

Call of Abstracts - "International conference on the E-Cigarette: patterns of use and health impacts"



Call of abstracts

"International conference on the E-Cigarette: patterns of use and health impacts" - Paris, on 5-6th December 2022

Submission form

Poster & oral presentation

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Chemical Profiles and Toxicity of Electronic Cigarettes: An Umbrella Review

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Abstract details (poster & oral)

Background, method, results and conclusions

BACKGROUND: Electronic cigarettes (ECs) are nicotine delivery systems that simulate tobacco

smoking and are often marketed as a safer alternative to combustible tobacco products. The global market for ECs has rapidly expanded since their introduction, requiring research describing their chemical constituents and potential health effects so that evidence-based regulations can limit their potential harm. We conducted an umbrella review to better understand the current evidence on EC chemical profiles and toxicity.

METHODS: The search for systematic reviews examining chemical constituents of ECs and their toxicity was conducted across five electronic databases through January 25th, 2022. Methodological quality was assessed using the AMSTAR-2 quality appraisal tool.

RESULTS: Twenty-five reviews were eligible for inclusions with twenty reviewing chemical profiles and fourteen reviewing their toxicity. Chemical profiles of ECs varied widely across studies, which was attributed to lack of standardized protocols. Metals were found to be more abundant in EC vapors compared to conventional cigarettes (CCs) and carbonyls were typically found at lower levels. Toxicity evidence from human studies was considered weak, but reviews generally agreed that evidence suggests that ECs are less harmful than CCs. The quality appraisal revealed important limitations across reviews, including a lack of adherence to pre-registered protocols and a need for standardized methodology for conducting a review.

CONCLUSION: While most reviews concluded that ECs are likely less harmful than CCs, reviewers were hesitant to draw major conclusions because of variable analytical procedures and inconsistent findings within and between their included studies. This umbrella review identifies methodological issues and areas of needed research within EC toxicity, constituents, and systematic reviews alike.

Main messages

Future systematic reviews with improved methodology and reporting are needed to ensure clear and reliable evidence on the chemical profile and toxicity of ECs to inform tobacco regulatory actions.

Type of study / research

Systematic review

Geography of the study

International (including Europe)

Funding of study

Federal source

Yes

State source

No

Nonprofit Grant Funding Entity Source

No

Nonprofit Grant Funding Entity Source

No

Academic Institution Source

No

Pharmaceutical Industry Source

No

Tobacco/E-Cigarette Industry Source

No

Declaration of interest

The submitter declares that during the past 5 years have a direct nor indirect link (professional*, personal or financial) with the tobacco and e-cigarette companies**

No