Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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identify the suitable COVID19 disinfection chemicals for the different RTEs used in H2S/SO2 escape sets used in the Hydrocarbon industry.

### Changes in air quality inside vehicles and in working conditions of professional drivers during COVID-19 pandemic, in Paris area

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**Introduction:** During COVID-19 crisis, we evaluated the impact of the first lockdown restriction measures (March –May 2020) in Paris area on (1) the variation of in-vehicle ultrafine particle (UFP) and black carbon (BC) concentrations between pre- and post-lockdown period and (2) the professional drivers working conditions and practices.

**Material and Methods:** The study was conducted in 33 taxi drivers. UFP and BC were measured inside their vehicles with DiSCmini® and microAeth®, respectively, on two typical working days pre- and post-lockdown. The job-related characteristics were self-reported.

**Results:** Our results showed that post-lockdown, the number of clients significantly decreased as well as the taxi drivers journey duration. Taxi drivers significantly opened more their windows and reduced the use of air recirculation. UFP decreased significantly by 32% and BC by 31% post-lockdown, with a weaker positive correlation compared to pre-lockdown. The reduction of in-vehicle UFP was explained mainly by the reduction of traffic flow and ventilation settings, though the latter probably varied according to the traffic condition. No predictor explained the variation of in-vehicle BC concentration between pre- and post-lockdown, suggesting different sources of UFP and BC. The road traffic was not anymore the dominant source of BC post-lockdown.

**Conclusion:** We emphasize the role of traffic emissions on in-vehicle air pollution and that preventive measures such ventilation settings will help to better manage air quality inside vehicle in order to minimize exposure of professional drivers, as well as passengers, to air pollutants.

### A blueprint for well-designed, high-performing cloth masks that can outperform a 3-layered surgical mask

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**Introduction:** During COVID-19, due to the worldwide shortages of medical masks, homemade cloth masks became a mainstay of the pandemic. The CDC and WHO recommend the use of homemade cloth masks. However, there is insufficient evidence on the performance: respiratory droplet blocking ability, water-resistant capacity, breathability, and washability of commonly used fabrics to design high-performing cloth masks that can outperform medical masks.

**Material and Methods:** We conducted a series of experiments on aerosol blocking (using healthy volunteers sneeze, image-based flow measurement technique), water-resistant, breathability, and washability to evaluate all dimensions of protection of 17 different commonly available fabrics and their layered combinations.

**Results:** The research provides a blueprint for the optimal design of a high-performing cloth mask that can outperform a 3-layered surgical mask. A minimum of 3 layers is recommended to provide the performance of surgical masks. A combination of cotton/linen for the inner layer, blends for the middle—layer, and polyester/nylon for the outer—layer. The average thread count (threads contained in one square inch) should be greater than 200, and the porosity (percent of pores in a fabric) should be less than 2 %. Increasing the number of layers increases the droplet blocking efficiency by approximately 20 times per additional fabric layer. Machine washing at 60 °C did not affect the performance of cloth masks.

**Conclusions:** These results and visualizations can assist people in preparing effective homemade cloth masks during the ongoing COVID-19 pandemic and future epidemics.

### Using Health-Related Behaviour Change Program For Control Of Covid-19 At Workplaces: How It Works

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**Introduction:** The COVID-19 pandemic which is caused by severe acute respiratory syndrome — coronavirus 2 (SARS-CoV-2), has ravaged the world enormously, creating a huge pandemonium among public health, and occupational health and safety authorities. The virus is an enveloped RNA virus, transmitted directly or indirectly via airborne route or contact with contaminated fomites. Studies have shown that transmission occurs rapidly among humans because of poor health — related behaviour frequently exhibited. Although, necessary information on COVID-19 is accessible on all media platforms, the consistent poor response to safety guidelines by individuals at home, public settings and workplaces has aided the prolonged duration of the pandemic. In addition, it has been reported that individuals can be reorientated to behave appropriately via specialized and structured programs. Hence, I hereby propose the use of health — related behaviour change (HRBC) program for control of COVID-19 at workplaces.

**Materials and Methods:** The HRBC program for control of COVID-19 at workplaces requires strict adherence to the following measures: development, implementation, and enforcement of workplace policy for COVID-19; workshops; penalty and reward system; workers engagement via whistleblowing; use of educative videos in eating areas; COVID-19 safety tips in daily toolbox talks; and quarterly performance review.
Results: Quarterly review should show increased healthy behaviours and decline in infection rate among employees.
Conclusion: HRBC program is the future of workplace measure for control of COVID-19 and other infectious diseases.

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Health Impact and Psychosocial Perceptions of SARS-CoV-2 Exposure among French Hospital Workers: A Cross-Sectional Survey

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Introduction: In 2020, the COVID-19 pandemic had an important effect on healthcare systems, including their healthcare workers (HCW). Studies on HCW well-being and mental health have regularly reported problems associated with their occupational activities during epidemics. The aim of this study is to describe the mental health impact and psychosocial perception of hospital workers one year after the first peak of the COVID-19 outbreak in France.

Methods: The validated SATIN questionnaire was used to collect data on health and psychosocial factors. It was sent and self-administered online in July 2021. In a multinomial regression model we included covariates: HCW status, age, gender, frontline worker, SARS-CoV-2 status.

Results: Data from a total of 830 participants were included (64% were HCW). We found that worries about infection for oneself is a risk factor for negative perception of global health (OR 1.5 95% CI [1.029-2.199]), work demand (OR 1.8 [1.2-2.5]), work environment (OR 1.8 [1.3-2.5]), organizational context (OR 1.9 [1.1-3.3]), for psychosomatic symptoms (OR 2.1 [1.1-3.9]) and stress (OR 1.8 [2.1-1.3]).

Conclusion: We have shown that uncertainty about SARS-CoV-2 infection has an high mental health impact in hospital workers. Actions on information, training, organizational context and appropriate protective equipment are useful and needed.

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Work Engagement, Job Demands and Burnout among Croatian Health Care Workers during the Coronavirus Disease 2019 Pandemic

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Introduction: As the world is fighting COVID-19 pandemic, healthcare workers (HCWs) keep struggling with increased stress at work and consequential mental health disorders. The aim of our study was to assess workplace characteristics and the development of burnout in HCWs during COVID-19 pandemic.

Materials and Methods: This study was designed, developed and ethically approved by the South East European (SEE) Network on Workers’ Health in cooperation with SEE Health Network. During the autumn of 2020, an online anonymous survey was conducted among HCWs in Croatia. A total sample of 300 HCWs answered the Maslach Burnout Inventory, Utrecht Work Engagement Scale and Job Demands and Resources Questionnaires.

Results: Hospital nurses made up the majority (68.0%) of participants. The highest level of job demands (3.92±0.63) was at physical level: excessive workload at a hospital or unit, time pressure, and lack of staff and supplies. No significant correlations were found between physical job demands and age, gender, work tenure and working hours. The highest significant positive correlation was found between organizational job demands and emotional exhaustion (r=0.455, P<0.001). Emotional job demands moderately and positively correlated with depersonalization (r=0.373, P<0.001).

Conclusions: HCWs’ workplaces have significantly changed during the COVID-19 pandemic and become substantially hazardous for mental health. Preventive measures need to be implemented urgently and should be primarily focused on excessive workload reduction with additional emotional support to reduce burnout rates and preserve HCW’s work ability.

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Respiratory And Non-Respiratory Symptoms In Health Care Professionals Infected With Sars-CoV-2 – Reported Cases In The First Wave Of Covid-19 In A Portuguese Occupational Health Service

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INTRODUCTION: Healthcare professionals are among the main risk groups for COVID-19 and can also be a source of transmission to patients to whom they provide care. The identification of symptoms is important in the clinical presumption of COVID-19. However, the infection may be asymptomatic or paucisymptomatic.

MATERIAL AND METHODS: Cross-sectional study, with retrospective analysis of the clinical records of health professionals who went by self-initiative to the Occupational Health Service of a University Hospital Center, between March and August 2020, for presenting symptoms, risk contact with a confirmed case of COVID-19, or by both and, who in this context, performed the RT PCR SARS-CoV-2 test.

RESULTS: 613 professionals were evaluated. Of the 420 symptom-positive professionals, 19 were positive for COVID-19, versus 11 among the 242 who had no respiratory symptoms, not being difference statistically significant (95% CI; p = 0.009). In turn, of the 371 who had respiratory symptoms, 19 were positive for COVID-19, versus 11 among the 242 who had no respiratory symptoms, not being difference statistically significant (95% CI; p = 0.75). Nasal congestion and rhinorrhea were the respiratory symptoms with the highest proportion of positive cases (11.43% and 8.97%, respectively).

CONCLUSIONS: Although COVID-19 is typically associated with respiratory symptoms, not all these symptoms were predictive of infection. The highest proportion of positive cases was not respiratory symptoms, not being difference statistically significant (95% CI; p = 0.009). Nasal congestion and rhinorrhea were the respiratory symptoms with the highest proportion of positive cases (11.43% and 8.97%, respectively).

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Teleworking, Work Engagement and Intention to Quit During the COVID-19 Pandemic: A Study Examining the Effects of Individual and Organizational Characteristics

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