Journal Club

The Logic

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There is a scientific and medical consensus that cigarette smoking is causally related to lung cancer, heart disease, chronic obstructive pulmonary emphysema and other serious diseases in smokers. Tobacco smoke is a mixture of toxic and carcinogenic substances, containing more than 8000 chemicals produced by pyrolysis and combustion reactions. Exposure to environmental tobacco smoke (ETS) called secondhand smoke (SHS) or passive smoke, also causes diseases.

Electronic cigarettes (EC) are battery-powered devices that either produce an aerosol, from a water-based solution, containing a mixture of nicotine, glycerin, propylene glycol, and flavoring chemicals, or a hybrid EC (iQOS) that heats a small tobacco plug just enough to release a flavorful nicotine-containing vapor but without burning the tobacco. A key difference between conventional cigarettes and iQOS is that the tobacco in a cigarette burns at temperatures higher than 600 °C, generating smoke that contains harmful chemicals. In contrast, the tobacco in the iQOS is heated up to temperature below 350 °C to produce lesser amounts of air toxics.

Nowadays, the use of electronic cigarettes, both the E-liquid nicotine delivery systems (NDS) and the heat-not-burn tobacco (HNBT), has increased among adult demographics. Particulate matters (ultrafine particle, PM1, PM2.5 and PM10), black carbon, carbon monoxide and carbon dioxide emissions from the different devices were substantially lower compared to those from traditional cigarettes (TCs). Although the levels of pollutants emitted by e-cigarettes are lower compared to those from the TCs, they are still a source of environmental air pollutants.

Recent Documents:

1. Saffari A, Daher N, Ruorecht A, et al. Particulate metals and organic compounds fromelectronic and tobacco-containing cigarettes: comparison of emission rates and secondhand exposure. Environ Sci: Processes Impacts 2014; 16;2259-67.
2. Ruprecht AA, De Marco C, Saffari A, et al. Environmental pollution and emission factors of electronic cigarettes, heat-not-burn tobacco products, and conventional cigarettes. Aerosol Science and Technology 2017; 51(6): 674-84.
3. Liu J, Liang Q, Oldham MJ, et al. Determination of Selected Chemical Levels in Room Air and on Surfaces after the use of Cartridge- and Tank-Based E-Vapor Products or Conventional Cigarettes. Int. J. Environ. Res. Public Health 2017; 14: 969; doi:103390/ijerph14090969
4. Protano C, Avino P, Manigrasso M, et al. Environmental Electronic Vape Exposure from Four Different Generations of Electronic Cigarettes: Airborne Particulate Matter Levels. Int.J.Environ.Res.Public Health 2018;15:2172;doi:10.3390/ijerph15102172
5. Savdie J, Canha N, Buitrago N, et al. Passive Exposure to Pollutants from a New Generation of Cigarettes in Real life Scenarios. Int. J. Environ. Res. Public Health 2020, 17: 3455; doi:10.3390/ijerph17103455