A and Bies R R; Brown J W; (2015) Nicotine and cotinine exposure from electronic cigarettes: a population approach. *Clinical Pharmacokinetics* 54(6), 615-26

Venkatnarayan K, Rajamuri N K. R and Krishnaswamy U M; Devaraj U ; Ramachandran P ; Veluthat C ; (2020) E-cigarettes: Out of the frying pan into the fire?. *Lung India* 37(4), 329-332

Verhagen J V (2015) A role for lung retention in the sense of retronasal smell. *Chemosensory Perception* 8(2), 78-84

Vermehren M F, Wiesmann N and Deschner J ; Brieger J ; Al-Nawas B ; Kammerer P W; (2020) Comparative analysis of the impact of e-cigarette vapor and cigarette smoke on human gingival fibroblasts. *Toxicology in Vitro* 69, 105005

Versella M V, Borges A M; Lin C and Leyro T M; (2019) Co-use of Electronic Nicotine Delivery Systems and Combustible Cigarettes, and Their Association with Internalizing Pathology and Vulnerabilities. *Cognitive Therapy & Research* 43(1), 114-120

Villeneuve T, Prevot G and Le Borgne A ; Colombat M ; Collot S ; Ruiz S ; Lanot T ; Brouchet L ; Rabeau A ; Noel-Savina E ; Didier A ; (2020) Diffuse alveolar haemorrhage secondary to e-cigarette "vaping" associated lung injury (EVALI) in a young European consumer. *European Respiratory Journal* 56(1),

Vindhyal M R, Okut H and Ablah E ; Ndunda P M; Kallail K J; Choi W S; (2020) Cardiovascular Outcomes Associated With Adult Electronic Cigarette Use. *Cureus* 12(8), e9618

Visconti M J and Ashack K A; (2019) Dermatologic manifestations associated with electronic cigarette use. *Journal of the American Academy of Dermatology* 81(4), 1001-1007

Visser W F, Klerx W N; Cremers Hwjm and Ramlal R ; Schwillens P L; Talhout R ; (2019) The Health Risks of Electronic Cigarette Use to Bystanders. *International Journal of Environmental Research & Public Health* [Electronic Resource] 16(9), 30

Viswam D, Trotter S and Burge P S; Walters G I; (2018) Respiratory failure caused by lipoid pneumonia from vaping e-cigarettes. *BMJ Case Reports* 06, 06

Vivarelli F, Canistro D and Cirillo S ; Cardenia V ; Rodriguez-Estrada M T; Paolini M ; (2019) Impairment of testicular function in electronic cigarette (e-cig, e-cigs) exposed rats under low-voltage and nicotine-free conditions. *Life Sciences* 228, 53-65

Vlachopoulos C, Ioakeimidis N and Abdelrasoul M ; Terentes-Printzios D ; Georgakopoulos C ; Pietri P ; Stefanadis C ; Tousoulis D ; (2016) Electronic Cigarette Smoking Increases Aortic Stiffness and Blood Pressure in Young Smokers. *Journal of the American College of Cardiology* 67(23), 2802-2803

- Vohra F, Bukhari I A and Sheikh S A; Albaijan R ; Naseem M ; (2020) Comparison of self-rated oral symptoms and periodontal status among cigarette smokers and individuals using electronic nicotine delivery systems. *Journal of American College Health* 68(7), 788-793
- Volesky K D, Maki A and Scherf C ; Watson L ; Van Ryswyk K ; Fraser B ; Weichenthal S A; Cassol E ; Villeneuve P J; (2018) The influence of three e-cigarette models on indoor fine and ultrafine particulate matter concentrations under real-world conditions. *Environmental Pollution* 243(Pt B), 882-889
- Voos N, Smith D and Kaiser L ; Mahoney M C; Bradizza C M; Kozlowski L T; Benowitz N L; O'Connor R J; Goniewicz M L; (2020) Effect of e-cigarette flavors on nicotine delivery and puffing topography: results from a randomized clinical trial of daily smokers. *Psychopharmacology* 237(2), 491-502
- Vora M V and Chaffee B W; (2019) Tobacco-use patterns and self-reported oral health outcomes: A cross-sectional assessment of the Population Assessment of Tobacco and Health study, 2013-2014. *Journal of the American Dental Association* 150(5), 332-344.e2
- Vreeke S, Peyton D H and Strongin R M; (2018) Triacetin Enhances Levels of Acrolein, Formaldehyde Hemiacetals, and Acetaldehyde in Electronic Cigarette Aerosols. *ACS Omega* 3(7), 7165-7170
- Vreeke S, Korzun T and Luo W ; Jensen R P; Peyton D H; Strongin R M; (2018) Dihydroxyacetone levels in electronic cigarettes: Wick temperature and toxin formation. *Aerosol Science & Technology* 52(4), 370-376
- Vreeke S, Zhu X and Strongin R M; (2020) A simple predictive model for estimating relative e-cigarette toxic carbonyl levels. *PLoS ONE [Electronic Resource]* 15(8), e0238172
- Vyncke T, De Wolf E and Hoeksema H ; Verbelen J ; De Coninck P ; Buncamper M ; Monstrey S ; Claes K E. Y; (2020) Injuries associated with electronic nicotine delivery systems: A systematic review. *The Journal of Trauma and Acute Care Surgery* 89(4), 783-791
- Wadia R, Booth V and Yap H F; Moyes D L; (2016) A pilot study of the gingival response when smokers switch from smoking to vaping. *British Dental Journal* 221(11), 722-726
- Wagener T L, Floyd E L; Stepanov I and Driskill L M; Frank S G; Meier E ; Leavens E L; Tackett A P; Molina N ; Queimado L ; (2017) Have combustible cigarettes met their match? The nicotine delivery profiles and harmful constituent exposures of second-generation and third-generation electronic cigarette users. *Tobacco Control* 26(e1), e23-e28
- Wagner J, Chen W and Vrdoljak G ; (2020) Vaping cartridge heating element compositions and evidence of high temperatures. *PLoS ONE [Electronic Resource]* 15(10), e0240613
- Walsh K, Sheikh Z and Johal K ; Khwaja N ; (2016) Rare case of accidental fire and burns caused by e-cigarette batteries. *BMJ Case Reports* 2016 (no pagination),
- Wang M P and Ho S Y; Leung L T; Lam T H; (2016) Electronic Cigarette Use and Respiratory Symptoms in Chinese Adolescents in Hong Kong. *JAMA Pediatrics* 170(1), 89-91
- Wang P, Chen W and Liao J ; Matsuo T ; Ito K ; Fowles J ; Shusterman D ; Mendell M ; Kumagai K ; (2017) A Device-Independent Evaluation of Carbonyl Emissions from Heated Electronic Cigarette Solvents. *PLoS ONE [Electronic Resource]* 12(1), e0169811
- Wang B and Rostron B (2017) Tobacco-related Poison Events Involving Young Children in the US, 2001-2016. *Tobacco Regulatory Science* 3(4), 525-535
- Wang J B, Olgin J E; Nah G and Vittinghoff E ; Cataldo J K; Pletcher M J; Marcus G M; (2018) Cigarette and e-cigarette dual use and risk of cardiopulmonary symptoms in the Health eHeart Study. *PLoS ONE [Electronic Resource]* 13(7), e0198681
- Wang Y, Wong L Y and Meng L ; Pittman E N; Trinidad D A; Hubbard K L; Etheredge A ; Del Valle-Pinero A Y; Zamoiski R ; van Bommel D M; Borek N ; Patel V ; Kimmel H L; Conway K P; Lawrence C ; Edwards K C; Hyland A ; Goniewicz M L; Hatsukami D ; Hecht S S; Calafat A M; (2019) Urinary concentrations of monohydroxylated polycyclic aromatic hydrocarbons in adults from the U.S. Population Assessment of Tobacco and Health (PATH) Study Wave 1 (2013-2014). *Environment International* 123, 201-208
- Wang Q, Khan N A and Muthumalage T ; Lawyer G R; McDonough S R; Chuang T D; Gong M ; Sundar I K; Rehan V K; Rahman I ; (2019) Dysregulated repair and inflammatory responses by e-cigarette-derived inhaled nicotine and humectant propylene glycol in a sex-dependent manner in mouse lung. *FASEB BioAdvances* 1(10), 609-623
- Wang G, Liu W and Song W ; (2019) Toxicity assessment of electronic cigarettes. *Inhalation Toxicology* 31(7), 259-273

- Wang X, Lee N L and Burstyn I ; (2020) Smoking and use of electronic cigarettes (vaping) in relation to preterm birth and small-for-gestational-age in a 2016 U.S. national sample. *Preventive Medicine* 134, 106041
- Wang Q, Sundar I K and Blum J L; Ratner J R; Lucas J H; Chuang T D; Wang Y ; Liu J ; Rehan V K; Zelikoff J T; Rahman I ; (2020) Prenatal Exposure to Electronic-Cigarette Aerosols Leads to Sex-Dependent Pulmonary Extracellular-Matrix Remodeling and Myogenesis in Offspring Mice. *American Journal of Respiratory Cell & Molecular Biology* 63(6), 794-805
- Wang Q, Sundar I and Li D ; Lucas J ; Muthumalage T ; McDonough S ; Rahman I ; (2020) E-cigarette-Induced Pulmonary Inflammation and Dysregulated Repair are Mediated by nAChR alpha7 Receptor: Role of nAChR alpha7 in ACE2 Covid-19 receptor regulation. *Research Square* 18, 18
- Wang J, Zhang T and Johnston C J; Kim S Y; Gaffrey M J; Chalupa D ; Feng G ; Qian W J; McGraw M D; Ansong C ; (2020) Protein thiol oxidation in the rat lung following e-cigarette exposure. *Redox Biology* 37, 101758
- Wang B G, Liu S and Persoskie A ; (2020) Poisoning exposure cases involving e-cigarettes and e-liquid in the United States, 2010-2018. *Clinical Toxicology* 58(6), 488-494
- Wang B, Liu S T and Rostron B ; Hayslett C ; (2020) Burn injuries related to E-cigarettes reported to poison control centers in the United States, 2010-2019. *Injury Epidemiology* 7(1), 36
- Ward A M, Yaman R and Ebbert J O; (2020) Electronic nicotine delivery system design and aerosol toxicants: A systematic review. *PLoS ONE [Electronic Resource]* 15(6), e0234189
- Wavreil F D. M and Heggland S J; (2020) Cinnamon-flavored electronic cigarette liquids and aerosols induce oxidative stress in human osteoblast-like MG-63 cells. *Toxicology Reports* 7, 23-29
- Wawryk-Gawda E, Zarobkiewicz M K and Chylinska-Wrzos P ; Jodlowska-Jedrych B ; (2019) Lower weight gain after vaping cessation than after smoking quitting. *Roczniki Panstwowego Zakladu Higieny* 70(3), 253-258
- Wawryk-Gawda E, Zarobkiewicz M K and Chlapek K ; Chylinska-Wrzos P ; Jodlowska-Jedrych B ; (2019) Histological changes in the reproductive system of male rats exposed to cigarette smoke or electronic cigarette vapor. *Toxicological and Environmental Chemistry* 101(7-8), 404-419
- Wawryk-Gawda E, Chylinska-Wrzos P and M K Zarobkiewicz; Chlapek K ; Jodlowska-Jedrych B ; (2020) Lung histomorphological alterations in rats exposed to cigarette smoke and electronic cigarette vapour. *Experimental & Therapeutic Medicine* 19(4), 2826-2832
- Ween M P, Whittall J J; Hamon R and Reynolds P N; Hodge S J; (2017) Phagocytosis and Inflammation: Exploring the effects of the components of E-cigarette vapor on macrophages. *Physiological Reports* 5(16),
- Ween M P, Moshensky A and Thredgold L L; Bastian N A; Hamon R ; Badiei A ; Nguyen P T; Herewane K ; Jersmann H ; Bojanowski C M; Shin J ; Reynolds P N; Crotty Alexander ; L E ; Hodge S J; (2020) E-cigarettes and health risks: more to the flavour than just the name. *American Journal of Physiology Lung Cellular & Molecular Physiology* 09, 09
- Ween M P, Hamon R and Macowan M G; Thredgold L ; Reynolds P N; Hodge S J; (2020) Effects of E-cigarette E-liquid components on bronchial epithelial cells: Demonstration of dysfunctional efferocytosis. *Respirology* 25(6), 620-628
- Wei B, Goniewicz M L and O'Connor R J; Travers M J; Hyland A J; (2018) Urinary Metabolite Levels of Flame Retardants in Electronic Cigarette Users: A Study Using the Data from NHANES 2013-2014. *International Journal of Environmental Research & Public Health [Electronic Resource]* 15(2), 25
- Wei B, Goniewicz M and O'Connor R J; (2019) Concurrent Quantification of Emerging Chemicals of Health Concern in e-Cigarette Liquids by High-Performance Liquid Chromatography-Tandem Mass Spectrometry. *ACS Omega* 4(13), 15364-15372
- Wei B, O'Connor R J and Goniewicz M L; Hyland A ; (2020) Emerging Chemicals of Health Concern in Electronic Nicotine Delivery Systems. *Chemical Research in Toxicology* 33(10), 2637-2646
- Weiss D, Tomasallo C D and Meiman J G; Creswell P D; Melstrom P C; Gummin D D; Patel D J; Michaud N T; Sebero H A; Anderson H A; (2016) Electronic Cigarette Exposure: Calls to Wisconsin Poison Control Centers, 2010-2015. *WMJ* 115(6), 306-10
- Welz C, Canis M and Schwenk-Zieger S ; Becker S ; Stucke V ; Ihler F ; Baumeister P ; (2016) Cytotoxic and Genotoxic Effects of Electronic Cigarette Liquids on Human Mucosal Tissue Cultures of the Oropharynx. *Journal of Environmental Pathology and Toxicology & Oncology* 35(4), 343-354
- Werner A K, Koumans E H; Chatham-Stephens K and Salvatore P P; Armatas C ; Byers P ; Clark C R; Ghinai I ; Holzbauer S M; Navarette K A; Danielson M L; Ellington S ; Moritz E D; Petersen E E; Kiernan E A; Baldwin G T; Briss P ; Jones C M;

- King B A; Krishnasamy V ; Rose D A; Reagan-Steiner S ; Lung Injury Response Mortality Working; Group ; (2020) Hospitalizations and Deaths Associated with EVALI. *New England Journal of Medicine* 382(17), 1589-1598
- Wetendorf M, Randall L T and Lemma M T; Hurr S H; Pawlak J B; Tarran R ; Doerschuk C M; Caron K M; (2019) E-Cigarette Exposure Delays Implantation and Causes Reduced Weight Gain in Female Offspring Exposed In Utero. *Journal of the Endocrine Society* 3(10), 1907-1916
- Wharton J D and Kozek L K; Carson R P; (2020) Increased Seizure Frequency Temporally Related to Vaping: Where There's Vapor, There's Seizures?. *Pediatric Neurology* 104, 66-67
- Whittington J R, Simmons P M; Phillips A M; Gammill S K; Cen R and Magann E F; Cardenas V M; (2018) The Use of Electronic Cigarettes in Pregnancy: A Review of the Literature. *Obstetrical & Gynecological Survey* 73(9), 544-549
- Wiener R C, Waters C and Bhandari R ; Trickett Shockey ; A K ; Alshaarawy O ; (2020) The Association of Sleep Duration and the Use of Electronic Cigarettes, NHANES, 2015-2016. *Sleep Disorders Print* 2020, 8010923
- Wiener R C and Bhandari R (2020) Association of electronic cigarette use with lead, cadmium, barium, and antimony body burden: NHANES 2015-2016. *Journal of Trace Elements in Medicine & Biology* 62, 126602
- Wiernik E, Airagnes G and Lequy E ; Gomajee R ; Melchior M ; Le Faou A L; Limosin F ; Goldberg M ; Zins M ; Lemogne C ; (2019) Electronic cigarette use is associated with depressive symptoms among smokers and former smokers: Cross-sectional and longitudinal findings from the Constances cohort. *Addictive Behaviors* 90, 85-91
- Willershausen I, Wolf T and Weyer V ; Sader R ; Ghanaati S ; Willershausen B ; (2014) Influence of E-smoking liquids on human periodontal ligament fibroblasts. *Head & Face Medicine* 10, 39
- Williams M and Talbot P (2011) Variability among electronic cigarettes in the pressure drop, airflow rate, and aerosol production. *Nicotine & Tobacco Research* 13(12), 1276-83
- Williams M, Villarreal A and Bozhilov K ; Lin S ; Talbot P ; (2013) Metal and silicate particles including nanoparticles are present in electronic cigarette cartomizer fluid and aerosol. *PLoS ONE [Electronic Resource]* 8(3), e57987
- Williams M, To A and Bozhilov K ; Talbot P ; (2015) Strategies to Reduce Tin and Other Metals in Electronic Cigarette Aerosol. *PLoS ONE [Electronic Resource]* 10(9), e0138933
- Williams M, Ghai S and Talbot P ; (2015) Disposable electronic cigarettes and electronic hookahs: evaluation of performance. *Nicotine & Tobacco Research* 17(2), 201-8
- Williams M, Villarreal A and Davis B ; Talbot P ; (2016) Comparison of the Performance of Cartomizer Style Electronic Cigarettes from Major Tobacco and Independent Manufacturers. *PLoS ONE [Electronic Resource]* 11(2), e0149251
- Williams M, Bozhilov K and Ghai S ; Talbot P ; (2017) Elements including metals in the atomizer and aerosol of disposable electronic cigarettes and electronic hookahs. *PLoS ONE [Electronic Resource]* 12(4), e0175430
- Williams M and Talbot P (2019) Design Features in Multiple Generations of Electronic Cigarette Atomizers. *International Journal of Environmental Research & Public Health [Electronic Resource]* 16(16), 14
- Williams M, Li J and Talbot P ; (2019) Effects of Model, Method of Collection, and Topography on Chemical Elements and Metals in the Aerosol of Tank-Style Electronic Cigarettes. *Scientific Reports* 9(1), 13969
- Williams M, Bozhilov K N and Talbot P ; (2019) Analysis of the elements and metals in multiple generations of electronic cigarette atomizers. *Environmental Research* 175, 156-166
- Williams M, Ventura J and Loza A ; Wang Y ; Talbot P ; (2020) Chemical Elements in Electronic Cigarette Solvents and Aerosols Inhibit Mitochondrial Reductases and Induce Oxidative Stress. *Nicotine & Tobacco Research* 22(Supplement_1), S14-S24
- Wills T A, Pagano I and Williams R J; Tam E K; (2019) E-cigarette use and respiratory disorder in an adult sample. *Drug & Alcohol Dependence* 194, 363-370
- Wills T A, Choi K and Pagano I ; (2020) E-Cigarette Use Associated With Asthma Independent of Cigarette Smoking and Marijuana in a 2017 National Sample of Adolescents. *Journal of Adolescent Health* 67(4), 524-530
- Wilson M D and Prasad K A; Kim J S; Park J H; (2019) Characteristics of metallic nanoparticles emitted from heated Kanthal e-cigarette coils. *Journal of Nanoparticle Research* 21(7),

- Winters B R, Kochar T K; Clapp P W; Jaspers I and Madden M C; (2020) Impact of E-Cigarette Liquid Flavoring Agents on Activity of Microsomal Recombinant CYP2A6, the Primary Nicotine-Metabolizing Enzyme. *Chemical Research in Toxicology* 33(7), 1689-1697
- Wolkart G, Kollau A and Stessel H; Russwurm M; Koesling D; Schrammel A; Schmidt K; Mayer B; (2019) Effects of flavoring compounds used in electronic cigarette refill liquids on endothelial and vascular function. *PLoS ONE [Electronic Resource]* 14(9), e0222152
- Wong L P, Mohd Salim and S N; Alias H; Aghamohammadi N; Hoe V C. W; Isahak M; Ali Mohd; M; (2020) The Association Between E-Cigarette Use Behaviors and Saliva Cotinine Concentration Among Healthy E-Cigarette Users in Malaysia. *Journal of Addictions Nursing* 31(2), 102-109
- Wong A L and McElroy S M; Robinson J M; Mulloy S M; El Banna F K; Harris A C; LeSage M G; Lee A M; (2020) Flavor-specific enhancement of electronic cigarette liquid consumption and preference in mice. *Drug & Alcohol Dependence* 211, 107995
- Woodall M, Jacob J and Kalsi K; Davis E; Kenyon B; Khan I H; Garnett J P; Tarran R; Baines D L; (2020) E-cigarette constituents propylene glycol and vegetable glycerine decrease glucose uptake and its metabolism in airway epithelial cells in vitro. *American Journal of Physiology Lung Cellular & Molecular Physiology* 30, 30
- Worku D and Worku E (2019) A narrative review evaluating the safety and efficacy of e-cigarettes as a newly marketed smoking cessation tool. *SAGE Open Medicine* 7, 2050312119871405
- Wu Q, Jiang D and Minor M; Chu H W; (2014) Electronic cigarette liquid increases inflammation and virus infection in primary human airway epithelial cells. *PLoS ONE [Electronic Resource]* 9(9), e108342
- Wu D and O'Shea D F (2020) Potential for release of pulmonary toxic ketene from vaping pyrolysis of vitamin E acetate. *Proceedings of the National Academy of Sciences of the United States of America* 117(12), 6349-6355
- Wylie C, Heffernan A and Brown J A; Cairns R; Lynch A M; Robinson J; (2019) Exposures to e-cigarettes and their refills: calls to Australian Poisons Information Centres, 2009-2016. *Medical Journal of Australia* 210(3), 126
- Xia B, Blount B C and Guillot T; Brosius C; Li Y; Van Bommel D M; Kimmel H L; Chang C M; Borek N; Edwards K C; Lawrence C; Hyland A; Goniewicz M L; Pine B N; Xia Y; Bernert J T; De Castro B R; Lee J; Brown J L; Arnstein S; Choi D; Wade E L; Hatsukami D; Ervies G; Cobos A; Nicodemus K; Freeman D; Hecht S S; Conway K; Wang L; (2020) Tobacco-Specific Nitrosamines (NNAL, NNN, NAT, and NAB) Exposures in the US Population Assessment of Tobacco and Health (PATH) Study Wave 1 (2013-2014). *Nicotine & Tobacco Research* 27, 27
- Xie Z, Ossip D J and Rahman I; O'Connor R J; Li D; (2020) Electronic cigarette use and subjective cognitive complaints in adults. *PLoS ONE [Electronic Resource]* 15(11), e0241599
- Xie Z, Ossip D J and Rahman I; Li D; (2020) Use of Electronic Cigarettes and Self-Reported Chronic Obstructive Pulmonary Disease Diagnosis in Adults. *Nicotine & Tobacco Research* 22(7), 1155-1161
- Xie Z and Li D (2020) Cross-Sectional Association Between Lifetime Use of Electronic Cigarettes With or Without Marijuana and Self-Reported Past 12-Month Respiratory Symptoms as well as Lifetime Respiratory Diseases in U.S. Adults. *Nicotine & Tobacco Research* 22(Supplement_1), S70-S75
- Xie W, Kathuria H and Galiatsatos P; Blaha M J; Hamburg N M; Robertson R M; Bhatnagar A; Benjamin E J; Stokes A C; (2020) Association of Electronic Cigarette Use With Incident Respiratory Conditions Among US Adults From 2013 to 2018. *JAMA Network Open* 3(11), e2020816
- Xie L, Rao D R and Harrell M B; Vidot D C; Gelfand A; Sterling K; Messiah S E; (2020) Ethnic disparities in the e-cigarette use epidemic and childhood asthma in the US. *Pediatric Pulmonology* 55(10), 2498-2500
- Yang L, Rudy S F and Cheng J M; Durmowicz E L; (2014) Electronic cigarettes: incorporating human factors engineering into risk assessments. *Tobacco Control* 23 Suppl 2, ii47-53
- Yang H H and Urban P L; (2019) Dry ice fog extraction of volatile organic compounds. *Journal of Chromatography. A* 1585, 196-201
- Yang I, Sandeep S and Rodriguez J; (2020) The oral health impact of electronic cigarette use: a systematic review. *Critical Reviews in Toxicology* 50(2), 97-127
- Yao T, Max W and Sung H Y; Glantz S A; Goldberg R L; Wang J B; Wang Y; Lightwood J; Cataldo J; (2017) Relationship between spending on electronic cigarettes, 30-day use, and disease symptoms among current adult cigarette smokers in the U.S. *PLoS ONE [Electronic Resource]* 12(11), e0187399

- Ye D, Gajendra S and Lawyer G ; Jadeja N ; Pishey D ; Pathagunti S ; Lyons J ; Veazie P ; Watson G ; McIntosh S ; Rahman I ; (2020) Inflammatory biomarkers and growth factors in saliva and gingival crevicular fluid of e-cigarette users, cigarette smokers, and dual smokers: A pilot study. *Journal of Periodontology* 91(10), 1274-1283
- Yingst J M, Hrabovsky S and Hobkirk A ; Trushin N ; Richie J P; Jr ; Foulds J ; (2019) Nicotine Absorption Profile Among Regular Users of a Pod-Based Electronic Nicotine Delivery System. *JAMA Network Open* 2(11), e1915494
- Yingst J M, Foulds J and Veldheer S ; Hrabovsky S ; Trushin N ; Eissenberg T T ; Williams J ; Richie J P ; Nichols T T ; Wilson S J ; Hobkirk A L ; (2019) Nicotine absorption during electronic cigarette use among regular users. *PLoS ONE [Electronic Resource]* 14(7), e0220300
- You G, Rhee J and Park Y ; Park S ; (2016) Determination of Nicotine, Cotinine and Trans-3'-Hydroxycotinine using LC/MS/MS in Forensic Samples of a Nicotine Fatal Case by Oral Ingestion of e-cigarette Liquid. *Journal of Forensic Sciences* 61(4), 1149-1154
- Yu V, Rahimy M and Korrapati A ; Xuan Y ; Zou A E ; Krishnan A R ; Tsui T ; Aguilera J A ; Advani S ; Crotty Alexander ; L E ; Brumund K T ; Wang-Rodriguez J ; Ongkeko W M ; (2016) Electronic cigarettes induce DNA strand breaks and cell death independently of nicotine in cell lines. *Oral Oncology* 52, 58-65
- Zahedi A, Phandthong R and Chaili A ; Remark G ; Talbot P ; (2018) Epithelial-to-mesenchymal transition of A549 lung cancer cells exposed to electronic cigarettes. *Lung Cancer* 122, 224-233
- Zahedi A, Phandthong R and Chaili A ; Leung S ; Omaiye E ; Talbot P ; (2019) Mitochondrial Stress Response in Neural Stem Cells Exposed to Electronic Cigarettes. *iScience* 16, 250-269
- Zainol Abidin, N and Zainal Abidin E ; Zulkifli A ; Karuppiah K ; Syed Ismail ; S N ; Amer Nordin ; A S ; (2017) Electronic cigarettes and indoor air quality: a review of studies using human volunteers. *Reviews on Environmental Health* 32(3), 235-244
- Zarini D, Sangion A and Ferri E ; Caruso E ; Zucchi S ; Orro A ; Papa E ; (2020) Are In Silico Approaches Applicable As a First Step for the Prediction of e-Liquid Toxicity in e-Cigarettes?. *Chemical Research in Toxicology* 33(9), 2381-2389
- Zelikoff J T, Parmalee N L ; Corbett K and Gordon T ; Klein C B ; Aschner M ; (2018) Microglia Activation and Gene Expression Alteration of Neurotrophins in the Hippocampus Following Early-Life Exposure to E-Cigarette Aerosols in a Murine Model. *Toxicological Sciences* 162(1), 276-286
- Zelinkova Z and Wenzl T (2020) Influence of battery power setting on carbonyl emissions from electronic cigarettes. *Tobacco Induced Diseases* 18, 77
- Zeng Z, Chen W and Moshensky A ; Shakir Z ; Khan R ; Crotty Alexander ; L E ; Ware L B ; Aldaz C M ; Jacobson J R ; Dudek S M ; Natarajan V ; Machado R F ; Singla S ; (2020) Cigarette Smoke and Nicotine-Containing E-cigarette Vapor Downregulate Lung WWOX Expression Which is Associated with Increased Severity of Murine ARDS. *American Journal of Respiratory Cell & Molecular Biology* 15, 15
- Zervas E, Litsiou E and Konstantopoulos K ; Pouloupoulos S ; Katsaounou P ; (2018) Physical characterization of the aerosol of an electronic cigarette: impact of refill liquids. *Inhalation Toxicology* 30(6), 218-223
- Zervas E, Matsouki N and Kyriakopoulos G ; Pouloupoulos S ; Ioannides T ; Katsaounou P ; (2020) Transfer of metals in the liquids of electronic cigarettes. *Inhalation Toxicology* 32(6), 240-248
- Zhang Y, Sumner W and Chen D R ; (2013) In vitro particle size distributions in electronic and conventional cigarette aerosols suggest comparable deposition patterns. *Nicotine & Tobacco Research* 15(2), 501-8
- Zhang H, Pang Y and Luo Y ; Li X ; Chen H ; Han S ; Jiang X ; Zhu F ; Hou H ; Hu Q ; (2018) Enantiomeric composition of nicotine in tobacco leaf, cigarette, smokeless tobacco, and e-liquid by normal phase high-performance liquid chromatography. *Chirality* 30(7), 923-931
- Zhang R, Jones M M and Dornsife R E ; Wu T ; Sivaraman V ; Tarran R ; Onyenwoke R U ; (2020) JUUL e-liquid exposure elicits cytoplasmic Ca²⁺ responses and leads to cytotoxicity in cultured airway epithelial cells. *Toxicology Letters* 337, 46-56
- Zhang L, Lin Y and Zhu Y F ; (2020) Transport and Mitigation of Exhaled Electronic Cigarette Aerosols in a Multizone Indoor Environment. *Aerosol and Air Quality Research* 20(11), 2536-2547
- Zhao T, Shu S and Guo Q ; Zhu Y ; (2016) Effects of design parameters and puff topography on heating coil temperature and mainstream aerosols in electronic cigarettes. *Atmospheric Environment* 134, 61-69

- Zhao J, Pyrgiotakis G and Demokritou P ; (2016) Development and characterization of electronic-cigarette exposure generation system (Ecig-EGS) for the physico-chemical and toxicological assessment of electronic cigarette emissions. *Inhalation Toxicology* 28(14), 658-669
- Zhao T, Nguyen C and Lin C H; Middlekauff H R; Peters K ; Moheimani R ; Guo Q ; Zhu Y ; (2017) Characteristics of secondhand electronic cigarette aerosols from active human use. *Aerosol Science and Technology* 51(12), 1368-1376
- Zhao J, Zhang Y and Sisler J D; Shaffer J ; Leonard S S; Morris A M; Qian Y ; Bello D ; Demokritou P ; (2018) Assessment of reactive oxygen species generated by electronic cigarettes using acellular and cellular approaches. *Journal of Hazardous Materials* 344, 549-557
- Zhao J, Nelson J and Dada O ; Pyrgiotakis G ; Kavouras I G; Demokritou P ; (2018) Assessing electronic cigarette emissions: linking physico-chemical properties to product brand, e-liquid flavoring additives, operational voltage and user puffing patterns. *Inhalation Toxicology* 30(2), 78-88
- Zhao D, Navas-Acien A and Ilievski V ; Slavkovich V ; Olmedo P ; Adria-Mora B ; Domingo-Relloso A ; Aherrera A ; Kleiman N J; Rule A M; Hilpert M ; (2019) Metal concentrations in electronic cigarette aerosol: Effect of open-system and closed-system devices and power settings. *Environmental Research* 174, 125-134
- Zhao D, Aravindakshan A and Hilpert M ; Olmedo P ; Rule A M; Navas-Acien A ; Aherrera A ; (2020) Metal/Metalloid Levels in Electronic Cigarette Liquids, Aerosols, and Human Biosamples: A Systematic Review. *Environmental Health Perspectives* 128(3), 36001
- Zhou Y, Irshad H and Dye W W; Wu G ; Tellez C S; Belinsky S A; (2020) Voltage and e-liquid composition affect nicotine deposition within the oral cavity and carbonyl formation. *Tobacco Control* 25, 25
- Zou R H, Tiberio P J; Triantafyllou G A; Lamberty P E; Lynch M J; Kreit J W; McVerry B J; Gladwin M T; Morris A and Chiarchiaro J ; Fitzpatrick M E; Rose J J; (2020) Clinical Characterization of E-Cigarette, or Vaping, Product Use-associated Lung Injury in 36 Patients in Pittsburgh, Pennsylvania. *American Journal of Respiratory & Critical Care Medicine* 201(10), 1303-1306
- Zucchet A and Schmaltz G (2017) Electronic cigarettes-A review of the physiological health effects. *Facets* 2, 575-609
- Zulkifli A, Abidin E Z and Abidin N Z; Amer Nordin ; A S ; Praveena S M; Syed Ismail ; S N ; Rasdi I ; Karuppiah K ; Rahman A A; (2018) Electronic cigarettes: a systematic review of available studies on health risk assessment. *Reviews on Environmental Health* 33(1), 43-52
- Zweier J L, Shalaan M T; Samouilov A and Saleh I G; El-Mahdy M A; (2020) Whole body electronic cigarette exposure system for efficient evaluation of diverse inhalation conditions and products. *Inhalation Toxicology* ,

Appendix 4: AMSTAR 2 assessments

| AMSTAR 2 checklist, critical questions | | | | | |
|---|---|---|---|---|-------------|
| REF: Becker et al 2021 | | | | | |
| 1. Did the research questions and inclusion criteria for the review include the components of PICO? | | | | | |
| For Yes | | Optional (recommended) | | | |
| X | Population | | Timeframe for follow up | x | Yes |
| X | Intervention | | | | No |
| | Comparator group | | | | |
| X | Outcome | | | | |
| 2. Did the report of the review contain an explicit statement that the review methods were established prior to the conduct of the review and did the report justify any significant deviations from the protocol? | | | | | |
| For Partial Yes: The authors state that they had a written protocol or guide that included ALL the following: | | For Yes: As for partial yes, plus the protocol should be registered and should also have specified: | | | |
| X | review question(s) | x | a meta-analysis/ synthesis plan, if appropriate, and | | Yes |
| X | a search strategy | | a plan for investigating causes of heterogeneity | x | Partial Yes |
| X | inclusion/exclusion criteria | | | | No |
| x | a risk of bias assessment | | | | |
| 3. Did the review authors explain their selection of the study designs for inclusion in the review? | | | | | |
| For Yes, the review should satisfy ONE of the following: | | | | x | Yes |
| | Explanation for including only RCTs | | | | No |
| | OR Explanation for including only NRSI | | | | |
| | OR Explanation for including both RCTs and NRSI | | | | |
| 4. Did the review authors use a comprehensive literature search strategy? | | | | | |
| For Partial Yes (all the following): | | For Yes, should also have (all the following): | | | Yes |
| X | searched at least 2 databases (relevant to research question) | | searched the reference lists / bibliographies of included studies | x | Partial Yes |
| X | provided key word and/or search strategy | | searched trial/study registries | | No |
| x | justified publication restrictions (e.g. language) | | included/consulted content experts in the field | | |
| | | | where relevant, searched for grey literature | | |
| | | x | conducted search within 24 months of completion of the review | | |
| 5. Did the review authors perform study selection in duplicate? | | | | | |
| For Yes, either ONE of the following: | | | | | |
| x | at least two reviewers independently agreed on selection of eligible studies and achieved consensus on which studies to include | | | x | Yes |

| | | | |
|--|--|--|--|
| | OR two reviewers selected a sample of eligible studies and achieved good agreement (at least 80 percent), with the remainder selected by one reviewer. | | No |
| 6. Did the review authors perform data extraction in duplicate? | | | |
| For Yes, either ONE of the following: | | | |
| x | at least two reviewers achieved consensus on which data to extract from included studies | x | Yes |
| | OR two reviewers extracted data from a sample of eligible studies and achieved good agreement (at least 80 percent), with the remainder extracted by one reviewer. | | No |
| 7. Did the review authors provide a list of excluded studies and justify the exclusions? | | | |
| For Partial Yes: | | For Yes, must also have: | |
| x | provided a list of all potentially relevant studies that were read in full-text form but excluded from the review | | Justified the exclusion from the review of each potentially relevant study |
| | | | Yes |
| | | x | Partial Yes |
| | | | No |
| 8. Did the review authors describe the included studies in adequate detail? | | | |
| For Partial Yes (ALL the following): | | For Yes, should also have ALL the following: | |
| X | described populations | | described population in detail |
| | | | Yes |
| X | described interventions | | described intervention in detail (including doses where relevant) |
| | | x | Partially Yes |
| X | described comparators | | described comparator in detail (including doses where relevant) |
| | | | No |
| X | described outcomes | x | <input type="checkbox"/> described study's setting |
| x | described research designs | | timeframe for follow-up |
| 9. Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review? | | | |
| RCTs | | | |
| For Partial Yes, must have assessed RoB from | | For Yes, must also have assessed RoB from: | |
| x | unconcealed allocation, and | | allocation sequence that was not truly random, and |
| | | | Yes |
| | | | Partial Yes |
| | lack of blinding of patients and assessors when assessing outcomes (unnecessary for objective outcomes such as all-cause mortality) | x | selection of the reported result from among multiple measurements or analyses of a specified outcome |
| | | x | No |
| | | | Includes only NRSI |
| NRSI | | | |
| For Partial Yes, must have assessed RoB from | | For Yes, must also have assessed RoB from: | |
| x | from confounding, and | x | methods used to ascertain exposures and outcomes, and |
| | | | Yes |
| | | x | Partial Yes |
| x | from selection bias | | selection of the reported result from among multiple measurements or analyses of a specified outcome |
| | | | No |
| | | | Includes only RCT |
| 10. Did the review authors report on the sources of funding for the studies included in the review? | | | |
| For Yes | | | |
| | Must have reported on the sources of funding for individual studies included in the review. Note: Reporting that the reviewers looked for this information but it was not reported by study authors also qualifies | | Yes |
| | | x | No |
| 11. If meta-analysis was performed did the review authors use appropriate methods for statistical combination of results? | | | |
| RCTs | | | |
| For Yes | | | |
| | The authors justified combining the data in a meta-analysis | | Yes |

| | | | |
|---|--|---|----------------------------|
| | AND they used an appropriate weighted technique to combine study results and adjusted for heterogeneity if present. | | No |
| | AND investigated the causes of any heterogeneity | x | No meta-analysis conducted |
| For NRSI | | | |
| For Yes | | | |
| | The authors justified combining the data in a meta-analysis | | Yes |
| | AND they used an appropriate weighted technique to combine study results, adjusting for heterogeneity if present | | No |
| | AND they statistically combined effect estimates from NRSI that were adjusted for confounding, rather than combining raw data, or justified combining raw data when adjusted effect estimates were not available | x | No meta-analysis conducted |
| | AND they reported separate summary estimates for RCTs and NRSI separately when both were included in the review | | |
| 12. If meta-analysis was performed, did the review authors assess the potential impact of RoB in individual studies on the results of the meta-analysis or other evidence synthesis? | | | |
| For Yes | | | |
| | included only low risk of bias RCTs | | Yes |
| | OR, if the pooled estimate was based on RCTs and/or NRSI at variable RoB, the authors performed analyses to investigate possible impact of RoB on summary estimates of effect. | x | No meta-analysis conducted |
| 13. Did the review authors account for RoB in individual studies when interpreting/ discussing the results of the review? | | | |
| For Yes | | | |
| | included only low risk of bias RCTs | | Yes |
| | OR, if RCTs with moderate or high RoB, or NRSI were included the review provided a discussion of the likely impact of RoB on the results | x | No |
| 14. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review? | | | |
| For Yes | | | |
| | There was no significant heterogeneity in the results | | Yes |
| | OR if heterogeneity was present the authors performed an investigation of sources of any heterogeneity in the results and discussed the impact of this on the results of the review | x | No |
| 15. If they performed quantitative synthesis did the review authors carry out an adequate investigation of publication bias (small study bias) and discuss its likely impact on the results of the review? | | | |
| For Yes | | | |
| | performed graphical or statistical tests for publication bias and discussed the likelihood and magnitude of impact of publication bias | | Yes |
| | | | No |
| | | x | No meta-analysis conducted |
| 16. Did the review authors report any potential sources of conflict of interest, including any funding they received for conducting the review? | | | |
| For Yes | | | |
| x | The authors reported no competing interests OR | x | Yes |
| | The authors described their funding sources and how they managed potential conflicts of interest | | No |
| Your overall assessment of the risk of bias of this systematic review | | | |
| Low | | | |

| |
|--|
| AMSTAR 2 checklist, critical questions |
| REF: Claire et al 2020 |
| 1. Did the research questions and inclusion criteria for the review include the components of PICO? |

| | | | | | |
|---|--|--|--|--|-------------|
| For Yes | | Optional (recommended) | | | |
| X | Population | | Timeframe for follow up | x | Yes |
| X | Intervention | | | | No |
| X | Comparator group | | | | |
| x | Outcome | | | | |
| 2. Did the report of the review contain an explicit statement that the review methods were established prior to the conduct of the review and did the report justify any significant deviations from the protocol? | | | | | |
| For Partial Yes: The authors state that they had a written protocol or guide that included ALL the following: | | For Yes: As for partial yes, plus the protocol should be registered and should also have specified: | | | |
| x | review question(s) | x | a meta-analysis/ synthesis plan, if appropriate, and | x | Yes |
| x | a search strategy | x | a plan for investigating causes of heterogeneity | | Partial Yes |
| x | inclusion/exclusion criteria | | | | No |
| x | a risk of bias assessment | | | | |
| 3. Did the review authors explain their selection of the study designs for inclusion in the review? | | | | | |
| For Yes, the review should satisfy ONE of the following: | | | | x | Yes |
| x | Explanation for including only RCTs | | | | No |
| | OR Explanation for including only NRSI | | | | |
| | OR Explanation for including both RCTs and NRSI | | | | |
| 4. Did the review authors use a comprehensive literature search strategy? | | | | | |
| For Partial Yes (all the following): | | For Yes, should also have (all the following): | | x | Yes |
| x | searched at least 2 databases (relevant to research question) | s | searched the reference lists / bibliographies of included studies | | Partial Yes |
| x | provided key word and/or search strategy | x | searched trial/study registries | | No |
| x | justified publication restrictions (e.g. language) | x | included/consulted content experts in the field | | |
| | | x | where relevant, searched for grey literature | | |
| | | x | conducted search within 24 months of completion of the review | | |
| 5. Did the review authors perform study selection in duplicate? | | | | | |
| For Yes, either ONE of the following: | | | | | |
| x | at least two reviewers independently agreed on selection of eligible studies and achieved consensus on which studies to include | | | x | Yes |
| | OR two reviewers selected a sample of eligible studies and achieved good agreement (at least 80 percent), with the remainder selected by one reviewer. | | | | No |
| 6. Did the review authors perform data extraction in duplicate? | | | | | |
| For Yes, either ONE of the following: | | | | | |
| x | at least two reviewers achieved consensus on which data to extract from included studies | | | x | Yes |
| | OR two reviewers extracted data from a sample of eligible studies and achieved good agreement (at least 80 percent), with the remainder extracted by one reviewer. | | | | No |
| 7. Did the review authors provide a list of excluded studies and justify the exclusions? | | | | | |
| For Partial Yes: | | For Yes, must also have: | | | |
| x | provided a list of all potentially relevant studies that were read in full-text form but excluded from the review | | Justified the exclusion from the review of each potentially relevant study | | Yes |
| | | | | x | Partial Yes |
| | | | | | No |
| | | | | State 9 excluded, but only 6 are listed in the | |

| | | | | Table of excluded studies | |
|--|--|---|--|---------------------------|----------------------------|
| 8. Did the review authors describe the included studies in adequate detail? | | | | | |
| For Partial Yes (ALL the following): | | | For Yes, should also have ALL the following: | | |
| x | described populations | x | described population in detail | x | Yes |
| x | described interventions | x | described intervention in detail (including doses where relevant) | | Partially Yes |
| x | described comparators | x | described comparator in detail (including doses where relevant) | | No |
| x | described outcomes | x | <input type="checkbox"/> described study's setting | | |
| x | described research designs | x | timeframe for follow-up | | |
| 9. Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review? | | | | | |
| RCTs | | | | | |
| For Partial Yes, must have assessed RoB from | | | For Yes, must also have assessed RoB from: | | |
| x | unconcealed allocation, and | x | allocation sequence that was not truly random, and | x | Yes |
| | | | | | Partial Yes |
| x | lack of blinding of patients and assessors when assessing outcomes (unnecessary for objective outcomes such as all-cause mortality) | x | selection of the reported result from among multiple measurements or analyses of a specified outcome | | No |
| | | | | | Includes only NRSI |
| NRSI | | | | | |
| For Partial Yes, must have assessed RoB from | | | For Yes, must also have assessed RoB from: | | |
| | from confounding, and | | methods used to ascertain exposures and outcomes, and | | Yes |
| | | | | | Partial Yes |
| | from selection bias | | selection of the reported result from among multiple measurements or analyses of a specified outcome | | No |
| | | | | x | Includes only RCT |
| 10. Did the review authors report on the sources of funding for the studies included in the review? | | | | | |
| For Yes | | | | | |
| x | Must have reported on the sources of funding for individual studies included in the review. Note: Reporting that the reviewers looked for this information but it was not reported by study authors also qualifies | | | x | Yes |
| | | | | | No |
| 11. If meta-analysis was performed did the review authors use appropriate methods for statistical combination of results? | | | | | |
| RCTs | | | | | |
| For Yes | | | | | |
| x | The authors justified combining the data in a meta-analysis | | | x | Yes |
| x | AND they used an appropriate weighted technique to combine study results and adjusted for heterogeneity if present. | | | | No |
| x | AND investigated the causes of any heterogeneity | | | | No meta-analysis conducted |
| For NRSI | | | | | |
| For Yes | | | | | |
| | The authors justified combining the data in a meta-analysis | | | | Yes |
| | AND they used an appropriate weighted technique to combine study results, adjusting for heterogeneity if present | | | | No |

| | | | |
|---|--|----|----------------------------|
| | AND they statistically combined effect estimates from NRSI that were adjusted for confounding, rather than combining raw data, or justified combining raw data when adjusted effect estimates were not available | | No meta-analysis conducted |
| | AND they reported separate summary estimates for RCTs and NRSI separately when both were included in the review | | |
| 12. If meta-analysis was performed, did the review authors assess the potential impact of RoB in individual studies on the results of the meta-analysis or other evidence synthesis? | | | |
| For Yes | | | |
| x | included only low risk of bias RCTs | x | Yes |
| | OR, if the pooled estimate was based on RCTs and/or NRSI at variable RoB, the authors performed analyses to investigate possible impact of RoB on summary estimates of effect. | | No |
| | | | No meta-analysis conducted |
| 13. Did the review authors account for RoB in individual studies when interpreting/ discussing the results of the review? | | | |
| For Yes | | | |
| x | included only low risk of bias RCTs | x | Yes |
| x | OR, if RCTs with moderate or high RoB, or NRSI were included the review provided a discussion of the likely impact of RoB on the results | | No |
| 14. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review? | | | |
| For Yes | | | |
| | There was no significant heterogeneity in the results | x | Yes |
| x | OR if heterogeneity was present the authors performed an investigation of sources of any heterogeneity in the results and discussed the impact of this on the results of the review | | No |
| 15. If they performed quantitative synthesis did the review authors carry out an adequate investigation of publication bias (small study bias) and discuss its likely impact on the results of the review? | | | |
| For Yes | | | |
| NA | performed graphical or statistical tests for publication bias and discussed the likelihood and magnitude of impact of publication bias | NR | Yes |
| no | | | No |
| MA w>1 0 stud ies | | | No meta-analysis conducted |
| 16. Did the review authors report any potential sources of conflict of interest, including any funding they received for conducting the review? | | | |
| For Yes | | | |
| x | The authors reported no competing interests OR | x | Yes |
| x | The authors described their funding sources and how they managed potential conflicts of interest | | No |
| Your overall assessment of the risk of bias of this systematic review | | | |
| High | | | |

| | | | |
|--|------------------|-------------------------|-------|
| AMSTAR 2 checklist, critical questions | | | |
| REF: Drovandi et al 2020 | | | |
| 1. Did the research questions and inclusion criteria for the review include the components of PICO? | | | |
| For Yes | | Optional (recommended) | |
| X | Population | Timeframe for follow up | x Yes |
| X | Intervention | | No |
| X | Comparator group | | |
| x | Outcome | | |

| 2. Did the report of the review contain an explicit statement that the review methods were established prior to the conduct of the review and did the report justify any significant deviations from the protocol? | | | | | |
|---|--|--|--|---|---------------|
| For Partial Yes: The authors state that they had a written protocol or guide that included ALL the following: | | For Yes: As for partial yes, plus the protocol should be registered and should also have specified: | | | |
| | review question(s) | | a meta-analysis/ synthesis plan, if appropriate, and | x | Yes |
| | a search strategy | | a plan for investigating causes of heterogeneity | | Partial Yes |
| | inclusion/exclusion criteria | | | x | No |
| | a risk of bias assessment | | | | |
| 3. Did the review authors explain their selection of the study designs for inclusion in the review? | | | | | |
| For Yes, the review should satisfy ONE of the following: | | | | x | Yes |
| x | Explanation for including only RCTs | | | | No |
| | OR Explanation for including only NRSI | | | | |
| | OR Explanation for including both RCTs and NRSI | | | | |
| 4. Did the review authors use a comprehensive literature search strategy? | | | | | |
| For Partial Yes (all the following): | | For Yes, should also have (all the following): | | | |
| x | searched at least 2 databases (relevant to research question) | x | searched the reference lists / bibliographies of included studies | x | Partial Yes |
| x | provided key word and/or search strategy | | searched trial/study registries | | No |
| x | justified publication restrictions (e.g. language) | | included/consulted content experts in the field | | |
| | | | where relevant, searched for grey literature | | |
| | | x | conducted search within 24 months of completion of the review | | |
| 5. Did the review authors perform study selection in duplicate? | | | | | |
| For Yes, either ONE of the following: | | | | | |
| x | at least two reviewers independently agreed on selection of eligible studies and achieved consensus on which studies to include | | | x | Yes |
| | OR two reviewers selected a sample of eligible studies and achieved good agreement (at least 80 percent), with the remainder selected by one reviewer. | | | | No |
| 6. Did the review authors perform data extraction in duplicate? | | | | | |
| For Yes, either ONE of the following: | | | | | |
| x | at least two reviewers achieved consensus on which data to extract from included studies | | | x | Yes |
| | OR two reviewers extracted data from a sample of eligible studies and achieved good agreement (at least 80 percent), with the remainder extracted by one reviewer. | | | | No |
| 7. Did the review authors provide a list of excluded studies and justify the exclusions? | | | | | |
| For Partial Yes: | | For Yes, must also have: | | | |
| x | provided a list of all potentially relevant studies that were read in full-text form but excluded from the review | | Justified the exclusion from the review of each potentially relevant study | | Yes |
| | | | | x | Partial Yes |
| | | | | | No |
| 8. Did the review authors describe the included studies in adequate detail? | | | | | |
| For Partial Yes (ALL the following): | | For Yes, should also have ALL the following: | | | |
| x | described populations | x | described population in detail | x | Yes |
| x | described interventions | x | described intervention in detail (including doses where relevant) | | Partially Yes |
| x | described comparators | x | described comparator in detail (including doses where relevant) | | No |

| | | | | |
|---|--|--|--|---|
| x | described outcomes | x | <input type="checkbox"/> described study's setting | |
| x | described research designs | x | timeframe for follow-up | |
| 9. Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review? | | | | |
| RCTs | | | | |
| For Partial Yes, must have assessed RoB from | | For Yes, must also have assessed RoB from: | | |
| x | unconcealed allocation, and | | allocation sequence that was not truly random, and | <input type="checkbox"/> Yes |
| x | lack of blinding of patients and assessors when assessing outcomes (unnecessary for objective outcomes such as all-cause mortality) | | selection of the reported result from among multiple measurements or analyses of a specified outcome | <input checked="" type="checkbox"/> Partial Yes |
| | | | | <input type="checkbox"/> No |
| | | | | <input type="checkbox"/> Includes only NRSI |
| NRSI | | | | |
| For Partial Yes, must have assessed RoB from | | For Yes, must also have assessed RoB from: | | |
| | from confounding, and | | methods used to ascertain exposures and outcomes, and | <input type="checkbox"/> Yes |
| | | | | <input type="checkbox"/> Partial Yes |
| | from selection bias | | selection of the reported result from among multiple measurements or analyses of a specified outcome | <input type="checkbox"/> No |
| | | | | <input checked="" type="checkbox"/> Includes only RCT |
| 10. Did the review authors report on the sources of funding for the studies included in the review? | | | | |
| For Yes | | | But included them anyway due to very little non-tobacco-company sponsored research | |
| x | Must have reported on the sources of funding for individual studies included in the review. Note: Reporting that the reviewers looked for this information but it was not reported by study authors also qualifies | | <input checked="" type="checkbox"/> | Yes |
| | | | <input type="checkbox"/> | No |
| 11. If meta-analysis was performed did the review authors use appropriate methods for statistical combination of results? | | | | |
| RCTs | | | | |
| For Yes | | | | |
| x | The authors justified combining the data in a meta-analysis | | <input checked="" type="checkbox"/> | Yes |
| x | AND they used an appropriate weighted technique to combine study results and adjusted for heterogeneity if present. | | <input type="checkbox"/> | No |
| | AND investigated the causes of any heterogeneity | | <input type="checkbox"/> | No meta-analysis conducted |
| For NRSI | | | | |
| For Yes | | | | |
| | The authors justified combining the data in a meta-analysis | | <input type="checkbox"/> | Yes |
| | AND they used an appropriate weighted technique to combine study results, adjusting for heterogeneity if present | | <input type="checkbox"/> | No |
| | AND they statistically combined effect estimates from NRSI that were adjusted for confounding, rather than combining raw data, or justified combining raw data when adjusted effect estimates were not available | | <input type="checkbox"/> | No meta-analysis conducted |
| | AND they reported separate summary estimates for RCTs and NRSI separately when both were included in the review | | <input type="checkbox"/> | |
| 12. If meta-analysis was performed, did the review authors assess the potential impact of RoB in individual studies on the results of the meta-analysis or other evidence synthesis? | | | | |
| For Yes | | | | |
| | included only low risk of bias RCTs | | <input type="checkbox"/> | Yes |

| | | | |
|---|---|---|----------------------------|
| | OR, if the pooled estimate was based on RCTs and/or NRSI at variable RoB, the authors performed analyses to investigate possible impact of RoB on summary estimates of effect. | x | No |
| | | | No meta-analysis conducted |
| 13. Did the review authors account for RoB in individual studies when interpreting/ discussing the results of the review? | | | |
| For Yes | | | |
| | included only low risk of bias RCTs | | Yes |
| | OR, if RCTs with moderate or high RoB, or NRSI were included the review provided a discussion of the likely impact of RoB on the results | x | No |
| 14. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review? | | | |
| For Yes | | | |
| | There was no significant heterogeneity in the results | | Yes |
| | OR if heterogeneity was present the authors performed an investigation of sources of any heterogeneity in the results and discussed the impact of this on the results of the review | x | No |
| 15. If they performed quantitative synthesis did the review authors carry out an adequate investigation of publication bias (small study bias) and discuss its likely impact on the results of the review? | | | |
| For Yes | | | |
| | performed graphical or statistical tests for publication bias and discussed the likelihood and magnitude of impact of publication bias | | Yes |
| | | x | No |
| | | | No meta-analysis conducted |
| 16. Did the review authors report any potential sources of conflict of interest, including any funding they received for conducting the review? | | | |
| For Yes | | | |
| x | The authors reported no competing interests OR | x | Yes |
| | The authors described their funding sources and how they managed potential conflicts of interest | | No |
| Your overall assessment of the risk of bias of this systematic review | | | |
| Moderate | | | |

| | | | | | |
|---|------------------------------|---|--|---|-------------|
| AMSTAR 2 checklist, critical questions | | | | | |
| REF: Figueredo et al 2020 | | | | | |
| 1. Did the research questions and inclusion criteria for the review include the components of PICO? | | | | | |
| For Yes | | | Optional (recommended) | | |
| x | Population | | Timeframe for follow up | x | Yes |
| x | Intervention | | | | No |
| x | Comparator group | | | | |
| x | Outcome | | | | |
| 2. Did the report of the review contain an explicit statement that the review methods were established prior to the conduct of the review and did the report justify any significant deviations from the protocol? | | | | | |
| For Partial Yes: The authors state that they had a written protocol or guide that included ALL the following: | | | For Yes: As for partial yes, plus the protocol should be registered and should also have specified: | | |
| x | review question(s) | x | a meta-analysis/ synthesis plan, if appropriate, and | | Yes |
| x | a search strategy | | a plan for investigating causes of heterogeneity | x | Partial Yes |
| x | inclusion/exclusion criteria | | | | No |
| x | a risk of bias assessment | | | | |

| | | | | | |
|--|--|--|--|---|---------------|
| 3. Did the review authors explain their selection of the study designs for inclusion in the review? | | | | | |
| For Yes, the review should satisfy ONE of the following: | | | | x | Yes |
| | Explanation for including only RCTs | | | | No |
| | OR Explanation for including only NRSI | | | | |
| x | OR Explanation for including both RCTs and NRSI | | | | |
| 4. Did the review authors use a comprehensive literature search strategy? | | | | | |
| For Partial Yes (all the following): | | For Yes, should also have (all the following): | | | Yes |
| x | searched at least 2 databases (relevant to research question) | | searched the reference lists / bibliographies of included studies | x | Partial Yes |
| x | provided key word and/or search strategy | | searched trial/study registries | | No |
| x | justified publication restrictions (e.g. language) | | included/consulted content experts in the field | | |
| | | | where relevant, searched for grey literature | | |
| | | x | conducted search within 24 months of completion of the review | | |
| 5. Did the review authors perform study selection in duplicate? | | | | | |
| For Yes, either ONE of the following: | | | | | |
| x | at least two reviewers independently agreed on selection of eligible studies and achieved consensus on which studies to include | | | x | Yes |
| | OR two reviewers selected a sample of eligible studies and achieved good agreement (at least 80 percent), with the remainder selected by one reviewer. | | | | No |
| 6. Did the review authors perform data extraction in duplicate? | | | | | |
| For Yes, either ONE of the following: | | | | | |
| x | at least two reviewers achieved consensus on which data to extract from included studies | | | x | Yes |
| | OR two reviewers extracted data from a sample of eligible studies and achieved good agreement (at least 80 percent), with the remainder extracted by one reviewer. | | | | No |
| 7. Did the review authors provide a list of excluded studies and justify the exclusions? | | | | | |
| For Partial Yes: | | For Yes, must also have: | | | |
| x | provided a list of all potentially relevant studies that were read in full-text form but excluded from the review | | Justified the exclusion from the review of each potentially relevant study | | Yes |
| | | | | x | Partial Yes |
| | | | | | No |
| 8. Did the review authors describe the included studies in adequate detail? | | | | | |
| For Partial Yes (ALL the following): | | For Yes, should also have ALL the following: | | | |
| x | described populations | x | described population in detail | x | Yes |
| x | described interventions | x | described intervention in detail (including doses where relevant) | | Partially Yes |
| x | described comparators | x | described comparator in detail (including doses where relevant) | | No |
| x | described outcomes | x | <input type="checkbox"/> described study's setting | | |
| x | described research designs | na | timeframe for follow-up | | |
| 9. Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review? | | | | | |
| RCTs | | | | | |
| For Partial Yes, must have assessed RoB from | | For Yes, must also have assessed RoB from: | | | |
| x | unconcealed allocation, and | x | allocation sequence that was not truly random, and | x | Yes |

| | | | | | |
|---|--|---|--|----|----------------------------|
| x | lack of blinding of patients and assessors when assessing outcomes (unnecessary for objective outcomes such as all-cause mortality) | x | selection of the reported result from among multiple measurements or analyses of a specified outcome | | Partial Yes |
| | | | | | No |
| | | | | | Includes only NRSI |
| NRSI | | | | | |
| For Partial Yes, must have assessed RoB from | | | For Yes, must also have assessed RoB from: | | |
| x | from confounding, and | x | methods used to ascertain exposures and outcomes, and | x | Yes |
| | | | | | Partial Yes |
| x | from selection bias | x | selection of the reported result from among multiple measurements or analyses of a specified outcome | | No |
| | | | | | Includes only RCT |
| 10. Did the review authors report on the sources of funding for the studies included in the review? | | | | | |
| For Yes | | | | | |
| | Must have reported on the sources of funding for individual studies included in the review. Note: Reporting that the reviewers looked for this information but it was not reported by study authors also qualifies | | | | Yes |
| | | | | x | No |
| 11. If meta-analysis was performed did the review authors use appropriate methods for statistical combination of results? | | | | | |
| RCTs | | | | | |
| For Yes | | | | | |
| | The authors justified combining the data in a meta-analysis | | | | Yes |
| | AND they used an appropriate weighted technique to combine study results and adjusted for heterogeneity if present. | | | | No |
| | AND investigated the causes of any heterogeneity | | | na | No meta-analysis conducted |
| For NRSI | | | | | |
| For Yes | | | | | |
| x | The authors justified combining the data in a meta-analysis | | | x | Yes |
| x | AND they used an appropriate weighted technique to combine study results, adjusting for heterogeneity if present | | | | No |
| x | AND they statistically combined effect estimates from NRSI that were adjusted for confounding, rather than combining raw data, or justified combining raw data when adjusted effect estimates were not available | | | | No meta-analysis conducted |
| na | AND they reported separate summary estimates for RCTs and NRSI separately when both were included in the review | | | | |
| 12. If meta-analysis was performed, did the review authors assess the potential impact of RoB in individual studies on the results of the meta-analysis or other evidence synthesis? | | | | | |
| For Yes | | | | | |
| | included only low risk of bias RCTs | | | | Yes |
| | OR, if the pooled estimate was based on RCTs and/or NRSI at variable RoB, the authors performed analyses to investigate possible impact of RoB on summary estimates of effect. | | | x | No |
| | | | | | No meta-analysis conducted |
| 13. Did the review authors account for RoB in individual studies when interpreting/ discussing the results of the review? | | | | | |
| For Yes | | | | | |
| | included only low risk of bias RCTs | | | x | Yes, |
| x | OR, if RCTs with moderate or high RoB, or NRSI were included the review provided a discussion of the likely impact of RoB on the results | | | | No |
| 14. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review? | | | | | |
| For Yes | | | | | |
| | There was no significant heterogeneity in the results | | | x | Yes confounding |

| | | | |
|---|---|---|----------------------------|
| x | OR if heterogeneity was present the authors performed an investigation of sources of any heterogeneity in the results and discussed the impact of this on the results of the review | | No |
| 15. If they performed quantitative synthesis did the review authors carry out an adequate investigation of publication bias (small study bias) and discuss its likely impact on the results of the review? | | | |
| For Yes | | Too few studies to make sense of funnel plots | |
| | performed graphical or statistical tests for publication bias and discussed the likelihood and magnitude of impact of publication bias | na | Yes |
| | | | No |
| | | | No meta-analysis conducted |
| 16. Did the review authors report any potential sources of conflict of interest, including any funding they received for conducting the review? | | | |
| For Yes | | | |
| x | The authors reported no competing interests OR | x | Yes |
| | The authors described their funding sources and how they managed potential conflicts of interest | | No |
| Your overall assessment of the risk of bias of this systematic review | | | |
| High | | | |

| | | | |
|---|---|--|---|
| AMSTAR 2 checklist, critical questions | | | |
| REF: Franck et al 2014 | | | |
| 1. Did the research questions and inclusion criteria for the review include the components of PICO? | | | |
| For Yes | | Optional (recommended) | |
| x | Population | | Timeframe for follow up |
| x | Intervention | | |
| x | Comparator group | | |
| x | Outcome | | |
| 2. Did the report of the review contain an explicit statement that the review methods were established prior to the conduct of the review and did the report justify any significant deviations from the protocol? | | | |
| For Partial Yes: The authors state that they had a written protocol or guide that included ALL the following: | | For Yes: As for partial yes, plus the protocol should be registered and should also have specified: | |
| | review question(s) | | a meta-analysis/ synthesis plan, if appropriate, and |
| | a search strategy | | a plan for investigating causes of heterogeneity |
| | inclusion/exclusion criteria | | |
| | a risk of bias assessment | | |
| 3. Did the review authors explain their selection of the study designs for inclusion in the review? | | | |
| For Yes, the review should satisfy ONE of the following: | | x | Yes |
| | Explanation for including only RCTs | | No |
| | OR Explanation for including only NRSI | | |
| x | OR Explanation for including both RCTs and NRSI | | |
| 4. Did the review authors use a comprehensive literature search strategy? | | | |
| For Partial Yes (all the following): | | For Yes, should also have (all the following): | |
| x | searched at least 2 databases (relevant to research question) | | searched the reference lists / bibliographies of included studies |
| x | provided key word and/or search strategy | | searched trial/study registries |

| | | | | | |
|--|--|--|--|--------------------------------------|--------------------|
| x | justified publication restrictions (e.g. language) | | included/consulted content experts in the field | | |
| | | x | where relevant, searched for grey literature | | |
| | | x | conducted search within 24 months of completion of the review | | |
| 5. Did the review authors perform study selection in duplicate? | | | | | |
| For Yes, either ONE of the following: | | | | | |
| | at least two reviewers independently agreed on selection of eligible studies and achieved consensus on which studies to include | | | | Yes |
| | OR two reviewers selected a sample of eligible studies and achieved good agreement (at least 80 percent), with the remainder selected by one reviewer. | x | | | No |
| 6. Did the review authors perform data extraction in duplicate? | | | | | |
| For Yes, either ONE of the following: | | | | | |
| x | at least two reviewers achieved consensus on which data to extract from included studies | | | x | Yes |
| | OR two reviewers extracted data from a sample of eligible studies and achieved good agreement (at least 80 percent), with the remainder extracted by one reviewer. | | | | No |
| 7. Did the review authors provide a list of excluded studies and justify the exclusions? | | | | | |
| For Partial Yes: | | For Yes, must also have: | | | |
| x | provided a list of all potentially relevant studies that were read in full-text form but excluded from the review | | Justified the exclusion from the review of each potentially relevant study | | Yes |
| | | | | x | Partial Yes |
| | | | | | No |
| 8. Did the review authors describe the included studies in adequate detail? | | | | | |
| For Partial Yes (ALL the following): | | For Yes, should also have ALL the following: | | | |
| x | described populations | x | described population in detail | x | Yes |
| x | described interventions | x | described intervention in detail (including doses where relevant) | | Partially Yes |
| x | described comparators | | described comparator in detail (including doses where relevant) | | No |
| x | described outcomes | x | <input type="checkbox"/> described study's setting | | |
| x | described research designs | x | timeframe for follow-up | | |
| 9. Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review? | | | | | |
| RCTs | | | | | |
| For Partial Yes, must have assessed RoB from | | For Yes, must also have assessed RoB from: | | | |
| x | unconcealed allocation, and | x | allocation sequence that was not truly random, and | x | Yes |
| | | | | | Partial Yes |
| x | lack of blinding of patients and assessors when assessing outcomes (unnecessary for objective outcomes such as all-cause mortality) | x | selection of the reported result from among multiple measurements or analyses of a specified outcome | | No |
| | | | | | Includes only NRSI |
| NRSI | | | | | |
| For Partial Yes, must have assessed RoB from | | For Yes, must also have assessed RoB from: | | All non-RCT assessed as poor quality | |
| | from confounding, and | | methods used to ascertain exposures and outcomes, and | | Yes |
| | | | | | Partial Yes |
| x | from selection bias | | selection of the reported result from among multiple measurements or analyses of a specified outcome | x | No |
| | | | | | Includes only RCT |

| | | | |
|---|--|---|----------------------------|
| 10. Did the review authors report on the sources of funding for the studies included in the review? | | | |
| For Yes | | | |
| | Must have reported on the sources of funding for individual studies included in the review. Note: Reporting that the reviewers looked for this information but it was not reported by study authors also qualifies | | Yes |
| | | x | No |
| 11. If meta-analysis was performed did the review authors use appropriate methods for statistical combination of results? | | | |
| RCTs | | | |
| For Yes | | | |
| | The authors justified combining the data in a meta-analysis | | Yes |
| | AND they used an appropriate weighted technique to combine study results and adjusted for heterogeneity if present. | | No |
| | AND investigated the causes of any heterogeneity | x | No meta-analysis conducted |
| For NRSI | | | |
| For Yes | | | |
| | The authors justified combining the data in a meta-analysis | | Yes |
| | AND they used an appropriate weighted technique to combine study results, adjusting for heterogeneity if present | | No |
| | AND they statistically combined effect estimates from NRSI that were adjusted for confounding, rather than combining raw data, or justified combining raw data when adjusted effect estimates were not available | x | No meta-analysis conducted |
| | AND they reported separate summary estimates for RCTs and NRSI separately when both were included in the review | | |
| 12. If meta-analysis was performed, did the review authors assess the potential impact of RoB in individual studies on the results of the meta-analysis or other evidence synthesis? | | | |
| For Yes | | | |
| | included only low risk of bias RCTs | | Yes |
| | OR, if the pooled estimate was based on RCTs and/or NRSI at variable RoB, the authors performed analyses to investigate possible impact of RoB on summary estimates of effect. | | No |
| | | x | No meta-analysis conducted |
| 13. Did the review authors account for RoB in individual studies when interpreting/ discussing the results of the review? | | | |
| For Yes | | | |
| | included only low risk of bias RCTs | x | Yes |
| x | OR, if RCTs with moderate or high RoB, or NRSI were included the review provided a discussion of the likely impact of RoB on the results | | No |
| 14. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review? | | | |
| For Yes | | | |
| x | There was no significant heterogeneity in the results | x | Yes |
| | OR if heterogeneity was present the authors performed an investigation of sources of any heterogeneity in the results and discussed the impact of this on the results of the review | | No |
| 15. If they performed quantitative synthesis did the review authors carry out an adequate investigation of publication bias (small study bias) and discuss its likely impact on the results of the review? | | | |
| For Yes | | | |
| | performed graphical or statistical tests for publication bias and discussed the likelihood and magnitude of impact of publication bias | | Yes |
| | | | No |
| | | x | No meta-analysis conducted |
| 16. Did the review authors report any potential sources of conflict of interest, including any funding they received for conducting the review? | | | |
| For Yes | | | |

| | | | |
|--|--|---|-----|
| x | The authors reported no competing interests OR | x | Yes |
| | The authors described their funding sources and how they managed potential conflicts of interest | | No |
| Your overall assessment of the risk of bias of this systematic review | | | |
| Moderate | | | |

| | | | |
|---|--|--|---|
| AMSTAR 2 checklist, critical questions | | | |
| REF: Goniewicz et al 2020 | | | |
| 1. Did the research questions and inclusion criteria for the review include the components of PICO? | | | |
| For Yes | | Optional (recommended) | |
| x | Population | | Timeframe for follow up |
| x | Intervention | | |
| x | Comparator group | | |
| x | Outcome | | |
| 2. Did the report of the review contain an explicit statement that the review methods were established prior to the conduct of the review and did the report justify any significant deviations from the protocol? | | | |
| For Partial Yes: The authors state that they had a written protocol or guide that included ALL the following: | | For Yes: As for partial yes, plus the protocol should be registered and should also have specified: | |
| | review question(s) | | a meta-analysis/ synthesis plan, if appropriate, and |
| | a search strategy | | a plan for investigating causes of heterogeneity |
| | inclusion/exclusion criteria | | |
| | a risk of bias assessment | | |
| | | x | No |
| 3. Did the review authors explain their selection of the study designs for inclusion in the review? | | | |
| For Yes, the review should satisfy ONE of the following: | | x | Yes |
| | Explanation for including only RCTs | | No |
| x | OR Explanation for including only NRSI | | |
| | OR Explanation for including both RCTs and NRSI | | |
| 4. Did the review authors use a comprehensive literature search strategy? | | | |
| For Partial Yes (all the following): | | For Yes, should also have (all the following): | |
| x | searched at least 2 databases (relevant to research question) | | searched the reference lists / bibliographies of included studies |
| x | provided key word and/or search strategy | | searched trial/study registries |
| x | justified publication restrictions (e.g. language) | | included/consulted content experts in the field |
| | | | where relevant, searched for grey literature |
| | | x | conducted search within 24 months of completion of the review |
| 5. Did the review authors perform study selection in duplicate? | | | |
| For Yes, either ONE of the following: | | | |
| x | at least two reviewers independently agreed on selection of eligible studies and achieved consensus on which studies to include | x | Yes |
| | OR two reviewers selected a sample of eligible studies and achieved good agreement (at least 80 percent), with the remainder selected by one reviewer. | | No |
| 6. Did the review authors perform data extraction in duplicate? | | | |
| For Yes, either ONE of the following: | | | |
| x | at least two reviewers achieved consensus on which data to extract from included studies | x | Yes |

| | | | |
|--|--|--|--|
| | OR two reviewers extracted data from a sample of eligible studies and achieved good agreement (at least 80 percent), with the remainder extracted by one reviewer. | | No |
| 7. Did the review authors provide a list of excluded studies and justify the exclusions? | | | |
| For Partial Yes: | | For Yes, must also have: | |
| x | provided a list of all potentially relevant studies that were read in full-text form but excluded from the review | | Justified the exclusion from the review of each potentially relevant study |
| | | | Yes |
| | | x | Partial Yes |
| | | | No |
| 8. Did the review authors describe the included studies in adequate detail? | | | |
| For Partial Yes (ALL the following): | | For Yes, should also have ALL the following: | |
| x | described populations | x | described population in detail |
| | | | Yes |
| x | described interventions | | described intervention in detail (including doses where relevant) |
| | | x | Partially Yes |
| x | described comparators | | described comparator in detail (including doses where relevant) |
| | | | No |
| x | described outcomes | | <input type="checkbox"/> described study's setting |
| x | described research designs | | timeframe for follow-up |
| 9. Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review? | | | |
| RCTs | | | |
| For Partial Yes, must have assessed RoB from | | For Yes, must also have assessed RoB from: | |
| | unconcealed allocation, and | | allocation sequence that was not truly random, and |
| | | | Yes |
| | | | Partial Yes |
| | lack of blinding of patients and assessors when assessing outcomes (unnecessary for objective outcomes such as all-cause mortality) | | selection of the reported result from among multiple measurements or analyses of a specified outcome |
| | | | No |
| | | x | Includes only NRSI |
| NRSI | | | |
| For Partial Yes, must have assessed RoB from | | For Yes, must also have assessed RoB from: | |
| x | from confounding, and | x | methods used to ascertain exposures and outcomes, and |
| | | | Yes |
| | | | Partial Yes |
| x | from selection bias | NA | selection of the reported result from among multiple measurements or analyses of a specified outcome |
| | | | No |
| | | | Includes only RCT |
| 10. Did the review authors report on the sources of funding for the studies included in the review? | | | |
| For Yes | | | |
| x | Must have reported on the sources of funding for individual studies included in the review. Note: Reporting that the reviewers looked for this information but it was not reported by study authors also qualifies | x | Yes |
| | | | No |
| 11. If meta-analysis was performed did the review authors use appropriate methods for statistical combination of results? | | | |
| RCTs | | | |
| For Yes | | | |
| | The authors justified combining the data in a meta-analysis | | Yes |
| | AND they used an appropriate weighted technique to combine study results and adjusted for heterogeneity if present. | | No |
| | AND investigated the causes of any heterogeneity | x | No meta-analysis conducted |
| For NRSI | | | |
| For Yes | | | |

| | | | |
|---|--|---|----------------------------|
| | The authors justified combining the data in a meta-analysis | | Yes |
| | AND they used an appropriate weighted technique to combine study results, adjusting for heterogeneity if present | | No |
| | AND they statistically combined effect estimates from NRSI that were adjusted for confounding, rather than combining raw data, or justified combining raw data when adjusted effect estimates were not available | x | No meta-analysis conducted |
| | AND they reported separate summary estimates for RCTs and NRSI separately when both were included in the review | | |
| 12. If meta-analysis was performed, did the review authors assess the potential impact of RoB in individual studies on the results of the meta-analysis or other evidence synthesis? | | | |
| For Yes | | | |
| | included only low risk of bias RCTs | | Yes |
| | OR, if the pooled estimate was based on RCTs and/or NRSI at variable RoB, the authors performed analyses to investigate possible impact of RoB on summary estimates of effect. | x | No meta-analysis conducted |
| 13. Did the review authors account for RoB in individual studies when interpreting/ discussing the results of the review? | | | |
| For Yes | | | |
| | included only low risk of bias RCTs | x | Yes |
| x | OR, if RCTs with moderate or high RoB, or NRSI were included the review provided a discussion of the likely impact of RoB on the results | | No |
| 4. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review? | | | |
| For Yes | | | |
| x | There was no significant heterogeneity in the results | x | Yes |
| | OR if heterogeneity was present the authors performed an investigation of sources of any heterogeneity in the results and discussed the impact of this on the results of the review | | No |
| 15. If they performed quantitative synthesis did the review authors carry out an adequate investigation of publication bias (small study bias) and discuss its likely impact on the results of the review? | | | |
| For Yes | | | |
| | performed graphical or statistical tests for publication bias and discussed the likelihood and magnitude of impact of publication bias | | Yes |
| | | | No |
| | | x | No meta-analysis conducted |
| 16. Did the review authors report any potential sources of conflict of interest, including any funding they received for conducting the review? | | | |
| For Yes | | | |
| x | The authors reported no competing interests OR | x | Yes |
| | The authors described their funding sources and how they managed potential conflicts of interest | | No |
| Your overall assessment of the risk of bias of this systematic review | | | |
| Moderate | | | |

| | | | |
|--|------------------|------------------------|-------------------------|
| AMSTAR 2 checklist, critical questions | | | |
| REF: Gualanao et al 2015 | | | |
| 1. Did the research questions and inclusion criteria for the review include the components of PICO? | | | |
| For Yes | | Optional (recommended) | |
| x | Population | | Timeframe for follow up |
| x | Intervention | | |
| x | Comparator group | | |
| x | Outcome | | |
| | | x | Yes |
| | | | No |

| 2. Did the report of the review contain an explicit statement that the review methods were established prior to the conduct of the review and did the report justify any significant deviations from the protocol? | | | | | |
|---|--|--|--|---|---------------|
| For Partial Yes: The authors state that they had a written protocol or guide that included ALL the following: | | For Yes: As for partial yes, plus the protocol should be registered and should also have specified: | | | |
| | review question(s) | | a meta-analysis/ synthesis plan, if appropriate, and | x | Yes |
| | a search strategy | | a plan for investigating causes of heterogeneity | | Partial Yes |
| | inclusion/exclusion criteria | | | x | No |
| | a risk of bias assessment | | | | |
| 3. Did the review authors explain their selection of the study designs for inclusion in the review? | | | | | |
| For Yes, the review should satisfy ONE of the following: | | | | x | Yes |
| | Explanation for including only RCTs | | | | No |
| | OR Explanation for including only NRSI | | | | |
| x | OR Explanation for including both RCTs and NRSI | | | | |
| 4. Did the review authors use a comprehensive literature search strategy? | | | | | |
| For Partial Yes (all the following): | | For Yes, should also have (all the following): | | | Yes |
| x | searched at least 2 databases (relevant to research question) | | searched the reference lists / bibliographies of included studies | x | Partial Yes |
| x | provided key word and/or search strategy | x | searched trial/study registries | | No |
| x | justified publication restrictions (e.g. language) | | included/consulted content experts in the field | | |
| | | | where relevant, searched for grey literature | | |
| | | x | conducted search within 24 months of completion of the review | | |
| 5. Did the review authors perform study selection in duplicate? | | | | | |
| For Yes, either ONE of the following: | | | | | |
| | at least two reviewers independently agreed on selection of eligible studies and achieved consensus on which studies to include | | | | Yes |
| | OR two reviewers selected a sample of eligible studies and achieved good agreement (at least 80 percent), with the remainder selected by one reviewer. | | | x | No |
| 6. Did the review authors perform data extraction in duplicate? | | | | | |
| For Yes, either ONE of the following: | | | | | |
| | at least two reviewers achieved consensus on which data to extract from included studies | | | | Yes |
| | OR two reviewers extracted data from a sample of eligible studies and achieved good agreement (at least 80 percent), with the remainder extracted by one reviewer. | | | x | No |
| 7. Did the review authors provide a list of excluded studies and justify the exclusions? | | | | | |
| For Partial Yes: | | For Yes, must also have: | | | |
| | provided a list of all potentially relevant studies that were read in full-text form but excluded from the review | x | Justified the exclusion from the review of each potentially relevant study | | Yes |
| | | | | x | Partial Yes |
| | | | | | No |
| 8. Did the review authors describe the included studies in adequate detail? | | | | | |
| For Partial Yes (ALL the following): | | For Yes, should also have ALL the following: | | | |
| x | described populations | | described population in detail | | Yes |
| x | described interventions | x | described intervention in detail (including doses where relevant) | x | Partially Yes |
| x | described comparators | x | described comparator in detail (including doses where relevant) | | No |

| | | | | |
|---|--|--|--|---|
| x | described outcomes | x | <input type="checkbox"/> described study's setting | |
| x | described research designs | | timeframe for follow-up | |
| 9. Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review? | | | | |
| RCTs | | | | |
| For Partial Yes, must have assessed RoB from | | For Yes, must also have assessed RoB from: | | |
| x | unconcealed allocation, and | x | allocation sequence that was not truly random, and | <input type="checkbox"/> Yes |
| | | | | x <input type="checkbox"/> Partial Yes |
| x | lack of blinding of patients and assessors when assessing outcomes (unnecessary for objective outcomes such as all-cause mortality) | | selection of the reported result from among multiple measurements or analyses of a specified outcome | <input type="checkbox"/> No |
| | | | | <input type="checkbox"/> Includes only NRSI |
| NRSI | | | | |
| For Partial Yes, must have assessed RoB from | | For Yes, must also have assessed RoB from: | | |
| x | from confounding, and | x | methods used to ascertain exposures and outcomes, and | x <input type="checkbox"/> Yes |
| | | | | <input type="checkbox"/> Partial Yes |
| x | from selection bias | x | selection of the reported result from among multiple measurements or analyses of a specified outcome | <input type="checkbox"/> No |
| | | | | <input type="checkbox"/> Includes only RCT |
| 10. Did the review authors report on the sources of funding for the studies included in the review? | | | | |
| For Yes | | | | |
| x | Must have reported on the sources of funding for individual studies included in the review. Note: Reporting that the reviewers looked for this information but it was not reported by study authors also qualifies | | | x <input type="checkbox"/> Yes |
| | | | | <input type="checkbox"/> No |
| 11. If meta-analysis was performed did the review authors use appropriate methods for statistical combination of results? | | | | |
| RCTs | | | | |
| For Yes | | | | |
| | The authors justified combining the data in a meta-analysis | | | <input type="checkbox"/> Yes |
| | AND they used an appropriate weighted technique to combine study results and adjusted for heterogeneity if present. | | | <input type="checkbox"/> No |
| | AND investigated the causes of any heterogeneity | | | x <input type="checkbox"/> No meta-analysis conducted |
| For NRSI | | | | |
| For Yes | | | | |
| | The authors justified combining the data in a meta-analysis | | | <input type="checkbox"/> Yes |
| | AND they used an appropriate weighted technique to combine study results, adjusting for heterogeneity if present | | | <input type="checkbox"/> No |
| | AND they statistically combined effect estimates from NRSI that were adjusted for confounding, rather than combining raw data, or justified combining raw data when adjusted effect estimates were not available | | | x <input type="checkbox"/> No meta-analysis conducted |
| | AND they reported separate summary estimates for RCTs and NRSI separately when both were included in the review | | | <input type="checkbox"/> |
| 12. If meta-analysis was performed, did the review authors assess the potential impact of RoB in individual studies on the results of the meta-analysis or other evidence synthesis? | | | | |
| For Yes | | | | |
| | included only low risk of bias RCTs | | | <input type="checkbox"/> Yes |
| | OR, if the pooled estimate was based on RCTs and/or NRSI at variable RoB, the authors performed analyses to investigate possible impact of RoB on summary estimates of effect. | | | <input type="checkbox"/> No |
| | | | | x <input type="checkbox"/> No meta-analysis conducted |

| | | | |
|---|---|---|----------------------------|
| 13. Did the review authors account for RoB in individual studies when interpreting/ discussing the results of the review? | | | |
| For Yes | | | |
| | included only low risk of bias RCTs | | Yes |
| | OR, if RCTs with moderate or high RoB, or NRSI were included the review provided a discussion of the likely impact of RoB on the results | x | No |
| 14. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review? | | | |
| For Yes | | | |
| x | There was no significant heterogeneity in the results | x | Yes |
| | OR if heterogeneity was present the authors performed an investigation of sources of any heterogeneity in the results and discussed the impact of this on the results of the review | | No |
| 15. If they performed quantitative synthesis did the review authors carry out an adequate investigation of publication bias (small study bias) and discuss its likely impact on the results of the review? | | | |
| For Yes | | | |
| | performed graphical or statistical tests for publication bias and discussed the likelihood and magnitude of impact of publication bias | | Yes |
| | | | No |
| | | x | No meta-analysis conducted |
| 16. Did the review authors report any potential sources of conflict of interest, including any funding they received for conducting the review? | | | |
| For Yes | | | |
| | The authors reported no competing interests OR | | Yes |
| | The authors described their funding sources and how they managed potential conflicts of interest | x | No |
| Your overall assessment of the risk of bias of this systematic review | | | |
| Moderate | | | |

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| AMSTAR 2 checklist, critical questions | | | |
| REF: HartmannBoyce et al 2020 | | | |
| 1. Did the research questions and inclusion criteria for the review include the components of PICO? | | | |
| For Yes | | Optional (recommended) | |
| x | Population | x | Timeframe for follow up |
| x | Intervention | | |
| x | Comparator group | | |
| x | Outcome | | |
| | | x | Yes |
| | | | No |
| 2. Did the report of the review contain an explicit statement that the review methods were established prior to the conduct of the review and did the report justify any significant deviations from the protocol? | | | |
| For Partial Yes: The authors state that they had a written protocol or guide that included ALL the following: | | For Yes: As for partial yes, plus the protocol should be registered and should also have specified: | |
| x | review question(s) | x | a meta-analysis/ synthesis plan, if appropriate, and |
| x | a search strategy | x | a plan for investigating causes of heterogeneity |
| x | inclusion/exclusion criteria | | |
| x | a risk of bias assessment | | |
| | | | No |
| 3. Did the review authors explain their selection of the study designs for inclusion in the review? | | | |
| For Yes, the review should satisfy ONE of the following: | | x | Yes |
| | Explanation for including only RCTs | | No |

| | | | | |
|--|--|--|--|--------------------|
| | OR Explanation for including only NRSI | | | |
| x | OR Explanation for including both RCTs and NRSI | | | |
| 4. Did the review authors use a comprehensive literature search strategy? | | | | |
| For Partial Yes (all the following): | | For Yes, should also have (all the following): | | x Yes |
| x | searched at least 2 databases (relevant to research question) | x | searched the reference lists / bibliographies of included studies | Partial Yes |
| x | provided key word and/or search strategy | x | searched trial/study registries | No |
| x | justified publication restrictions (e.g. language) | x | included/consulted content experts in the field | |
| | | | where relevant, searched for grey literature | |
| | | x | conducted search within 24 months of completion of the review | |
| 5. Did the review authors perform study selection in duplicate? | | | | |
| For Yes, either ONE of the following: | | | | |
| x | at least two reviewers independently agreed on selection of eligible studies and achieved consensus on which studies to include | x | | Yes |
| | OR two reviewers selected a sample of eligible studies and achieved good agreement (at least 80 percent), with the remainder selected by one reviewer. | | | No |
| 6. Did the review authors perform data extraction in duplicate? | | | | |
| For Yes, either ONE of the following: | | | | |
| x | at least two reviewers achieved consensus on which data to extract from included studies | x | | Yes |
| | OR two reviewers extracted data from a sample of eligible studies and achieved good agreement (at least 80 percent), with the remainder extracted by one reviewer. | | | No |
| 7. Did the review authors provide a list of excluded studies and justify the exclusions? | | | | |
| For Partial Yes: | | For Yes, must also have: | | |
| x | provided a list of all potentially relevant studies that were read in full-text form but excluded from the review | x | Justified the exclusion from the review of each potentially relevant study | x Yes |
| | | | | Partial Yes |
| | | | | No |
| 8. Did the review authors describe the included studies in adequate detail? | | | | |
| For Partial Yes (ALL the following): | | For Yes, should also have ALL the following: | | |
| x | described populations | x | described population in detail | x Yes |
| x | described interventions | x | described intervention in detail (including doses where relevant) | Partially Yes |
| x | described comparators | x | described comparator in detail (including doses where relevant) | No |
| x | described outcomes | x | <input type="checkbox"/> described study's setting | |
| x | described research designs | x | timeframe for follow-up | |
| 9. Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review? | | | | |
| RCTs | | | | |
| For Partial Yes, must have assessed RoB from | | For Yes, must also have assessed RoB from: | | |
| x | unconcealed allocation, and | x | allocation sequence that was not truly random, and | x Yes |
| | | | | Partial Yes |
| x | lack of blinding of patients and assessors when assessing outcomes (unnecessary for objective outcomes such as all-cause mortality) | x | selection of the reported result from among multiple measurements or analyses of a specified outcome | No |
| | | | | Includes only NRSI |

| NRSI | | | |
|---|--|--|--|
| For Partial Yes, must have assessed RoB from | | For Yes, must also have assessed RoB from: | |
| | from confounding, and | | methods used to ascertain exposures and outcomes, and |
| | from selection bias | | selection of the reported result from among multiple measurements or analyses of a specified outcome |
| | | | Yes |
| | | | Partial Yes |
| | | | No |
| | | x | Includes only RCT |
| 10. Did the review authors report on the sources of funding for the studies included in the review? | | | |
| For Yes | | | |
| x | Must have reported on the sources of funding for individual studies included in the review. Note: Reporting that the reviewers looked for this information but it was not reported by study authors also qualifies | x | Yes |
| | | | No |
| 11. If meta-analysis was performed did the review authors use appropriate methods for statistical combination of results? | | | |
| RCTs | | | |
| For Yes | | | |
| x | The authors justified combining the data in a meta-analysis | x | Yes |
| x | AND they used an appropriate weighted technique to combine study results and adjusted for heterogeneity if present. | | No |
| x | AND investigated the causes of any heterogeneity | | No meta-analysis conducted |
| For NRSI | | | |
| For Yes | | | |
| | The authors justified combining the data in a meta-analysis | | Yes |
| | AND they used an appropriate weighted technique to combine study results, adjusting for heterogeneity if present | | No |
| | AND they statistically combined effect estimates from NRSI that were adjusted for confounding, rather than combining raw data, or justified combining raw data when adjusted effect estimates were not available | x | No meta-analysis conducted |
| | AND they reported separate summary estimates for RCTs and NRSI separately when both were included in the review | | |
| 12. If meta-analysis was performed, did the review authors assess the potential impact of RoB in individual studies on the results of the meta-analysis or other evidence synthesis? | | | |
| For Yes | | | |
| x | included only low risk of bias RCTs | x | Yes |
| | OR, if the pooled estimate was based on RCTs and/or NRSI at variable RoB, the authors performed analyses to investigate possible impact of RoB on summary estimates of effect. | | No |
| | | | No meta-analysis conducted |
| 13. Did the review authors account for RoB in individual studies when interpreting/ discussing the results of the review? | | | |
| For Yes | | | |
| x | included only low risk of bias RCTs | x | Yes |
| | OR, if RCTs with moderate or high RoB, or NRSI were included the review provided a discussion of the likely impact of RoB on the results | | No |
| 14. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review? | | | |
| For Yes | | | |
| | There was no significant heterogeneity in the results | x | Yes |
| x | OR if heterogeneity was present the authors performed an investigation of sources of any heterogeneity in the results and discussed the impact of this on the results of the review | | No |
| 15. If they performed quantitative synthesis did the review authors carry out an adequate investigation of publication bias (small study bias) and discuss its likely impact on the results of the review? | | | |

| | | | |
|--|--|---|----------------------------|
| For Yes | | | |
| x | performed graphical or statistical tests for publication bias and discussed the likelihood and magnitude of impact of publication bias | x | Yes |
| | | | No |
| | | | No meta-analysis conducted |
| 16. Did the review authors report any potential sources of conflict of interest, including any funding they received for conducting the review? | | | |
| For Yes | | | |
| x | The authors reported no competing interests OR | x | Yes |
| | The authors described their funding sources and how they managed potential conflicts of interest | | No |
| Your overall assessment of the risk of bias of this systematic review | | | |
| High | | | |

| | | | | | |
|---|---|--|---|---|-------------|
| AMSTAR 2 checklist, critical questions | | | | | |
| REF: Holliday et al 2019 | | | | | |
| 1. Did the research questions and inclusion criteria for the review include the components of PICO? | | | | | |
| For Yes | | Optional (recommended) | | | |
| x | Population | | Timeframe for follow up | x | Yes |
| x | Intervention | | | | No |
| x | Comparator group | | | | |
| x | Outcome | | | | |
| 2. Did the report of the review contain an explicit statement that the review methods were established prior to the conduct of the review and did the report justify any significant deviations from the protocol? | | | | | |
| For Partial Yes: The authors state that they had a written protocol or guide that included ALL the following: | | For Yes: As for partial yes, plus the protocol should be registered and should also have specified: | | | |
| x | review question(s) | | a meta-analysis/ synthesis plan, if appropriate, and | | Yes |
| x | a search strategy | | a plan for investigating causes of heterogeneity | x | Partial Yes |
| x | inclusion/exclusion criteria | | | | No |
| x | a risk of bias assessment | | | | |
| 3. Did the review authors explain their selection of the study designs for inclusion in the review? | | | | | |
| For Yes, the review should satisfy ONE of the following: | | | | x | Yes |
| | Explanation for including only RCTs | | | | No |
| | OR Explanation for including only NRSI | | | | |
| x | OR Explanation for including both RCTs and NRSI | | | | |
| 4. Did the review authors use a comprehensive literature search strategy? | | | | | |
| For Partial Yes (all the following): | | For Yes, should also have (all the following): | | | Yes |
| x | searched at least 2 databases (relevant to research question) | x | searched the reference lists / bibliographies of included studies | x | Partial Yes |
| x | provided key word and/or search strategy | | searched trial/study registries | | No |
| x | justified publication restrictions (e.g. language) | | included/consulted content experts in the field | | |
| | | | where relevant, searched for grey literature | | |
| | | x | conducted search within 24 months of completion of the review | | |
| 5. Did the review authors perform study selection in duplicate? | | | | | |
| For Yes, either ONE of the following: | | | | | |

| | | | |
|--|--|--|--|
| x | at least two reviewers independently agreed on selection of eligible studies and achieved consensus on which studies to include | x | Yes |
| | OR two reviewers selected a sample of eligible studies and achieved good agreement (at least 80 percent), with the remainder selected by one reviewer. | | No |
| 6. Did the review authors perform data extraction in duplicate? | | | |
| For Yes, either ONE of the following: | | | |
| x | at least two reviewers achieved consensus on which data to extract from included studies | x | Yes |
| | OR two reviewers extracted data from a sample of eligible studies and achieved good agreement (at least 80 percent), with the remainder extracted by one reviewer. | | No |
| 7. Did the review authors provide a list of excluded studies and justify the exclusions? | | | |
| For Partial Yes: | | For Yes, must also have: | |
| x | provided a list of all potentially relevant studies that were read in full-text form but excluded from the review | x | Justified the exclusion from the review of each potentially relevant study |
| | | x | Yes |
| | | | Partial Yes |
| | | | No |
| | | supplementary | |
| 8. Did the review authors describe the included studies in adequate detail? | | | |
| For Partial Yes (ALL the following): | | For Yes, should also have ALL the following: | |
| x | described populations | x | described population in detail |
| x | described interventions | x | described intervention in detail (including doses where relevant) |
| x | described comparators | x | described comparator in detail (including doses where relevant) |
| x | described outcomes | x | <input type="checkbox"/> described study's setting |
| x | described research designs | x | timeframe for follow-up |
| 9. Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review? | | | |
| RCTs | | | |
| For Partial Yes, must have assessed RoB from | | For Yes, must also have assessed RoB from: | |
| x | unconcealed allocation, and | | allocation sequence that was not truly random, and |
| | | | |
| x | lack of blinding of patients and assessors when assessing outcomes (unnecessary for objective outcomes such as all-cause mortality) | | selection of the reported result from among multiple measurements or analyses of a specified outcome |
| | | | |
| | | | Yes |
| | | x | Partial Yes |
| | | | No |
| | | | Includes only NRSI |
| NRSI | | | |
| For Partial Yes, must have assessed RoB from | | For Yes, must also have assessed RoB from: | |
| x | from confounding, and | x | methods used to ascertain exposures and outcomes, and |
| x | from selection bias | | selection of the reported result from among multiple measurements or analyses of a specified outcome |
| | | | |
| | | | Yes |
| | | x | Partial Yes |
| | | | No |
| | | | Includes only RCT |
| 10. Did the review authors report on the sources of funding for the studies included in the review? | | | |
| For Yes | | | |
| x | Must have reported on the sources of funding for individual studies included in the review. Note: Reporting that the reviewers looked for this information but it was not reported by study authors also qualifies | x | Yes |
| | | | No |
| 11. If meta-analysis was performed did the review authors use appropriate methods for statistical combination of results? | | | |
| RCTs | | | |

| | | | |
|---|--|---|----------------------------|
| For Yes | | | |
| | The authors justified combining the data in a meta-analysis | | Yes |
| | AND they used an appropriate weighted technique to combine study results and adjusted for heterogeneity if present. | | No |
| | AND investigated the causes of any heterogeneity | x | No meta-analysis conducted |
| For NRSI | | | |
| For Yes | | | |
| | The authors justified combining the data in a meta-analysis | | Yes |
| | AND they used an appropriate weighted technique to combine study results, adjusting for heterogeneity if present | | No |
| | AND they statistically combined effect estimates from NRSI that were adjusted for confounding, rather than combining raw data, or justified combining raw data when adjusted effect estimates were not available | x | No meta-analysis conducted |
| | AND they reported separate summary estimates for RCTs and NRSI separately when both were included in the review | | |
| 12. If meta-analysis was performed, did the review authors assess the potential impact of RoB in individual studies on the results of the meta-analysis or other evidence synthesis? | | | |
| For Yes | | | |
| | included only low risk of bias RCTs | | Yes |
| | OR, if the pooled estimate was based on RCTs and/or NRSI at variable RoB, the authors performed analyses to investigate possible impact of RoB on summary estimates of effect. | x | No meta-analysis conducted |
| 13. Did the review authors account for RoB in individual studies when interpreting/ discussing the results of the review? | | | |
| For Yes | | | |
| | included only low risk of bias RCTs | x | Yes |
| x | OR, if RCTs with moderate or high RoB, or NRSI were included the review provided a discussion of the likely impact of RoB on the results | | No |
| 14. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review? | | | |
| For Yes | | | |
| | There was no significant heterogeneity in the results | | Yes |
| | OR if heterogeneity was present the authors performed an investigation of sources of any heterogeneity in the results and discussed the impact of this on the results of the review | x | No |
| 15. If they performed quantitative synthesis did the review authors carry out an adequate investigation of publication bias (small study bias) and discuss its likely impact on the results of the review? | | | |
| For Yes | | | |
| | performed graphical or statistical tests for publication bias and discussed the likelihood and magnitude of impact of publication bias | | Yes |
| | | | No |
| | | x | No meta-analysis conducted |
| 16. Did the review authors report any potential sources of conflict of interest, including any funding they received for conducting the review? | | | |
| For Yes | | | |
| x | The authors reported no competing interests OR | x | Yes |
| | The authors described their funding sources and how they managed potential conflicts of interest | | No |
| Your overall assessment of the risk of bias of this systematic review | | | |
| Moderate | | | |

| AMSTAR 2 checklist, critical questions | | | | | |
|---|--|--|--|---|-------------|
| REF: Kennedy et al 2019 | | | | | |
| 1. Did the research questions and inclusion criteria for the review include the components of PICO? | | | | | |
| For Yes | | Optional (recommended) | | | |
| x | Population | | Timeframe for follow up | x | Yes |
| x | Intervention | | | | No |
| x | Comparator group | | | | |
| x | Outcome | | | | |
| 2. Did the report of the review contain an explicit statement that the review methods were established prior to the conduct of the review and did the report justify any significant deviations from the protocol? | | | | | |
| For Partial Yes: The authors state that they had a written protocol or guide that included ALL the following: | | For Yes: As for partial yes, plus the protocol should be registered and should also have specified: | | | |
| | review question(s) | | a meta-analysis/ synthesis plan, if appropriate, and | | Yes |
| | a search strategy | | a plan for investigating causes of heterogeneity | | Partial Yes |
| | inclusion/exclusion criteria | | | x | No |
| | a risk of bias assessment | | | | |
| 3. Did the review authors explain their selection of the study designs for inclusion in the review? | | | | | |
| For Yes, the review should satisfy ONE of the following: | | | | x | Yes |
| | Explanation for including only RCTs | | | | No |
| | OR Explanation for including only NRSI | | | | |
| x | OR Explanation for including both RCTs and NRSI | | | | |
| 4. Did the review authors use a comprehensive literature search strategy? | | | | | |
| For Partial Yes (all the following): | | For Yes, should also have (all the following): | | | |
| x | searched at least 2 databases (relevant to research question) | x | searched the reference lists / bibliographies of included studies | x | Partial Yes |
| x | provided key word and/or search strategy | | searched trial/study registries | | No |
| x | justified publication restrictions (e.g. language) | | included/consulted content experts in the field | | |
| | | | where relevant, searched for grey literature | | |
| | | x | conducted search within 24 months of completion of the review | | |
| 5. Did the review authors perform study selection in duplicate? | | | | | |
| For Yes, either ONE of the following: | | | | | |
| | at least two reviewers independently agreed on selection of eligible studies and achieved consensus on which studies to include | | | | Yes |
| | OR two reviewers selected a sample of eligible studies and achieved good agreement (at least 80 percent), with the remainder selected by one reviewer. | | | x | No |
| 6. Did the review authors perform data extraction in duplicate? | | | | | |
| For Yes, either ONE of the following: | | | | | |
| | at least two reviewers achieved consensus on which data to extract from included studies | | | | Yes |
| | OR two reviewers extracted data from a sample of eligible studies and achieved good agreement (at least 80 percent), with the remainder extracted by one reviewer. | | | x | No |
| 7. Did the review authors provide a list of excluded studies and justify the exclusions? | | | | | |
| For Partial Yes: | | For Yes, must also have: | | | |
| | provided a list of all potentially relevant studies that were read in full- | x | Justified the exclusion from the review of each potentially relevant study | | Yes |
| | | | | x | Partial Yes |

| | | | | | |
|--|--|--|--|---|----------------------------|
| | text form but excluded from the review | | | | No |
| 8. Did the review authors describe the included studies in adequate detail? | | | | | |
| For Partial Yes (ALL the following): | | For Yes, should also have ALL the following: | | | |
| x | described populations | x | described population in detail | x | Yes |
| x | described interventions | x | described intervention in detail (including doses where relevant) | | Partially Yes |
| x | described comparators | x | described comparator in detail (including doses where relevant) | | No |
| x | described outcomes | x | <input type="checkbox"/> described study's setting | | |
| x | described research designs | | timeframe for follow-up | | |
| 9. Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review? | | | | | |
| RCTs | | | | | |
| For Partial Yes, must have assessed RoB from | | For Yes, must also have assessed RoB from: | | | |
| x | unconcealed allocation, and | x | allocation sequence that was not truly random, and | x | Yes |
| | | | | | Partial Yes |
| x | lack of blinding of patients and assessors when assessing outcomes (unnecessary for objective outcomes such as all-cause mortality) | x | selection of the reported result from among multiple measurements or analyses of a specified outcome | | No |
| | | | | | Includes only NRSI |
| NRSI | | | | | |
| For Partial Yes, must have assessed RoB from | | For Yes, must also have assessed RoB from: | | | |
| x | from confounding, and | x | methods used to ascertain exposures and outcomes, and | x | Yes |
| | | | | | Partial Yes |
| x | from selection bias | x | selection of the reported result from among multiple measurements or analyses of a specified outcome | | No |
| | | | | | Includes only RCT |
| 10. Did the review authors report on the sources of funding for the studies included in the review? | | | | | |
| For Yes | | | | | |
| x | Must have reported on the sources of funding for individual studies included in the review. Note: Reporting that the reviewers looked for this information but it was not reported by study authors also qualifies | | | x | Yes |
| | | | | | No |
| 11. If meta-analysis was performed did the review authors use appropriate methods for statistical combination of results? | | | | | |
| RCTs | | | | | |
| For Yes | | | | | |
| | The authors justified combining the data in a meta-analysis | | | | Yes |
| | AND they used an appropriate weighted technique to combine study results and adjusted for heterogeneity if present. | | | | No |
| | AND investigated the causes of any heterogeneity | | | x | No meta-analysis conducted |
| For NRSI | | | | | |
| For Yes | | | | | |
| | The authors justified combining the data in a meta-analysis | | | | Yes |
| | AND they used an appropriate weighted technique to combine study results, adjusting for heterogeneity if present | | | | No |
| | AND they statistically combined effect estimates from NRSI that were adjusted for confounding, rather than combining raw data, or justified combining raw data when adjusted effect estimates were not available | | | x | No meta-analysis conducted |

| | | | |
|---|---|---|----------------------------|
| | AND they reported separate summary estimates for RCTs and NRSI separately when both were included in the review | | |
| 12. If meta-analysis was performed, did the review authors assess the potential impact of RoB in individual studies on the results of the meta-analysis or other evidence synthesis? | | | |
| For Yes | | | |
| | included only low risk of bias RCTs | | Yes |
| | OR, if the pooled estimate was based on RCTs and/or NRSI at variable RoB, the authors performed analyses to investigate possible impact of RoB on summary estimates of effect. | | No |
| | | x | No meta-analysis conducted |
| 13. Did the review authors account for RoB in individual studies when interpreting/ discussing the results of the review? | | | |
| For Yes | | | |
| | included only low risk of bias RCTs | x | Yes |
| x | OR, if RCTs with moderate or high RoB, or NRSI were included the review provided a discussion of the likely impact of RoB on the results | | No |
| 14. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review? | | | |
| For Yes | | | |
| | There was no significant heterogeneity in the results | x | Yes |
| x | OR if heterogeneity was present the authors performed an investigation of sources of any heterogeneity in the results and discussed the impact of this on the results of the review | | No |
| 15. If they performed quantitative synthesis did the review authors carry out an adequate investigation of publication bias (small study bias) and discuss its likely impact on the results of the review? | | | |
| For Yes | | | |
| | performed graphical or statistical tests for publication bias and discussed the likelihood and magnitude of impact of publication bias | | Yes |
| | | | No |
| | | x | No meta-analysis conducted |
| 16. Did the review authors report any potential sources of conflict of interest, including any funding they received for conducting the review? | | | |
| For Yes | | | |
| | The authors reported no competing interests OR | | Yes |
| | The authors described their funding sources and how they managed potential conflicts of interest | x | No |
| Your overall assessment of the risk of bias of this systematic review | | | |
| Moderate | | | |

| | | | | | |
|---|------------------|--|--|---|-----|
| AMSTAR 2 checklist, critical questions | | | | | |
| REF: Kwon et al 2019 | | | | | |
| 1. Did the research questions and inclusion criteria for the review include the components of PICO? | | | | | |
| For Yes | | | Optional (recommended) | | |
| x | Population | | Timeframe for follow up | x | Yes |
| x | Intervention | | | | No |
| na | Comparator group | | | | |
| x | Outcome | | | | |
| 2. Did the report of the review contain an explicit statement that the review methods were established prior to the conduct of the review and did the report justify any significant deviations from the protocol? | | | | | |
| For Partial Yes: The authors state that they had a written protocol or guide that included ALL the following: | | | For Yes: As for partial yes, plus the protocol should be registered and should also have specified: | | |

| | | | | | |
|--|--|--|--|---|--------------------|
| | review question(s) | | a meta-analysis/ synthesis plan, if appropriate, and | | Yes |
| | a search strategy | | a plan for investigating causes of heterogeneity | | Partial Yes |
| | inclusion/exclusion criteria | | | x | No |
| | a risk of bias assessment | | | | |
| 3. Did the review authors explain their selection of the study designs for inclusion in the review? | | | | | |
| For Yes, the review should satisfy ONE of the following: | | | | | Yes |
| | Explanation for including only RCTs | | | x | No |
| | OR Explanation for including only NRSI | | | | |
| | OR Explanation for including both RCTs and NRSI | | | | |
| 4. Did the review authors use a comprehensive literature search strategy? | | | | | |
| For Partial Yes (all the following): | | For Yes, should also have (all the following): | | | Yes |
| x | searched at least 2 databases (relevant to research question) | x | searched the reference lists / bibliographies of included studies | x | Partial Yes |
| x | provided key word and/or search strategy | x | searched trial/study registries | | No |
| x | justified publication restrictions (e.g. language) | | included/consulted content experts in the field | | |
| | | | where relevant, searched for grey literature | | |
| | | x | conducted search within 24 months of completion of the review | | |
| 5. Did the review authors perform study selection in duplicate? | | | | | |
| For Yes, either ONE of the following: | | | | | |
| x | at least two reviewers independently agreed on selection of eligible studies and achieved consensus on which studies to include | | | | Yes |
| | OR two reviewers selected a sample of eligible studies and achieved good agreement (at least 80 percent), with the remainder selected by one reviewer. | | | x | No |
| 6. Did the review authors perform data extraction in duplicate? | | | | | |
| For Yes, either ONE of the following: | | | | | |
| | at least two reviewers achieved consensus on which data to extract from included studies | | | x | Yes One + check |
| | OR two reviewers extracted data from a sample of eligible studies and achieved good agreement (at least 80 percent), with the remainder extracted by one reviewer. | | | | No |
| 7. Did the review authors provide a list of excluded studies and justify the exclusions? | | | | | |
| For Partial Yes: | | For Yes, must also have: | | | |
| x | provided a list of all potentially relevant studies that were read in full-text form but excluded from the review | | Justified the exclusion from the review of each potentially relevant study | | Yes |
| | | | | x | Partial Yes |
| | | | | | No |
| 8. Did the review authors describe the included studies in adequate detail? | | | | | |
| For Partial Yes (ALL the following): | | For Yes, should also have ALL the following: | | | |
| x | described populations | x | described population in detail | x | Yes |
| x | described interventions | x | described intervention in detail (including doses where relevant) | | Partially Yes |
| na | described comparators | na | described comparator in detail (including doses where relevant) | | No |
| x | described outcomes | x | <input type="checkbox"/> described study's setting | | |
| x | described research designs | x | timeframe for follow-up | | |
| 9. Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review? | | | | | |

| RCTs | | | |
|---|--|--|--|
| For Partial Yes, must have assessed RoB from | | For Yes, must also have assessed RoB from: | |
| | unconcealed allocation, and | | allocation sequence that was not truly random, and |
| | lack of blinding of patients and assessors when assessing outcomes (unnecessary for objective outcomes such as all-cause mortality) | | selection of the reported result from among multiple measurements or analyses of a specified outcome |
| | | | Yes |
| | | | Partial Yes |
| | | | No |
| | | x | Includes only NRSI |
| NRSI | | | |
| For Partial Yes, must have assessed RoB from | | For Yes, must also have assessed RoB from: | |
| x | from confounding, and | x | methods used to ascertain exposures and outcomes, and |
| x | from selection bias | | selection of the reported result from among multiple measurements or analyses of a specified outcome |
| | | | Yes |
| | | x | Partial Yes |
| | | | No |
| | | | Includes only RCT |
| 10. Did the review authors report on the sources of funding for the studies included in the review? | | | |
| For Yes | | | |
| | Must have reported on the sources of funding for individual studies included in the review. Note: Reporting that the reviewers looked for this information but it was not reported by study authors also qualifies | | Yes |
| | | | x No |
| 11. If meta-analysis was performed did the review authors use appropriate methods for statistical combination of results? | | | |
| RCTs | | | |
| For Yes | | | |
| | The authors justified combining the data in a meta-analysis | | Yes |
| | AND they used an appropriate weighted technique to combine study results and adjusted for heterogeneity if present. | | No |
| | AND investigated the causes of any heterogeneity | | x No meta-analysis conducted |
| For NRSI | | | |
| For Yes | | | |
| | The authors justified combining the data in a meta-analysis | | Yes |
| | AND they used an appropriate weighted technique to combine study results, adjusting for heterogeneity if present | | No |
| | AND they statistically combined effect estimates from NRSI that were adjusted for confounding, rather than combining raw data, or justified combining raw data when adjusted effect estimates were not available | | x No meta-analysis conducted |
| | AND they reported separate summary estimates for RCTs and NRSI separately when both were included in the review | | |
| 12. If meta-analysis was performed, did the review authors assess the potential impact of RoB in individual studies on the results of the meta-analysis or other evidence synthesis? | | | |
| For Yes | | | |
| | included only low risk of bias RCTs | | Yes |
| | OR, if the pooled estimate was based on RCTs and/or NRSI at variable RoB, the authors performed analyses to investigate possible impact of RoB on summary estimates of effect. | | No |
| | | | x No meta-analysis conducted |
| 13. Did the review authors account for RoB in individual studies when interpreting/ discussing the results of the review? | | | |
| For Yes | | | |
| | included only low risk of bias RCTs | | Yes |
| | OR, if RCTs with moderate or high RoB, or NRSI were included the review provided a discussion of the likely impact of RoB on the results | | x No |

| | | | |
|---|---|---|----------------------------|
| 14. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review? | | | |
| For Yes | | | |
| x | There was no significant heterogeneity in the results | x | Yes |
| | OR if heterogeneity was present the authors performed an investigation of sources of any heterogeneity in the results and discussed the impact of this on the results of the review | | No |
| 15. If they performed quantitative synthesis did the review authors carry out an adequate investigation of publication bias (small study bias) and discuss its likely impact on the results of the review? | | | |
| For Yes | | | |
| | performed graphical or statistical tests for publication bias and discussed the likelihood and magnitude of impact of publication bias | | Yes |
| | | | No |
| x | | | No meta-analysis conducted |
| 16. Did the review authors report any potential sources of conflict of interest, including any funding they received for conducting the review? | | | |
| For Yes | | | |
| x | The authors reported no competing interests OR | x | Yes |
| | The authors described their funding sources and how they managed potential conflicts of interest | | No |
| Your overall assessment of the risk of bias of this systematic review | | | |
| Low | | | |

| | | | |
|---|---|--|---|
| AMSTAR 2 checklist, critical questions | | | |
| REF: Liu et al 2018 | | | |
| 1. Did the research questions and inclusion criteria for the review include the components of PICO? | | | |
| For Yes | | Optional (recommended) | |
| x | Population | | Timeframe for follow up |
| x | Intervention | | |
| x | Comparator group | | |
| x | Outcome | | |
| 2. Did the report of the review contain an explicit statement that the review methods were established prior to the conduct of the review and did the report justify any significant deviations from the protocol? | | | |
| For Partial Yes: The authors state that they had a written protocol or guide that included ALL the following: | | For Yes: As for partial yes, plus the protocol should be registered and should also have specified: | |
| | review question(s) | | a meta-analysis/ synthesis plan, if appropriate, and |
| | a search strategy | | a plan for investigating causes of heterogeneity |
| | inclusion/exclusion criteria | x | No |
| | a risk of bias assessment | | |
| 3. Did the review authors explain their selection of the study designs for inclusion in the review? | | | |
| For Yes, the review should satisfy ONE of the following: | | x | Yes |
| | Explanation for including only RCTs | | No |
| | OR Explanation for including only NRSI | | |
| x | OR Explanation for including both RCTs and NRSI | | |
| 4. Did the review authors use a comprehensive literature search strategy? | | | |
| For Partial Yes (all the following): | | For Yes, should also have (all the following): | |
| x | searched at least 2 databases (relevant to research question) | x | searched the reference lists / bibliographies of included studies |
| | | | Yes |
| | | | Partial Yes |

| | | | | | |
|--|--|--|--|---|--------------------|
| x | provided key word and/or search strategy | | searched trial/study registries | | No |
| x | justified publication restrictions (e.g. language) | | included/consulted content experts in the field | | |
| | | | where relevant, searched for grey literature | | |
| | | x | conducted search within 24 months of completion of the review | | |
| 5. Did the review authors perform study selection in duplicate? | | | | | |
| For Yes, either ONE of the following: | | | | | |
| | at least two reviewers independently agreed on selection of eligible studies and achieved consensus on which studies to include | | | | Yes |
| | OR two reviewers selected a sample of eligible studies and achieved good agreement (at least 80 percent), with the remainder selected by one reviewer. | x | | | No |
| 6. Did the review authors perform data extraction in duplicate? | | | | | |
| For Yes, either ONE of the following: | | | | | |
| x | at least two reviewers achieved consensus on which data to extract from included studies | | | x | Yes |
| | OR two reviewers extracted data from a sample of eligible studies and achieved good agreement (at least 80 percent), with the remainder extracted by one reviewer. | | | | No |
| 7. Did the review authors provide a list of excluded studies and justify the exclusions? | | | | | |
| For Partial Yes: | | For Yes, must also have: | | | |
| x | provided a list of all potentially relevant studies that were read in full-text form but excluded from the review | | Justified the exclusion from the review of each potentially relevant study | | Yes |
| | | | | x | Partial Yes |
| | | | | | No |
| 8. Did the review authors describe the included studies in adequate detail? | | | | | |
| For Partial Yes (ALL the following): | | For Yes, should also have ALL the following: | | | |
| x | described populations | | described population in detail | | Yes |
| x | described interventions | x | described intervention in detail (including doses where relevant) | x | Partially Yes |
| x | described comparators | | described comparator in detail (including doses where relevant) | | No |
| x | described outcomes | | <input type="checkbox"/> described study's setting | | |
| x | described research designs | | timeframe for follow-up | | |
| 9. Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review? | | | | | |
| RCTs | | | | | |
| For Partial Yes, must have assessed RoB from | | For Yes, must also have assessed RoB from: | | | |
| x | unconcealed allocation, and | x | allocation sequence that was not truly random, and | x | Yes |
| | | | | | Partial Yes |
| x | lack of blinding of patients and assessors when assessing outcomes (unnecessary for objective outcomes such as all-cause mortality) | x | selection of the reported result from among multiple measurements or analyses of a specified outcome | | No |
| | | | | | Includes only NRSI |
| NRSI | | | | | |
| For Partial Yes, must have assessed RoB from | | For Yes, must also have assessed RoB from: | | | |
| x | from confounding, and | x | methods used to ascertain exposures and outcomes, and | x | Yes |

| | | | | | |
|---|--|---|--|----|--|
| x | from selection bias | x | selection of the reported result from among multiple measurements or analyses of a specified outcome | | Partial Yes |
| | | | | | No |
| | | | | | Includes only RCT |
| 10. Did the review authors report on the sources of funding for the studies included in the review? | | | | | |
| For Yes | | | | | |
| | Must have reported on the sources of funding for individual studies included in the review. Note: Reporting that the reviewers looked for this information but it was not reported by study authors also qualifies | | | | Yes |
| | | x | | | No |
| 11. If meta-analysis was performed did the review authors use appropriate methods for statistical combination of results? | | | | | |
| RCTs | | | | | |
| For Yes | | | | | |
| x | The authors justified combining the data in a meta-analysis | x | | | Yes |
| x | AND they used an appropriate weighted technique to combine study results and adjusted for heterogeneity if present. | | | | No |
| x | AND investigated the causes of any heterogeneity | | | | No meta-analysis conducted |
| For NRSI | | | | | |
| For Yes | | | | | |
| x | The authors justified combining the data in a meta-analysis | | | | Yes |
| x | AND they used an appropriate weighted technique to combine study results, adjusting for heterogeneity if present | x | | | No |
| x | AND they statistically combined effect estimates from NRSI that were adjusted for confounding, rather than combining raw data, or justified combining raw data when adjusted effect estimates were not available | | | | No meta-analysis conducted |
| | AND they reported separate summary estimates for RCTs and NRSI separately when both were included in the review | | | | Pooled data from RCTs and surveys in meta analyses |
| 12. If meta-analysis was performed, did the review authors assess the potential impact of RoB in individual studies on the results of the meta-analysis or other evidence synthesis? | | | | | |
| For Yes | | | | | |
| | included only low risk of bias RCTs | | | | Yes |
| | OR, if the pooled estimate was based on RCTs and/or NRSI at variable RoB, the authors performed analyses to investigate possible impact of RoB on summary estimates of effect. | x | | | No |
| | | | | | No meta-analysis conducted |
| 13. Did the review authors account for RoB in individual studies when interpreting/ discussing the results of the review? | | | | | |
| For Yes | | | | | |
| | included only low risk of bias RCTs | | | | Yes |
| | OR, if RCTs with moderate or high RoB, or NRSI were included the review provided a discussion of the likely impact of RoB on the results | x | | | No |
| 14. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review? | | | | | |
| For Yes | | | | | |
| | There was no significant heterogeneity in the results | | | | Yes |
| | OR if heterogeneity was present the authors performed an investigation of sources of any heterogeneity in the results and discussed the impact of this on the results of the review | x | | | No |
| 15. If they performed quantitative synthesis did the review authors carry out an adequate investigation of publication bias (small study bias) and discuss its likely impact on the results of the review? | | | | | |
| For Yes | | | | | |
| | | | | | Too few studies |
| | | | | na | Yes |

| | | | |
|--|--|---|----------------------------|
| | performed graphical or statistical tests for publication bias and discussed the likelihood and magnitude of impact of publication bias | | No |
| | | | No meta-analysis conducted |
| 16. Did the review authors report any potential sources of conflict of interest, including any funding they received for conducting the review? | | | |
| For Yes | | | |
| x | The authors reported no competing interests OR | x | Yes |
| | The authors described their funding sources and how they managed potential conflicts of interest | | No |
| Your overall assessment of the risk of bias of this systematic review | | | |
| Moderate | | | |

| | | | | | |
|---|---|--|---|---|-------------|
| AMSTAR 2 checklist, critical questions | | | | | |
| REF: Miller et al 2021 | | | | | |
| 1. Did the research questions and inclusion criteria for the review include the components of PICO? | | | | | |
| For Yes | | Optional (recommended) | | | |
| x | Population | | Timeframe for follow up | x | Yes |
| x | Intervention | | | | No |
| na | Comparator group | | | | |
| x | Outcome | | | | |
| 2. Did the report of the review contain an explicit statement that the review methods were established prior to the conduct of the review and did the report justify any significant deviations from the protocol? | | | | | |
| For Partial Yes: The authors state that they had a written protocol or guide that included ALL the following: | | For Yes: As for partial yes, plus the protocol should be registered and should also have specified: | | | |
| | review question(s) | | a meta-analysis/ synthesis plan, if appropriate, and | | Yes |
| | a search strategy | | a plan for investigating causes of heterogeneity | | Partial Yes |
| | inclusion/exclusion criteria | | | x | No |
| | a risk of bias assessment | | | | |
| 3. Did the review authors explain their selection of the study designs for inclusion in the review? | | | | | |
| For Yes, the review should satisfy ONE of the following: | | | | | Yes |
| | Explanation for including only RCTs | | | x | No |
| | OR Explanation for including only NRSI | | | | |
| | OR Explanation for including both RCTs and NRSI | | | | |
| 4. Did the review authors use a comprehensive literature search strategy? | | | | | |
| For Partial Yes (all the following): | | For Yes, should also have (all the following): | | | Yes |
| x | searched at least 2 databases (relevant to research question) | | searched the reference lists / bibliographies of included studies | x | Partial Yes |
| x | provided key word and/or search strategy | | searched trial/study registries | | No |
| x | justified publication restrictions (e.g. language) | | included/consulted content experts in the field | | |
| | | | where relevant, searched for grey literature | | |
| | | x | conducted search within 24 months of completion of the review | | |
| 5. Did the review authors perform study selection in duplicate? | | | | | |
| For Yes, either ONE of the following: | | | | | |

| | | | |
|--|--|--|--|
| | at least two reviewers independently agreed on selection of eligible studies and achieved consensus on which studies to include | | Yes |
| | OR two reviewers selected a sample of eligible studies and achieved good agreement (at least 80 percent), with the remainder selected by one reviewer. | x | No |
| 6. Did the review authors perform data extraction in duplicate? | | | |
| For Yes, either ONE of the following: | | | |
| | at least two reviewers achieved consensus on which data to extract from included studies | x | Yes |
| | OR two reviewers extracted data from a sample of eligible studies and achieved good agreement (at least 80 percent), with the remainder extracted by one reviewer. | | No |
| 7. Did the review authors provide a list of excluded studies and justify the exclusions? | | | |
| For Partial Yes: | | For Yes, must also have: | |
| x | provided a list of all potentially relevant studies that were read in full-text form but excluded from the review | x | Justified the exclusion from the review of each potentially relevant study |
| | | x | Yes |
| | | | Partial Yes |
| | | | No |
| 8. Did the review authors describe the included studies in adequate detail? | | | |
| For Partial Yes (ALL the following): | | For Yes, should also have ALL the following: | |
| x | described populations | | described population in detail |
| x | described interventions | | described intervention in detail (including doses where relevant) |
| na | described comparators | | described comparator in detail (including doses where relevant) |
| x | described outcomes | <input type="checkbox"/> | described study's setting |
| x | described research designs | | timeframe for follow-up |
| 9. Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review? | | | |
| RCTs | | | |
| For Partial Yes, must have assessed RoB from | | For Yes, must also have assessed RoB from: | |
| | unconcealed allocation, and | | allocation sequence that was not truly random, and |
| | | | |
| | lack of blinding of patients and assessors when assessing outcomes (unnecessary for objective outcomes such as all-cause mortality) | | selection of the reported result from among multiple measurements or analyses of a specified outcome |
| | | | |
| | | | |
| | | x | Includes only NRSI |
| NRSI | | | |
| For Partial Yes, must have assessed RoB from | | For Yes, must also have assessed RoB from: | |
| x | from confounding, and | | methods used to ascertain exposures and outcomes, and |
| | | x | |
| x | from selection bias | | selection of the reported result from among multiple measurements or analyses of a specified outcome |
| | | | |
| | | | Includes only RCT |
| 10. Did the review authors report on the sources of funding for the studies included in the review? | | | |
| For Yes | | | |
| | Must have reported on the sources of funding for individual studies included in the review. Note: Reporting that the reviewers looked for this information but it was not reported by study authors also qualifies | | Yes |
| | | x | No |
| 11. If meta-analysis was performed did the review authors use appropriate methods for statistical combination of results? | | | |
| RCTs | | | |

| | | | |
|---|--|---|----------------------------|
| For Yes | | | |
| | The authors justified combining the data in a meta-analysis | | Yes |
| | AND they used an appropriate weighted technique to combine study results and adjusted for heterogeneity if present. | | No |
| | AND investigated the causes of any heterogeneity | x | No meta-analysis conducted |
| For NRSI | | | |
| For Yes | | | |
| | The authors justified combining the data in a meta-analysis | | Yes |
| | AND they used an appropriate weighted technique to combine study results, adjusting for heterogeneity if present | | No |
| | AND they statistically combined effect estimates from NRSI that were adjusted for confounding, rather than combining raw data, or justified combining raw data when adjusted effect estimates were not available | x | No meta-analysis conducted |
| | AND they reported separate summary estimates for RCTs and NRSI separately when both were included in the review | | |
| 12. If meta-analysis was performed, did the review authors assess the potential impact of RoB in individual studies on the results of the meta-analysis or other evidence synthesis? | | | |
| For Yes | | | |
| | included only low risk of bias RCTs | | Yes |
| | OR, if the pooled estimate was based on RCTs and/or NRSI at variable RoB, the authors performed analyses to investigate possible impact of RoB on summary estimates of effect. | x | No meta-analysis conducted |
| 13. Did the review authors account for RoB in individual studies when interpreting/ discussing the results of the review? | | | |
| For Yes | | | |
| | included only low risk of bias RCTs | x | Yes |
| x | OR, if RCTs with moderate or high RoB, or NRSI were included the review provided a discussion of the likely impact of RoB on the results | | No |
| 14. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review? | | | |
| For Yes | | | |
| | There was no significant heterogeneity in the results | x | Yes |
| x | OR if heterogeneity was present the authors performed an investigation of sources of any heterogeneity in the results and discussed the impact of this on the results of the review | | No |
| 15. If they performed quantitative synthesis did the review authors carry out an adequate investigation of publication bias (small study bias) and discuss its likely impact on the results of the review? | | | |
| For Yes | | | |
| | performed graphical or statistical tests for publication bias and discussed the likelihood and magnitude of impact of publication bias | | Yes |
| | | | No |
| | | x | No meta-analysis conducted |
| 16. Did the review authors report any potential sources of conflict of interest, including any funding they received for conducting the review? | | | |
| For Yes | | | |
| x | The authors reported no competing interests OR | x | Yes |
| | The authors described their funding sources and how they managed potential conflicts of interest | | No |
| Your overall assessment of the risk of bias of this systematic review | | | |
| Low | | | |

| AMSTAR 2 checklist, critical questions | | | | | |
|---|--|--|--|---|-------------|
| REF: Ralho et al 2019 | | | | | |
| 1. Did the research questions and inclusion criteria for the review include the components of PICO? | | | | | |
| For Yes | | Optional (recommended) | | | |
| x | Population | | Timeframe for follow up | x | Yes |
| x | Intervention | | | | No |
| x | Comparator group | | | | |
| x | Outcome | | | | |
| 2. Did the report of the review contain an explicit statement that the review methods were established prior to the conduct of the review and did the report justify any significant deviations from the protocol? | | | | | |
| For Partial Yes: The authors state that they had a written protocol or guide that included ALL the following: | | For Yes: As for partial yes, plus the protocol should be registered and should also have specified: | | | |
| x | review question(s) | | a meta-analysis/ synthesis plan, if appropriate, and | | Yes |
| x | a search strategy | | a plan for investigating causes of heterogeneity | x | Partial Yes |
| x | inclusion/exclusion criteria | | | | No |
| x | a risk of bias assessment | | | | |
| 3. Did the review authors explain their selection of the study designs for inclusion in the review? | | | | | |
| For Yes, the review should satisfy ONE of the following: | | | | x | Yes |
| | Explanation for including only RCTs | | | | No |
| x | OR Explanation for including only NRSI | | | | |
| | OR Explanation for including both RCTs and NRSI | | | | |
| 4. Did the review authors use a comprehensive literature search strategy? | | | | | |
| For Partial Yes (all the following): | | For Yes, should also have (all the following): | | | |
| x | searched at least 2 databases (relevant to research question) | x | searched the reference lists / bibliographies of included studies | x | Partial Yes |
| x | provided key word and/or search strategy | x | searched trial/study registries | | No |
| x | justified publication restrictions (e.g. language) | | included/consulted content experts in the field | | |
| | | | where relevant, searched for grey literature | | |
| | | x | conducted search within 24 months of completion of the review | | |
| 5. Did the review authors perform study selection in duplicate? | | | | | |
| For Yes, either ONE of the following: | | | | | |
| x | at least two reviewers independently agreed on selection of eligible studies and achieved consensus on which studies to include | | | x | Yes |
| | OR two reviewers selected a sample of eligible studies and achieved good agreement (at least 80 percent), with the remainder selected by one reviewer. | | | | No |
| 6. Did the review authors perform data extraction in duplicate? | | | | | |
| For Yes, either ONE of the following: | | | | | |
| | at least two reviewers achieved consensus on which data to extract from included studies | | | | Yes |
| | OR two reviewers extracted data from a sample of eligible studies and achieved good agreement (at least 80 percent), with the remainder extracted by one reviewer. | | | x | No |
| 7. Did the review authors provide a list of excluded studies and justify the exclusions? | | | | | |
| For Partial Yes: | | For Yes, must also have: | | | |
| x | provided a list of all potentially relevant studies that were read in full- | | Justified the exclusion from the review of each potentially relevant study | | Yes |
| | | | | x | Partial Yes |

| | | | | | |
|--|--|--|--|---|----------------------------|
| | text form but excluded from the review | | | | No |
| 8. Did the review authors describe the included studies in adequate detail? | | | | | |
| For Partial Yes (ALL the following): | | For Yes, should also have ALL the following: | | | |
| x | described populations | x | described population in detail | | Yes |
| x | described interventions | x | described intervention in detail (including doses where relevant) | x | Partially Yes |
| x | described comparators | x | described comparator in detail (including doses where relevant) | | No |
| x | described outcomes | | <input type="checkbox"/> described study's setting | | |
| x | described research designs | x | timeframe for follow-up | | |
| 9. Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review? | | | | | |
| RCTs | | | | | |
| For Partial Yes, must have assessed RoB from | | For Yes, must also have assessed RoB from: | | | |
| | unconcealed allocation, and | | allocation sequence that was not truly random, and | | Yes |
| | | | | | Partial Yes |
| | lack of blinding of patients and assessors when assessing outcomes (unnecessary for objective outcomes such as all-cause mortality) | | selection of the reported result from among multiple measurements or analyses of a specified outcome | | No |
| | | | | x | Includes only NRSI |
| NRSI | | | | | |
| For Partial Yes, must have assessed RoB from | | For Yes, must also have assessed RoB from: | | | |
| x | from confounding, and | x | methods used to ascertain exposures and outcomes, and | x | Yes |
| | | | | | Partial Yes |
| x | from selection bias | x | selection of the reported result from among multiple measurements or analyses of a specified outcome | | No |
| | | | | | Includes only RCT |
| 10. Did the review authors report on the sources of funding for the studies included in the review? | | | | | |
| For Yes | | | | | |
| | Must have reported on the sources of funding for individual studies included in the review. Note: Reporting that the reviewers looked for this information but it was not reported by study authors also qualifies | | | | Yes |
| | | | | x | No |
| 11. If meta-analysis was performed did the review authors use appropriate methods for statistical combination of results? | | | | | |
| RCTs | | | | | |
| For Yes | | | | | |
| | The authors justified combining the data in a meta-analysis | | | | Yes |
| | AND they used an appropriate weighted technique to combine study results and adjusted for heterogeneity if present. | | | | No |
| | AND investigated the causes of any heterogeneity | | | x | No meta-analysis conducted |
| For NRSI | | | | | |
| For Yes | | | | | |
| | The authors justified combining the data in a meta-analysis | | | | Yes |
| | AND they used an appropriate weighted technique to combine study results, adjusting for heterogeneity if present | | | | No |
| | AND they statistically combined effect estimates from NRSI that were adjusted for confounding, rather than combining raw data, or justified combining raw data when adjusted effect estimates were not available | | | x | No meta-analysis conducted |

| | | | |
|---|---|---|----------------------------|
| | AND they reported separate summary estimates for RCTs and NRSI separately when both were included in the review | | |
| 12. If meta-analysis was performed, did the review authors assess the potential impact of RoB in individual studies on the results of the meta-analysis or other evidence synthesis? | | | |
| For Yes | | | |
| | included only low risk of bias RCTs | | Yes |
| | OR, if the pooled estimate was based on RCTs and/or NRSI at variable RoB, the authors performed analyses to investigate possible impact of RoB on summary estimates of effect. | x | No meta-analysis conducted |
| 13. Did the review authors account for RoB in individual studies when interpreting/ discussing the results of the review? | | | |
| For Yes | | | |
| | included only low risk of bias RCTs | x | Yes |
| x | OR, if RCTs with moderate or high RoB, or NRSI were included the review provided a discussion of the likely impact of RoB on the results | | No |
| 14. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review? | | | |
| For Yes | | | |
| | There was no significant heterogeneity in the results | | Yes |
| | OR if heterogeneity was present the authors performed an investigation of sources of any heterogeneity in the results and discussed the impact of this on the results of the review | x | No |
| 15. If they performed quantitative synthesis did the review authors carry out an adequate investigation of publication bias (small study bias) and discuss its likely impact on the results of the review? | | | |
| For Yes | | | |
| | performed graphical or statistical tests for publication bias and discussed the likelihood and magnitude of impact of publication bias | | Yes |
| | | | No |
| | | x | No meta-analysis conducted |
| 16. Did the review authors report any potential sources of conflict of interest, including any funding they received for conducting the review? | | | |
| For Yes | | | |
| x | The authors reported no competing interests OR | x | Yes |
| | The authors described their funding sources and how they managed potential conflicts of interest | | No |
| Your overall assessment of the risk of bias of this systematic review | | | |
| Moderate | | | |

| | | | | | |
|---|------------------|------------------------|--|---|-----|
| AMSTAR 2 checklist, critical questions | | | | | |
| REF: Riley et al 2016 | | | | | |
| 1. Did the research questions and inclusion criteria for the review include the components of PICO? | | | | | |
| For Yes | | Optional (recommended) | | | |
| x | Population | | Timeframe for follow up | x | Yes |
| x | Intervention | | | | No |
| x | Comparator group | | | | |
| x | Outcome | | | | |
| 2. Did the report of the review contain an explicit statement that the review methods were established prior to the conduct of the review and did the report justify any significant deviations from the protocol? | | | | | |
| For Partial Yes: The authors state that they had a written protocol or guide that included ALL the following: | | | For Yes: As for partial yes, plus the protocol should be registered and should also have specified: | | |

| | | | | | |
|--|--|--|--|---|---------------|
| | review question(s) | | a meta-analysis/ synthesis plan, if appropriate, and | | Yes |
| | a search strategy | | a plan for investigating causes of heterogeneity | | Partial Yes |
| | inclusion/exclusion criteria | | | x | No |
| | a risk of bias assessment | | | | |
| 3. Did the review authors explain their selection of the study designs for inclusion in the review? | | | | | |
| For Yes, the review should satisfy ONE of the following: | | | | x | Yes |
| | Explanation for including only RCTs | | | | No |
| | OR Explanation for including only NRSI | | | | |
| x | OR Explanation for including both RCTs and NRSI | | | | |
| 4. Did the review authors use a comprehensive literature search strategy? | | | | | |
| For Partial Yes (all the following): | | For Yes, should also have (all the following): | | | Yes |
| x | searched at least 2 databases (relevant to research question) | | searched the reference lists / bibliographies of included studies | x | Partial Yes |
| x | provided key word and/or search strategy | | searched trial/study registries | | No |
| x | justified publication restrictions (e.g. language) | | included/consulted content experts in the field | | |
| | | | where relevant, searched for grey literature | | |
| | | x | conducted search within 24 months of completion of the review | | |
| 5. Did the review authors perform study selection in duplicate? | | | | | |
| For Yes, either ONE of the following: | | | | | |
| x | at least two reviewers independently agreed on selection of eligible studies and achieved consensus on which studies to include | | | x | Yes |
| | OR two reviewers selected a sample of eligible studies and achieved good agreement (at least 80 percent), with the remainder selected by one reviewer. | | | | No |
| 6. Did the review authors perform data extraction in duplicate? | | | | | |
| For Yes, either ONE of the following: | | | | | |
| | at least two reviewers achieved consensus on which data to extract from included studies | | | | Yes |
| | OR two reviewers extracted data from a sample of eligible studies and achieved good agreement (at least 80 percent), with the remainder extracted by one reviewer. | | | x | No |
| 7. Did the review authors provide a list of excluded studies and justify the exclusions? | | | | | |
| For Partial Yes: | | For Yes, must also have: | | | |
| | provided a list of all potentially relevant studies that were read in full-text form but excluded from the review | | Justified the exclusion from the review of each potentially relevant study | | Yes |
| | | | | | Partial Yes |
| x | | | | | No |
| 8. Did the review authors describe the included studies in adequate detail? | | | | | |
| For Partial Yes (ALL the following): | | For Yes, should also have ALL the following: | | | |
| x | described populations | x | described population in detail | x | Yes |
| x | described interventions | x | described intervention in detail (including doses where relevant) | | Partially Yes |
| x | described comparators | x | described comparator in detail (including doses where relevant) | | No |
| x | described outcomes | x | <input type="checkbox"/> described study's setting | | |
| x | described research designs | x | timeframe for follow-up | | |
| 9. Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review? | | | | | |

| RCTs | | | |
|---|--|--|--|
| For Partial Yes, must have assessed RoB from | | For Yes, must also have assessed RoB from: | |
| x | unconcealed allocation, and | | allocation sequence that was not truly random, and |
| x | lack of blinding of patients and assessors when assessing outcomes (unnecessary for objective outcomes such as all-cause mortality) | | selection of the reported result from among multiple measurements or analyses of a specified outcome |
| | | | Yes |
| | | x | Partial Yes |
| | | | No |
| | | | Includes only NRSI |
| NRSI | | | |
| For Partial Yes, must have assessed RoB from | | For Yes, must also have assessed RoB from: | |
| x | from confounding, and | x | methods used to ascertain exposures and outcomes, and |
| x | from selection bias | | selection of the reported result from among multiple measurements or analyses of a specified outcome |
| | | | Yes |
| | | x | Partial Yes |
| | | | No |
| | | | Includes only RCT |
| 10. Did the review authors report on the sources of funding for the studies included in the review? | | | |
| For Yes | | | |
| x | Must have reported on the sources of funding for individual studies included in the review. Note: Reporting that the reviewers looked for this information but it was not reported by study authors also qualifies | | x |
| | | | Yes |
| | | | No |
| 11. If meta-analysis was performed did the review authors use appropriate methods for statistical combination of results? | | | |
| RCTs | | | |
| For Yes | | | |
| | The authors justified combining the data in a meta-analysis | | |
| | AND they used an appropriate weighted technique to combine study results and adjusted for heterogeneity if present. | | |
| | AND investigated the causes of any heterogeneity | | x |
| | | | Yes |
| | | | No |
| | | | No meta-analysis conducted |
| For NRSI | | | |
| For Yes | | | |
| | The authors justified combining the data in a meta-analysis | | |
| | AND they used an appropriate weighted technique to combine study results, adjusting for heterogeneity if present | | |
| | AND they statistically combined effect estimates from NRSI that were adjusted for confounding, rather than combining raw data, or justified combining raw data when adjusted effect estimates were not available | | x |
| | AND they reported separate summary estimates for RCTs and NRSI separately when both were included in the review | | |
| | | | Yes |
| | | | No |
| | | | No meta-analysis conducted |
| 12. If meta-analysis was performed, did the review authors assess the potential impact of RoB in individual studies on the results of the meta-analysis or other evidence synthesis? | | | |
| For Yes | | | |
| | included only low risk of bias RCTs | | |
| | OR, if the pooled estimate was based on RCTs and/or NRSI at variable RoB, the authors performed analyses to investigate possible impact of RoB on summary estimates of effect. | | |
| | | | x |
| | | | Yes |
| | | | No |
| | | | No meta-analysis conducted |
| 13. Did the review authors account for RoB in individual studies when interpreting/ discussing the results of the review? | | | |
| For Yes | | | |
| | included only low risk of bias RCTs | | |
| | OR, if RCTs with moderate or high RoB, or NRSI were included the review provided a discussion of the likely impact of RoB on the results | | |
| | | | x |
| | | | Yes |
| | | | No |

| | | | |
|---|---|---|----------------------------|
| 14. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review? | | | |
| For Yes | | | |
| | There was no significant heterogeneity in the results | | Yes |
| | OR if heterogeneity was present the authors performed an investigation of sources of any heterogeneity in the results and discussed the impact of this on the results of the review | x | No |
| 15. If they performed quantitative synthesis did the review authors carry out an adequate investigation of publication bias (small study bias) and discuss its likely impact on the results of the review? | | | |
| For Yes | | | |
| | performed graphical or statistical tests for publication bias and discussed the likelihood and magnitude of impact of publication bias | | Yes |
| | | | No |
| | | x | No meta-analysis conducted |
| 16. Did the review authors report any potential sources of conflict of interest, including any funding they received for conducting the review? | | | |
| For Yes | | | |
| x | The authors reported no competing interests OR | x | Yes |
| | The authors described their funding sources and how they managed potential conflicts of interest | | No |
| Your overall assessment of the risk of bias of this systematic review | | | |
| Low | | | |

| | | | |
|---|---|--|---|
| AMSTAR 2 checklist, critical questions | | | |
| REF: Scarpino et al 2020 | | | |
| 1. Did the research questions and inclusion criteria for the review include the components of PICO? | | | |
| For Yes | | Optional (recommended) | |
| x | Population | | Timeframe for follow up |
| | | x | Yes |
| x | Intervention | | No |
| na | Comparator group | | |
| x | Outcome | | |
| 2. Did the report of the review contain an explicit statement that the review methods were established prior to the conduct of the review and did the report justify any significant deviations from the protocol? | | | |
| For Partial Yes: The authors state that they had a written protocol or guide that included ALL the following: | | For Yes: As for partial yes, plus the protocol should be registered and should also have specified: | |
| | review question(s) | | a meta-analysis/ synthesis plan, if appropriate, and |
| | a search strategy | | a plan for investigating causes of heterogeneity |
| | inclusion/exclusion criteria | x | No |
| | a risk of bias assessment | | |
| 3. Did the review authors explain their selection of the study designs for inclusion in the review? | | | |
| For Yes, the review should satisfy ONE of the following: | | x | Yes |
| | Explanation for including only RCTs | | No |
| x | OR Explanation for including only NRSI | | |
| | OR Explanation for including both RCTs and NRSI | | |
| 4. Did the review authors use a comprehensive literature search strategy? | | | |
| For Partial Yes (all the following): | | For Yes, should also have (all the following): | |
| x | searched at least 2 databases (relevant to research question) | x | searched the reference lists / bibliographies of included studies |
| | | x | Partial Yes |

| | | | | | |
|--|--|--|--|---|--------------------|
| x | provided key word and/or search strategy | | searched trial/study registries | | No |
| x | justified publication restrictions (e.g. language) | | included/consulted content experts in the field | | |
| | | | where relevant, searched for grey literature | | |
| x | | | conducted search within 24 months of completion of the review | | |
| 5. Did the review authors perform study selection in duplicate? | | | | | |
| For Yes, either ONE of the following: | | | | | |
| | at least two reviewers independently agreed on selection of eligible studies and achieved consensus on which studies to include | | | | Yes |
| | OR two reviewers selected a sample of eligible studies and achieved good agreement (at least 80 percent), with the remainder selected by one reviewer. | x | | | No |
| 6. Did the review authors perform data extraction in duplicate? | | | | | |
| For Yes, either ONE of the following: | | | | | |
| x | at least two reviewers achieved consensus on which data to extract from included studies | | | x | Yes |
| | OR two reviewers extracted data from a sample of eligible studies and achieved good agreement (at least 80 percent), with the remainder extracted by one reviewer. | | | | No |
| 7. Did the review authors provide a list of excluded studies and justify the exclusions? | | | | | |
| For Partial Yes: | | For Yes, must also have: | | | |
| | provided a list of all potentially relevant studies that were read in full-text form but excluded from the review | | Justified the exclusion from the review of each potentially relevant study | | Yes |
| | | | | | Partial Yes |
| | | | | x | No |
| 8. Did the review authors describe the included studies in adequate detail? | | | | | |
| For Partial Yes (ALL the following): | | For Yes, should also have ALL the following: | | | |
| x | described populations | | described population in detail | | Yes |
| x | described interventions | x | described intervention in detail (including doses where relevant) | x | Partially Yes |
| na | described comparators | na | described comparator in detail (including doses where relevant) | | No |
| x | described outcomes | x | <input type="checkbox"/> described study's setting | | |
| x | described research designs | na | timeframe for follow-up | | |
| 9. Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review? | | | | | |
| RCTs | | | | | |
| For Partial Yes, must have assessed RoB from | | For Yes, must also have assessed RoB from: | | | |
| | unconcealed allocation, and | | allocation sequence that was not truly random, and | | Yes |
| | | | | | Partial Yes |
| | lack of blinding of patients and assessors when assessing outcomes (unnecessary for objective outcomes such as all-cause mortality) | | selection of the reported result from among multiple measurements or analyses of a specified outcome | | No |
| | | | | x | Includes only NRSI |
| NRSI | | | | | |
| For Partial Yes, must have assessed RoB from | | For Yes, must also have assessed RoB from: | | "Cases deemed of moderate to low quality were further | |

| | | | |
|---|--|---|--|
| | | | evaluated by two additional re-searchers, and those deemed of poor quality were excluded.» |
| | from confounding, and | | methods used to ascertain exposures and outcomes, and |
| | from selection bias | | selection of the reported result from among multiple measurements or analyses of a specified outcome |
| | | | Yes |
| | | x | Partial Yes |
| | | | No |
| | | | Includes only RCT |
| 10. Did the review authors report on the sources of funding for the studies included in the review? | | | |
| For Yes | | | |
| | Must have reported on the sources of funding for individual studies included in the review. Note: Reporting that the reviewers looked for this information but it was not reported by study authors also qualifies | | Yes |
| | | | x No |
| 11. If meta-analysis was performed did the review authors use appropriate methods for statistical combination of results? | | | |
| RCTs | | | |
| For Yes | | | |
| | The authors justified combining the data in a meta-analysis | | Yes |
| | AND they used an appropriate weighted technique to combine study results and adjusted for heterogeneity if present. | | No |
| | AND investigated the causes of any heterogeneity | | x No meta-analysis conducted |
| For NRSI | | | |
| For Yes | | | |
| | The authors justified combining the data in a meta-analysis | | Yes |
| | AND they used an appropriate weighted technique to combine study results, adjusting for heterogeneity if present | | No |
| | AND they statistically combined effect estimates from NRSI that were adjusted for confounding, rather than combining raw data, or justified combining raw data when adjusted effect estimates were not available | | x No meta-analysis conducted |
| | AND they reported separate summary estimates for RCTs and NRSI separately when both were included in the review | | |
| 12. If meta-analysis was performed, did the review authors assess the potential impact of RoB in individual studies on the results of the meta-analysis or other evidence synthesis? | | | |
| For Yes | | | |
| | included only low risk of bias RCTs | | Yes |
| | OR, if the pooled estimate was based on RCTs and/or NRSI at variable RoB, the authors performed analyses to investigate possible impact of RoB on summary estimates of effect. | | No |
| | | | x No meta-analysis conducted |
| 13. Did the review authors account for RoB in individual studies when interpreting/ discussing the results of the review? | | | |
| For Yes | | | |
| x | included only low risk of bias RCTs | | x Yes |
| | OR, if RCTs with moderate or high RoB, or NRSI were included the review provided a discussion of the likely impact of RoB on the results | | No |
| 14. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review? | | | |
| For Yes | | | |
| | There was no significant heterogeneity in the results | | na Yes |

| | | | |
|---|---|---|----------------------------|
| | OR if heterogeneity was present the authors performed an investigation of sources of any heterogeneity in the results and discussed the impact of this on the results of the review | | No |
| 15. If they performed quantitative synthesis did the review authors carry out an adequate investigation of publication bias (small study bias) and discuss its likely impact on the results of the review? | | | |
| For Yes | | | |
| | performed graphical or statistical tests for publication bias and discussed the likelihood and magnitude of impact of publication bias | | Yes |
| | | | No |
| x | | | No meta-analysis conducted |
| 16. Did the review authors report any potential sources of conflict of interest, including any funding they received for conducting the review? | | | |
| For Yes | | | |
| x | The authors reported no competing interests OR | x | Yes |
| | The authors described their funding sources and how they managed potential conflicts of interest | | No |
| Your overall assessment of the risk of bias of this systematic review | | | |
| Moderate | | | |

| | | | |
|---|---|--|---|
| AMSTAR 2 checklist, critical questions | | | |
| REF: Skotsimara et al 2019 | | | |
| 1. Did the research questions and inclusion criteria for the review include the components of PICO? | | | |
| For Yes | | Optional (recommended) | |
| x | Population | | Timeframe for follow up |
| x | Intervention | | |
| x | Comparator group | | |
| x | Outcome | | |
| 2. Did the report of the review contain an explicit statement that the review methods were established prior to the conduct of the review and did the report justify any significant deviations from the protocol? | | | |
| For Partial Yes: The authors state that they had a written protocol or guide that included ALL the following: | | For Yes: As for partial yes, plus the protocol should be registered and should also have specified: | |
| | review question(s) | | a meta-analysis/ synthesis plan, if appropriate, and |
| | a search strategy | | a plan for investigating causes of heterogeneity |
| | inclusion/exclusion criteria | x | No |
| | a risk of bias assessment | | |
| 3. Did the review authors explain their selection of the study designs for inclusion in the review? | | | |
| For Yes, the review should satisfy ONE of the following: | | | Yes |
| | Explanation for including only RCTs | x | No |
| | OR Explanation for including only NRSI | | |
| | OR Explanation for including both RCTs and NRSI | | |
| 4. Did the review authors use a comprehensive literature search strategy? | | | |
| For Partial Yes (all the following): | | For Yes, should also have (all the following): | |
| | searched at least 2 databases (relevant to research question) | x | searched the reference lists / bibliographies of included studies |
| x | provided key word and/or search strategy | | searched trial/study registries |
| | justified publication restrictions (e.g. language) | | included/consulted content experts in the field |

| | | | |
|--|--|---|--|
| | | where relevant, searched for grey literature | |
| | - | conducted search within 24 months of completion of the review | |
| 5. Did the review authors perform study selection in duplicate? | | | |
| For Yes, either ONE of the following: | | | |
| x | at least two reviewers independently agreed on selection of eligible studies and achieved consensus on which studies to include | x | Yes |
| | OR two reviewers selected a sample of eligible studies and achieved good agreement (at least 80 percent), with the remainder selected by one reviewer. | | No |
| 6. Did the review authors perform data extraction in duplicate? | | | |
| For Yes, either ONE of the following: | | | |
| x | at least two reviewers achieved consensus on which data to extract from included studies | x | Yes |
| | OR two reviewers extracted data from a sample of eligible studies and achieved good agreement (at least 80 percent), with the remainder extracted by one reviewer. | | No |
| 7. Did the review authors provide a list of excluded studies and justify the exclusions? | | | |
| For Partial Yes: | | For Yes, must also have: | |
| | provided a list of all potentially relevant studies that were read in full-text form but excluded from the review | | Justified the exclusion from the review of each potentially relevant study |
| | | | Yes |
| | | | Partial Yes |
| | | x | No |
| 8. Did the review authors describe the included studies in adequate detail? | | | |
| For Partial Yes (ALL the following): | | For Yes, should also have ALL the following: | |
| x | described populations | | described population in detail |
| x | described interventions | x | described intervention in detail (including doses where relevant) |
| x | described comparators | | described comparator in detail (including doses where relevant) |
| x | described outcomes | | <input type="checkbox"/> described study's setting |
| | described research designs | | timeframe for follow-up |
| 9. Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review? | | | |
| RCTs | | | |
| For Partial Yes, must have assessed RoB from | | For Yes, must also have assessed RoB from: | |
| | unconcealed allocation, and | | allocation sequence that was not truly random, and |
| | lack of blinding of patients and assessors when assessing outcomes (unnecessary for objective outcomes such as all-cause mortality) | | selection of the reported result from among multiple measurements or analyses of a specified outcome |
| | | | Yes |
| | | | Partial Yes |
| | | | No |
| | | x | Includes only NRSI |
| NRSI | | | |
| For Partial Yes, must have assessed RoB from | | For Yes, must also have assessed RoB from: | |
| x | from confounding, and | x | methods used to ascertain exposures and outcomes, and |
| x | from selection bias | x | selection of the reported result from among multiple measurements or analyses of a specified outcome |
| | | x | Yes |
| | | | Partial Yes |
| | | | No |
| | | | Includes only RCT |
| 10. Did the review authors report on the sources of funding for the studies included in the review? | | | |
| For Yes | | | |

| | | | |
|---|--|----|----------------------------|
| | Must have reported on the sources of funding for individual studies included in the review. Note: Reporting that the reviewers looked for this information but it was not reported by study authors also qualifies | x | Yes |
| | | | No |
| 11. If meta-analysis was performed did the review authors use appropriate methods for statistical combination of results? | | | |
| RCTs | | | |
| For Yes | | | |
| | The authors justified combining the data in a meta-analysis | | Yes |
| | AND they used an appropriate weighted technique to combine study results and adjusted for heterogeneity if present. | | No |
| | AND investigated the causes of any heterogeneity | na | No meta-analysis conducted |
| For NRSI- combined in analysis-cig vs tobacco and sham and ... | | | |
| For Yes | | | |
| x | The authors justified combining the data in a meta-analysis | | Yes |
| | AND they used an appropriate weighted technique to combine study results, adjusting for heterogeneity if present | x | No |
| x | AND they statistically combined effect estimates from NRSI that were adjusted for confounding, rather than combining raw data, or justified combining raw data when adjusted effect estimates were not available | | No meta-analysis conducted |
| x | AND they reported separate summary estimates for RCTs and NRSI separately when both were included in the review | | |
| 12. If meta-analysis was performed, did the review authors assess the potential impact of RoB in individual studies on the results of the meta-analysis or other evidence synthesis? | | | |
| For Yes | | | |
| | included only low risk of bias RCTs | | Yes |
| | OR, if the pooled estimate was based on RCTs and/or NRSI at variable RoB, the authors performed analyses to investigate possible impact of RoB on summary estimates of effect. | x | No |
| | | | No meta-analysis conducted |
| 13. Did the review authors account for RoB in individual studies when interpreting/ discussing the results of the review? | | | |
| For Yes | | | |
| | included only low risk of bias RCTs | | Yes |
| | OR, if RCTs with moderate or high RoB, or NRSI were included the review provided a discussion of the likely impact of RoB on the results | x | No |
| 14. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review? | | | |
| For Yes | | | |
| | There was no significant heterogeneity in the results | | Yes |
| | OR if heterogeneity was present the authors performed an investigation of sources of any heterogeneity in the results and discussed the impact of this on the results of the review | x | No |
| 15. If they performed quantitative synthesis did the review authors carry out an adequate investigation of publication bias (small study bias) and discuss its likely impact on the results of the review? | | | |
| For Yes | | | |
| | performed graphical or statistical tests for publication bias and discussed the likelihood and magnitude of impact of publication bias | | Yes |
| | | x | No |
| | | | No meta-analysis conducted |
| 16. Did the review authors report any potential sources of conflict of interest, including any funding they received for conducting the review? | | | |
| For Yes | | | |
| x | The authors reported no competing interests OR | x | Yes |

| | | | |
|--|--|--|----|
| | The authors described their funding sources and how they managed potential conflicts of interest | | No |
| Your overall assessment of the risk of bias of this systematic review | | | |
| Critically low | | | |

| | | | | |
|---|--|--|---|---------------|
| AMSTAR 2 checklist, critical questions | | | | |
| REF: Wang et al 2019 | | | | |
| 1. Did the research questions and inclusion criteria for the review include the components of PICO? | | | | |
| For Yes | | Optional (recommended) | | |
| x | Population | | Timeframe for follow up | x Yes |
| x | Intervention | | | No |
| Some | Comparator group | | | |
| x | Outcome | | | |
| 2. Did the report of the review contain an explicit statement that the review methods were established prior to the conduct of the review and did the report justify any significant deviations from the protocol? | | | | |
| For Partial Yes: The authors state that they had a written protocol or guide that included ALL the following: | | For Yes: As for partial yes, plus the protocol should be registered and should also have specified: | | |
| | review question(s) | | a meta-analysis/ synthesis plan, if appropriate, and | Yes |
| | a search strategy | | a plan for investigating causes of heterogeneity | Partial Yes |
| | inclusion/exclusion criteria | | | x No |
| | a risk of bias assessment | | | |
| 3. Did the review authors explain their selection of the study designs for inclusion in the review? | | | | |
| For Yes, the review should satisfy ONE of the following: | | | x | Yes |
| | Explanation for including only RCTs | | | No |
| x | OR Explanation for including only NRSI | | | |
| | OR Explanation for including both RCTs and NRSI | | | |
| 4. Did the review authors use a comprehensive literature search strategy? | | | | |
| For Partial Yes (all the following): | | For Yes, should also have (all the following): | | |
| x | searched at least 2 databases (relevant to research question) | x | searched the reference lists / bibliographies of included studies | x Partial Yes |
| x | provided key word and/or search strategy | | searched trial/study registries | No |
| x | justified publication restrictions (e.g. language) | | included/consulted content experts in the field | |
| | | | where relevant, searched for grey literature | |
| | | x | conducted search within 24 months of completion of the review | |
| 5. Did the review authors perform study selection in duplicate? | | | | |
| For Yes, either ONE of the following: | | | | |
| | at least two reviewers independently agreed on selection of eligible studies and achieved consensus on which studies to include | | | Yes |
| | OR two reviewers selected a sample of eligible studies and achieved good agreement (at least 80 percent), with the remainder selected by one reviewer. | | x | No |
| 6. Did the review authors perform data extraction in duplicate? | | | | |
| For Yes, either ONE of the following: | | | | |
| | at least two reviewers achieved consensus on which data to extract from included studies | | | Yes |

| | | | |
|---|--|--|--|
| | OR two reviewers extracted data from a sample of eligible studies and achieved good agreement (at least 80 percent), with the remainder extracted by one reviewer. | x | No |
| 7. Did the review authors provide a list of excluded studies and justify the exclusions? | | | |
| For Partial Yes: | | For Yes, must also have: | |
| x | provided a list of all potentially relevant studies that were read in full-text form but excluded from the review | | Justified the exclusion from the review of each potentially relevant study |
| | | | Yes |
| | | x | Partial Yes |
| | | | No |
| 8. Did the review authors describe the included studies in adequate detail? | | | |
| For Partial Yes (ALL the following): | | For Yes, should also have ALL the following: | |
| x | described populations | * | described population in detail |
| | | | Yes |
| x | described interventions | | described intervention in detail (including doses where relevant) |
| | | x | Partially Yes |
| na | described comparators | | described comparator in detail (including doses where relevant) |
| | | | No |
| x | described outcomes | <input type="checkbox"/> | described study's setting |
| | | | Better for in vitro than in vivo |
| x | described research designs | | timeframe for follow-up |
| 9. Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review? | | | |
| RCTs | | | |
| For Partial Yes, must have assessed RoB from | | For Yes, must also have assessed RoB from: | |
| | unconcealed allocation, and | | allocation sequence that was not truly random, and |
| | | | Yes |
| | | | Partial Yes |
| | lack of blinding of patients and assessors when assessing outcomes (unnecessary for objective outcomes such as all-cause mortality) | | selection of the reported result from among multiple measurements or analyses of a specified outcome |
| | | | No |
| | | x | Includes only NRSI |
| NRSI- animal and in vitro- "The validity and strength of each study were determined based on a qualitative assessment of study objectives, animal models, cell culture, depth of analysis, and experimental details. Meaningful study limitations were noted in the analysis." | | | |
| For Partial Yes, must have assessed RoB from | | For Yes, must also have assessed RoB from: | |
| | from confounding, and | | methods used to ascertain exposures and outcomes, and |
| | | | Yes |
| | | x | Partial Yes |
| | from selection bias | | selection of the reported result from among multiple measurements or analyses of a specified outcome |
| | | | No |
| | | | Includes only RCT |
| 10. Did the review authors report on the sources of funding for the studies included in the review? | | | |
| For Yes | | | |
| | Must have reported on the sources of funding for individual studies included in the review. Note: Reporting that the reviewers looked for this information but it was not reported by study authors also qualifies | | Yes |
| | | x | No |
| 11. If meta-analysis was performed did the review authors use appropriate methods for statistical combination of results? | | | |
| RCTs | | | |
| For Yes | | | |
| | The authors justified combining the data in a meta-analysis | | Yes |
| | AND they used an appropriate weighted technique to combine study results and adjusted for heterogeneity if present. | | No |

| | | | |
|---|--|---|----------------------------|
| | AND investigated the causes of any heterogeneity | x | No meta-analysis conducted |
| For NRSI | | | |
| For Yes | | | |
| | The authors justified combining the data in a meta-analysis | | Yes |
| | AND they used an appropriate weighted technique to combine study results, adjusting for heterogeneity if present | | No |
| | AND they statistically combined effect estimates from NRSI that were adjusted for confounding, rather than combining raw data, or justified combining raw data when adjusted effect estimates were not available | x | No meta-analysis conducted |
| | AND they reported separate summary estimates for RCTs and NRSI separately when both were included in the review | | |
| 12. If meta-analysis was performed, did the review authors assess the potential impact of RoB in individual studies on the results of the meta-analysis or other evidence synthesis? | | | |
| For Yes | | | |
| | included only low risk of bias RCTs | | Yes |
| | OR, if the pooled estimate was based on RCTs and/or NRSI at variable RoB, the authors performed analyses to investigate possible impact of RoB on summary estimates of effect. | | No |
| | | x | No meta-analysis conducted |
| 13. Did the review authors account for RoB in individual studies when interpreting/ discussing the results of the review? | | | |
| For Yes | | | |
| | included only low risk of bias RCTs | x | Yes |
| x | OR, if RCTs with moderate or high RoB, or NRSI were included the review provided a discussion of the likely impact of RoB on the results | | No |
| 14. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review? | | | |
| For Yes | | | |
| | There was no significant heterogeneity in the results | x | Yes |
| x | OR if heterogeneity was present the authors performed an investigation of sources of any heterogeneity in the results and discussed the impact of this on the results of the review | | No |
| 15. If they performed quantitative synthesis did the review authors carry out an adequate investigation of publication bias (small study bias) and discuss its likely impact on the results of the review? | | | |
| For Yes | | | |
| | performed graphical or statistical tests for publication bias and discussed the likelihood and magnitude of impact of publication bias | | Yes |
| | | | No |
| | | x | No meta-analysis conducted |
| 16. Did the review authors report any potential sources of conflict of interest, including any funding they received for conducting the review? | | | |
| For Yes | | | |
| x | The authors reported no competing interests OR | x | Yes |
| | The authors described their funding sources and how they managed potential conflicts of interest | | No |
| Your overall assessment of the risk of bias of this systematic review | | | |
| Low | | | |

| | | |
|--|------------------------|--|
| AMSTAR 2 checklist, critical questions | | |
| REF: Ward et al 2020 | | |
| 1. Did the research questions and inclusion criteria for the review include the components of PICO? | | |
| For Yes | Optional (recommended) | |

| | | | | | |
|---|--|--|--|---|-------------|
| na | Population | | Timeframe for follow up | x | Yes |
| x | Intervention | | | | No |
| na | Comparator group | | | | |
| x | Outcome | | | | |
| 2. Did the report of the review contain an explicit statement that the review methods were established prior to the conduct of the review and did the report justify any significant deviations from the protocol? | | | | | |
| For Partial Yes: The authors state that they had a written protocol or guide that included ALL the following: | | For Yes: As for partial yes, plus the protocol should be registered and should also have specified: | | | |
| | review question(s) | | a meta-analysis/ synthesis plan, if appropriate, and | | Yes |
| | a search strategy | | a plan for investigating causes of heterogeneity | | Partial Yes |
| | inclusion/exclusion criteria | | | x | No |
| | a risk of bias assessment | | | | |
| 3. Did the review authors explain their selection of the study designs for inclusion in the review? | | | | | |
| For Yes, the review should satisfy ONE of the following: | | | | x | Yes |
| | Explanation for including only RCTs | | | | No |
| x | OR Explanation for including only NRSI | | | | |
| | OR Explanation for including both RCTs and NRSI | | | | |
| 4. Did the review authors use a comprehensive literature search strategy? | | | | | |
| For Partial Yes (all the following): | | For Yes, should also have (all the following): | | | Yes |
| x | searched at least 2 databases (relevant to research question) | | searched the reference lists / bibliographies of included studies | x | Partial Yes |
| x | provided key word and/or search strategy | | searched trial/study registries | | No |
| x | justified publication restrictions (e.g. language) | | included/consulted content experts in the field | | |
| | | | where relevant, searched for grey literature | | |
| | | x | conducted search within 24 months of completion of the review | | |
| 5. Did the review authors perform study selection in duplicate? | | | | | |
| For Yes, either ONE of the following: | | | | | |
| | at least two reviewers independently agreed on selection of eligible studies and achieved consensus on which studies to include | | | | Yes |
| | OR two reviewers selected a sample of eligible studies and achieved good agreement (at least 80 percent), with the remainder selected by one reviewer. | | | x | No |
| 6. Did the review authors perform data extraction in duplicate? | | | | | |
| For Yes, either ONE of the following: | | | | | |
| | at least two reviewers achieved consensus on which data to extract from included studies | | | | Yes |
| | OR two reviewers extracted data from a sample of eligible studies and achieved good agreement (at least 80 percent), with the remainder extracted by one reviewer. | | | x | No |
| 7. Did the review authors provide a list of excluded studies and justify the exclusions? | | | | | |
| For Partial Yes: | | For Yes, must also have: | | | |
| x | provided a list of all potentially relevant studies that were read in full-text form but excluded from the review | | Justified the exclusion from the review of each potentially relevant study | | Yes |
| | | | | x | Partial Yes |
| | | | | | No |
| 8. Did the review authors describe the included studies in adequate detail? | | | | | |
| For Partial Yes (ALL the following): | | For Yes, should also have ALL the following: | | | |
| na | described populations | | described population in detail | | Yes |

| | | | | | |
|---|--|--|--|----------------------------------|----------------------------|
| x | described interventions | x | described intervention in detail (including doses where relevant) | | Partially Yes |
| na | described comparators | | described comparator in detail (including doses where relevant) | x | No |
| x | described outcomes | x | <input type="checkbox"/> described study's setting | | |
| | described research designs | x | timeframe for follow-up | | |
| 9. Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review? | | | | | |
| RCTs | | | | | |
| For Partial Yes, must have assessed RoB from | | For Yes, must also have assessed RoB from: | | | |
| | unconcealed allocation, and | | allocation sequence that was not truly random, and | | Yes |
| | lack of blinding of patients and assessors when assessing outcomes (unnecessary for objective outcomes such as all-cause mortality) | | selection of the reported result from among multiple measurements or analyses of a specified outcome | | Partial Yes |
| | | | | | No |
| | | | | x | Includes only NRSI |
| NRSI- nonstandard question | | | | | |
| For Partial Yes, must have assessed RoB from | | For Yes, must also have assessed RoB from: | | Verification of analysis methods | |
| | from confounding, and | x | methods used to ascertain exposures and outcomes, and | x | Yes |
| | from selection bias | x | selection of the reported result from among multiple measurements or analyses of a specified outcome | | Partial Yes |
| | | | | | No |
| | | | | | Includes only RCT |
| 10. Did the review authors report on the sources of funding for the studies included in the review? | | | | | |
| For Yes | | | | | |
| | Must have reported on the sources of funding for individual studies included in the review. Note: Reporting that the reviewers looked for this information but it was not reported by study authors also qualifies | | | | Yes |
| | | | | x | No |
| 11. If meta-analysis was performed did the review authors use appropriate methods for statistical combination of results? | | | | | |
| RCTs | | | | | |
| For Yes | | | | | |
| | The authors justified combining the data in a meta-analysis | | | | Yes |
| | AND they used an appropriate weighted technique to combine study results and adjusted for heterogeneity if present. | | | | No |
| | AND investigated the causes of any heterogeneity | | | x | No meta-analysis conducted |
| For NRSI | | | | | |
| For Yes | | | | | |
| | The authors justified combining the data in a meta-analysis | | | | Yes |
| | AND they used an appropriate weighted technique to combine study results, adjusting for heterogeneity if present | | | | No |
| | AND they statistically combined effect estimates from NRSI that were adjusted for confounding, rather than combining raw data, or justified combining raw data when adjusted effect estimates were not available | | | x | No meta-analysis conducted |
| | AND they reported separate summary estimates for RCTs and NRSI separately when both were included in the review | | | | |
| 12. If meta-analysis was performed, did the review authors assess the potential impact of RoB in individual studies on the results of the meta-analysis or other evidence synthesis? | | | | | |
| For Yes | | | | | |

| | | | |
|---|---|----|---|
| | included only low risk of bias RCTs | | Yes |
| | OR, if the pooled estimate was based on RCTs and/or NRSI at variable RoB, the authors performed analyses to investigate possible impact of RoB on summary estimates of effect. | x | No No meta-analysis conducted |
| 13. Did the review authors account for RoB in individual studies when interpreting/ discussing the results of the review? | | | |
| For Yes | | | |
| | included only low risk of bias RCTs | na | Yes |
| | OR, if RCTs with moderate or high RoB, or NRSI were included the review provided a discussion of the likely impact of RoB on the results | | No |
| 14. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review? | | | |
| For Yes | | | |
| | There was no significant heterogeneity in the results | na | Yes |
| | OR if heterogeneity was present the authors performed an investigation of sources of any heterogeneity in the results and discussed the impact of this on the results of the review | | No |
| 15. If they performed quantitative synthesis did the review authors carry out an adequate investigation of publication bias (small study bias) and discuss its likely impact on the results of the review? | | | |
| For Yes | | | |
| | performed graphical or statistical tests for publication bias and discussed the likelihood and magnitude of impact of publication bias | | Yes No No meta-analysis conducted |
| | | x | No meta-analysis conducted |
| 16. Did the review authors report any potential sources of conflict of interest, including any funding they received for conducting the review? | | | |
| For Yes | | | |
| x | The authors reported no competing interests OR | x | Yes |
| | The authors described their funding sources and how they managed potential conflicts of interest | | No |
| Your overall assessment of the risk of bias of this systematic review | | | |
| Moderate | | | |

| | | | | | |
|---|------------------------------|---|--|---|-------------|
| AMSTAR 2 checklist, critical questions | | | | | |
| REF: Zhao et al 2016 | | | | | |
| 1. Did the research questions and inclusion criteria for the review include the components of PICO? | | | | | |
| For Yes | | | Optional (recommended) | | |
| x | Population | | Timeframe for follow up | x | Yes |
| x | Intervention | | | | No |
| x | Comparator group | | | | |
| x | Outcome | | | | |
| 2. Did the report of the review contain an explicit statement that the review methods were established prior to the conduct of the review and did the report justify any significant deviations from the protocol? | | | | | |
| For Partial Yes: The authors state that they had a written protocol or guide that included ALL the following: | | | For Yes: As for partial yes, plus the protocol should be registered and should also have specified: | | |
| x | review question(s) | x | a meta-analysis/ synthesis plan, if appropriate, and | x | Yes |
| x | a search strategy | x | a plan for investigating causes of heterogeneity | | Partial Yes |
| x | inclusion/exclusion criteria | | | | No |
| x | a risk of bias assessment | | | | |

| | | | | | |
|--|--|--|--|---|---------------|
| 3. Did the review authors explain their selection of the study designs for inclusion in the review? | | | | | |
| For Yes, the review should satisfy ONE of the following: | | | | x | Yes |
| | Explanation for including only RCTs | | | | No |
| x | OR Explanation for including only NRSI | | | | |
| | OR Explanation for including both RCTs and NRSI | | | | |
| 4. Did the review authors use a comprehensive literature search strategy? | | | | | |
| For Partial Yes (all the following): | | For Yes, should also have (all the following): | | | Yes |
| x | searched at least 2 databases (relevant to research question) | x | searched the reference lists / bibliographies of included studies | x | Partial Yes |
| x | provided key word and/or search strategy | | searched trial/study registries | | No |
| x | justified publication restrictions (e.g. language) | | included/consulted content experts in the field | | |
| | | | where relevant, searched for grey literature | | |
| | | x | conducted search within 24 months of completion of the review | | |
| 5. Did the review authors perform study selection in duplicate? | | | | | |
| For Yes, either ONE of the following: | | | | | |
| x | at least two reviewers independently agreed on selection of eligible studies and achieved consensus on which studies to include | | | x | Yes |
| | OR two reviewers selected a sample of eligible studies and achieved good agreement (at least 80 percent), with the remainder selected by one reviewer. | | | | No |
| 6. Did the review authors perform data extraction in duplicate? | | | | | |
| For Yes, either ONE of the following: | | | | | |
| x | at least two reviewers achieved consensus on which data to extract from included studies | | | x | Yes |
| | OR two reviewers extracted data from a sample of eligible studies and achieved good agreement (at least 80 percent), with the remainder extracted by one reviewer. | | | | No |
| 7. Did the review authors provide a list of excluded studies and justify the exclusions? | | | | | |
| For Partial Yes: | | For Yes, must also have: | | | |
| x | provided a list of all potentially relevant studies that were read in full-text form but excluded from the review | | Justified the exclusion from the review of each potentially relevant study | | Yes |
| | | | | x | Partial Yes |
| | | | | | No |
| 8. Did the review authors describe the included studies in adequate detail? | | | | | |
| For Partial Yes (ALL the following): | | For Yes, should also have ALL the following: | | | |
| x | described populations | | described population in detail | | Yes |
| x | described interventions | | described intervention in detail (including doses where relevant) | x | Partially Yes |
| x | described comparators | | described comparator in detail (including doses where relevant) | | No |
| x | described outcomes | x | <input type="checkbox"/> described study's setting | | |
| x | described research designs | | timeframe for follow-up | | |
| 9. Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review? | | | | | |
| RCTs | | | | | |
| For Partial Yes, must have assessed RoB from | | For Yes, must also have assessed RoB from: | | | |
| | unconcealed allocation, and | | allocation sequence that was not truly random, and | | Yes |

| | | | | | |
|---|--|---|--|----|----------------------------|
| | lack of blinding of patients and assessors when assessing outcomes (unnecessary for objective outcomes such as all-cause mortality) | | selection of the reported result from among multiple measurements or analyses of a specified outcome | | Partial Yes |
| | | | | | No |
| | | | | x | Includes only NRSI |
| NRSI | | | | | |
| For Partial Yes, must have assessed RoB from | | | For Yes, must also have assessed RoB from: | | |
| x | from confounding, and | x | methods used to ascertain exposures and outcomes, and | x | Yes |
| | | | | | Partial Yes |
| x | from selection bias | x | selection of the reported result from among multiple measurements or analyses of a specified outcome | | No |
| | | | | | Includes only RCT |
| 10. Did the review authors report on the sources of funding for the studies included in the review? | | | | | |
| For Yes | | | | | |
| x | Must have reported on the sources of funding for individual studies included in the review. Note: Reporting that the reviewers looked for this information but it was not reported by study authors also qualifies | | | | Yes |
| | | | | x | No |
| 11. If meta-analysis was performed did the review authors use appropriate methods for statistical combination of results? | | | | | |
| RCTs | | | | | |
| For Yes | | | | | |
| | The authors justified combining the data in a meta-analysis | | | | Yes |
| | AND they used an appropriate weighted technique to combine study results and adjusted for heterogeneity if present. | | | | No |
| | AND investigated the causes of any heterogeneity | | | na | No meta-analysis conducted |
| For NRSI | | | | | |
| For Yes | | | | | |
| x | The authors justified combining the data in a meta-analysis | | | x | Yes |
| x | AND they used an appropriate weighted technique to combine study results, adjusting for heterogeneity if present | | | | No |
| x | AND they statistically combined effect estimates from NRSI that were adjusted for confounding, rather than combining raw data, or justified combining raw data when adjusted effect estimates were not available | | | | No meta-analysis conducted |
| | AND they reported separate summary estimates for RCTs and NRSI separately when both were included in the review | | | | |
| 12. If meta-analysis was performed, did the review authors assess the potential impact of RoB in individual studies on the results of the meta-analysis or other evidence synthesis? | | | | | |
| For Yes | | | | | |
| | included only low risk of bias RCTs | | | x | Yes |
| x | OR, if the pooled estimate was based on RCTs and/or NRSI at variable RoB, the authors performed analyses to investigate possible impact of RoB on summary estimates of effect. | | | | No |
| | | | | | No meta-analysis conducted |
| 13. Did the review authors account for RoB in individual studies when interpreting/ discussing the results of the review? | | | | | |
| For Yes | | | | | |
| x | included only low risk of bias RCTs | | | x | Yes |
| | OR, if RCTs with moderate or high RoB, or NRSI were included the review provided a discussion of the likely impact of RoB on the results | | | | No |
| 14. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review? | | | | | |
| For Yes | | | | | |
| | There was no significant heterogeneity in the results | | | x | Yes |

| | | | |
|---|---|---|----------------------------|
| x | OR if heterogeneity was present the authors performed an investigation of sources of any heterogeneity in the results and discussed the impact of this on the results of the review | | No |
| 15. If they performed quantitative synthesis did the review authors carry out an adequate investigation of publication bias (small study bias) and discuss its likely impact on the results of the review? | | | |
| For Yes | | | |
| x | performed graphical or statistical tests for publication bias and discussed the likelihood and magnitude of impact of publication bias | x | Yes |
| | | | No |
| | | | No meta-analysis conducted |
| 16. Did the review authors report any potential sources of conflict of interest, including any funding they received for conducting the review? | | | |
| For Yes | | | |
| x | The authors reported no competing interests OR | x | Yes |
| | The authors described their funding sources and how they managed potential conflicts of interest | | No |
| <i>Your overall assessment of the risk of bias of this systematic review</i> | | | |
| High | | | |

Published by the Norwegian Institute of Public Health

October 2021

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