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The COVID-19 pandemic and Occupational Medicine: impact and opportunities

Workers have paid the highest toll, in terms of morbidity and mortality, of the COVID-19 pandemic, especially those employed in so-called 'essential' activities (e.g. health care, manufacturing), and the actual global occupational health burden is difficult to estimate (1,2).

Paradoxically, this public health 'tsunami' was an opportunity for Occupational Medicine to highlight, and in many cases to make people aware of, the centrality of its role in protecting the health not only of workers but also of the entire community. Indeed, occupational physicians have been instrumental in developing an integrated preventive management system where they have coordinated the collaboration of public health departments, hospital health and risk management departments and other healthcare professionals, including microbiologists, virologists, and infectious disease specialists. Apart from the early phase of the pandemic – due to the organisational difficulties and lack of personal protective equipment (PPE) - the role played by occupational physicians was able to help reduce the impact of COVID-19 among workers of essential activities, especially healthcare personnel (3).

Occupational Medicine was one of the most important bulwarks against the first epidemic wave, thanks to its experience and expertise in the assessment, prevention and management of biological risks. Furthermore, the occupational health surveillance, never interrupted during the pandemic, has safeguarded the health of the healthcare workforce and, therefore, the hospitals from collapsing, ensuring early identification, treatment and quarantine of COVID-19 cases, and subsequent management and return to work of the healed. Collaboration with the hospital management and local health authorities was of paramount importance. It demonstrated how only a coordinated multidisciplinary approach among the different levels of public health could lead to effective and efficient preventive measures. In addition, occupational medicine has been fundamental in the COVID-19 vaccination of healthcare workers, not only in its mere execution but also in its promotion through individual information and counselling programs that helped minimise the initial vaccination hesitancy.

In pandemic management, the Italian Society of Occupational Medicine was able to translate scientific evidence into pragmatic guidelines, furnishing practical and effective tools to occupational physicians. Further, it has played a key role in recognising and compensating SARS-CoV-2 infection as a work accident by INAIL (the Italian institute for insurance against occupational diseases and accidents at work), especially in the most severely affected healthcare professionals during the first pandemic wave (4). Governments should bear the individual and social costs of the COVID-19 pandemic that has sadly accentuated inequalities between those who could and those who could not choose to go to the workplace (5).

We should also reflect on our mistakes for better planning of the management of this and future pandemics. We need not only standardised infectious control procedures and adequate stocks of PPE but also an integrated organisation and coordination of public health at a local level and better management and communication of risk. However, there are still many doubts and unknowns related to the air transmission of the virus, which has important repercussions on what should be the most effective and efficient measures in preventing viral spread. Furthermore, if most of the literature evidence of the COVID-19 occupational health impact belongs to the health and social care sector, there is still an important knowledge gap in other

occupational settings where it seems that only sporadic outbreaks have emerged such as in the slaughtering industry (6). Epidemiological studies and active health surveillance programs would be necessary to identify the occupational, individual, and social factors at the origin of these outbreaks. For example, in the slaughtering sector, where not only possible occupational exposure to infection by infected animals or meat is hypothesised, but also from workstations without suitable spacing or ventilation or from social causes linked to overcrowding and poor hygiene conditions of the homes of migrant workers, who are often employed in this sector (7, 8).

Occupational exposure to a variety of pollutants (e.g. gases, particulate matters, metals) might lead to more severe outcomes or the broad spectrum of long-term sequelae (the so-called 'long-COVID-19') among COVID-19 survivors. On the other hand, such exposures should be avoided when workers suffering from the most severe COVID-19 clinical forms resume their job. Therefore, we should further investigate COVID-19 sequelae, possibly leading to a substantial burden of morbidity and long-term workforce's disability that will need to be managed and compensated. These open questions are even more relevant considering that SARS-CoV-2 is likely to become an endemic virus in the world population. Hopefully, the current COVID-19 pandemic is an opportunity to return to the centrality of public health and occupational medicine as its essential bulwark since the population's health can only pass through the protection of its workers.

Finally, the pandemic changed the work organisation (e.g. home working, smart working), and the revolution initiated or accelerated by COVID-19 seems irreversible. Therefore, it will be necessary to study and understand this critical step change to support a new model of occupational risk assessment, risk management, and medical surveillance. Also, the international scientific occupational health societies should provide evidence-based guidelines to help and guide occupational physicians and allied professionals in their response to the new demands from the public and private prevention systems.

Is the combined preventive approach of vaccination, handwashing, PPE, and social distancing worth it? The available evidence suggests that undoubtedly it has been. Excess total mortality in 2021 in Italy was reduced to one-third of that observed in 2020 following the introduction of mass vaccination (9). A recent systematic review indicates that part of such a reduction can be ascribed to hygienic measures, i.e. PPE, physical distancing, and handwashing (10). However, evidence suggests that even a national lockdown was ineffective. Thus, the lack of a suitable vaccine was the most critical determinant for the deadly diffusion of SARS-CoV-2 during the first semester of 2020. Its introduction since the end of December 2020 is the main determinant accounting for the mitigations of the SARS-CoV-2 infection's deadly consequences in 2021.

A common weakness of public – and hence occupational health – studies is their observational nature, including natural experiments. As a result, the effects are likely to result from "bundles" of protective behaviours rather than single interventions. We lack even this level of evidence to weigh up the benefits and harms of lockdowns, quarantine, closures of schools and workplaces, or increased indoor ventilation and outdoor socialising. Despite the huge literature accumulated during the last two years, there is a pandemic's evidence vacuum which has undoubtedly contributed to the surge of legions of loud deniers refusing both the vaccine and preventive measures ensuring safety from virus infection at work and during leisure time.

We are in the midst of an escalating hospital staffing crisis. Those currently working in the health service are stretched far beyond what is reasonable or safe for health care workers or their patients. How can we make healthcare more sustainable for those working in it?

A discussion has been open at the recent 83rd Congress on Occupational Medicine (Parma, 15-17 September 2021). The debate conclusions have been: first, in the daily activities of occupational physicians,

we must reconsider providing low-value interventions, where the harms or costs outweigh the benefits, thus with a negative cost/benefit balance. Second, we must press our governments to invest in public health, of which occupational medicine is becoming an essential branch to avoid the implosion of work settings, including hospitals.

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