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European Network for Smoking and Tobacco Prevention

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COVID-19 pandemic and smoking behavior:
An elevated risk and a golden opportunity for quitting

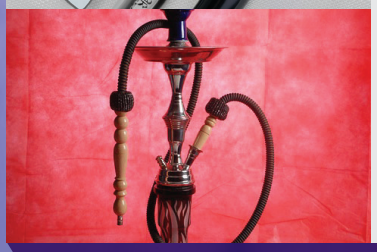
The facts:

Smoking is a risk factor for many diseases and kills more than 8 million people globally every year. It is well established that any kind of smoking is harmful and seriously affects the cardiovascular and respiratory systems (1,2). COVID-19 can harm cardiovascular and respiratory systems while the damage caused to the lungs by smoking makes patients more susceptible to pulmonary infections, both bacterial and viral (3). Data from China, where the pandemic started, showed that people with health conditions in these two systems caused by tobacco use are at a higher risk of developing severe COVID-19 symptoms (4). According to another recent study findings, smoking can upregulate an enzyme receptor called ACE2 which is known as a receptor for both SARS-coronavirus and the human respiratory coronavirus NL638 (5).

Below are the most recent epidemiological data from the studies already published from China:

- Zhou et al. found that among those who were infected with COVID-19 and died, 9% were current smokers compared to 4% among those that survived (6).
- Zhang et al. found that among severe patients, 3.4% were current smokers and 6.9% were former smokers, in contrast to non-severe cases among which 0% were current smokers and 3.7% were former smokers, leading to an OR of 2.23; (95% CI: 0.65–7.63; p=0.2) (7).
- Guan et al. conducted the largest study population of 1099 patients with COVID-19. They found that among the patients with severe symptoms, 16.9% were current smokers and 5.2% were former smokers, in contrast to patients with non-severe symptoms where 11.8% were current smokers and 1.3% were former smokers. In the group of patients that either needed mechanical ventilation, admission to an ICU or died, 25.5% were current smokers and 7.6% were former smokers (8).
- Liu et al. found that among the patients with severe symptoms, 16.9% were current smokers and 5.2% were former smokers while the history of smoking was a risk factor of disease progression (OR=14.28; 95% CI: 1.58–25.00; p= 0.018) (9).

Finally, a systematic review of the above studies on COVID-19, concluded that smokers suffer more severely from COVID-19, being 2.4 times more likely to be admitted to an ICU, need mechanical ventilation or die compared to non-smokers (95% CI: 1.43–4.04); it seems that their probability of having severe symptoms is also increased (Δ: 40%) (10).



These results seen in smokers further raise the question of whether this also applies to people who use waterpipe (11) or have switched over to more "safer" alternatives such as electronic cigarettes and heated tobacco products

It is important to note here that regardless if they produce vapor or smoke, they can still produce infectious lung damage as traditional cigarettes do and therefore they can not be considered as "safer" options (12,13,14)

Scientific evidence of COVID-19 disaggregated by sex, also depict that men may be more vulnerable than women in terms of confirmed cases and deaths. Nine out of the first 13 countries that reported confirmed cases by sex, reported more cases among men. Similarly, four out of the first six countries (China, France, Germany, Iran, Italy, South Korea), that also reported mortality by sex, found that the proportion of deaths among confirmed cases on the same day, is higher in men than women, being the difference more than 50% (15).

Summarized evidence for smokers and novel product users:

- ☒ Smoking increases the rates of experiencing severe COVID-19 symptoms
- ☒ Smoking increases the rates of mechanical ventilation, admission to an ICU or death
- ☒ Use of e-cigarettes and heated tobacco products are not "safer" choices and may lead to increased danger to severe symptoms and hospitalization
- ☒ Waterpipes may be a catalyst for social gatherings and increase the disease transmission
- ☒ Exposure to second-hand smoke and may lead to an increased risk of severe symptoms and hospitalization
- ☒ Quitting smoking could help to reduce, at the long term, the sanitary burden of COVID-19

ENSP Recommendations:

Smokers, as a vulnerable group, must be supported to quit

For those who cannot quit smoking immediately, an option is to reduce the number of cigarettes they smoke per day. Although this does not properly reduce the risks, it may increase the chances of quitting at medium term and reduce future consequences of COVID-19

As high-risk population, smokers should avoid places where they may be exposed to COVID-19

Tobacco, e-cigarette, heated tobacco products and waterpipe users are possibly less likely to be infected if they quit, because this would hugely reduce the number of hands-face contacts and, with waterpipes, the consequences of equipment sharing and social gathering

As quitting smoking has immediate results in improving lung and cardiovascular function, this would help in better managing the comorbid conditions and also possibly produce less severe symptoms in case of COVID-19 infection

Although quitting is not always easy, quit smoking medications increase, by at least a factor of two, the chances of achieving long term abstinence. They may also ease withdrawal symptoms

Behavioural counselling and coping technics can be helpful for people trying to quit smoking

Telephone services and quit-lines, (in countries that provide this kind of support), can provide information and support for smokers

Digital platforms can provide material or assistance to those who want to quit smoking. ENSP e-learning platform provides an accredited on-line training program, tools and material for healthcare professionals who want to help their patients quit smoking **(http://elearning-ensp.eu/)**

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