



Covid-19 Infected Patients: Masks and Filtering Facepiece Respirators and Measures to be taken

Roberta G*

Department of Radiology, INT Tumor Institute of Naples, Italy

***Corresponding author:** Galdiero Roberta, Department of Radiology, INT Tumor Institute of Naples, Italy, Tel: 3351364613; Email: galdiero@istitutotumori.na.it

Editorial

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Abbreviations: WHO: World Health Organization; SARS-CoV2: Severe Acute Respiratory Syndrome-Coronavirus-2; PPE: Personal Protective Equipment; FFRs: Filtering Facepiece Respirators.

Editorial

The recent outbreak of novel coronavirus SARS-CoV-2 has become a pandemic threat to human population across the world, hence declared as a public health emergency of international concern by World Health Organization (WHO) on 30th January 2020. Coronavirus Disease affecting the whole world has loaded exceptional work on the health care systems of all countries, and the risk of viral transmission to the health professionals increases every day. That's why precautionary measures must be employed immediately for emergency cases.

One of the most debated issues in the prevention of SARS-CoV2 (severe acute respiratory syndrome-Coronavirus-2) is the alternative use of surgical masks (medical devices) and FFP2 and FFP3 facial filters (PPE personal protective equipment). Because of the high contagiousness of the virus and in order to prevent the possibility that hospital itself becoming a cluster of infection, all prevention and protection measures should be taken and implemented for all health-care workers. Based on the available evidence, the US Centers for Disease Control and Prevention and the European Centre for Prevention and Control, recommend airborne precautions for any situation involving the care of Covid-19 patients [1,2].

Therefore, all medical personnel should be equipped with specific Personal Protective Equipment when performing examinations on Covid-19 patients [3]. A complete personal protection including whole body and eye protection (mask, apron, cap, face covers) is imperative.

There are various types of airborne protection for health care workers, and one of the most current topics of discussion in the scientific world is the use of surgical masks and Filtering Facepiece Respirators [4]. In daily clinical practice, outside of pandemic period, surgical masks are medical devices and generally used mainly by surgeons and other operators to protect the patient from contamination that can result from the emission of small drops by the wearer while talking or simply breathes. On the other hand, surgical masks do not protect the wearer from infections droplets [5,6].

According to the European standard, Filtering Facepiece Respirators (FFRs) are classified into three classes: FFP1, FFP2 and FFP3 with corresponding minimum filtration efficiencies of 80%, 94% and 99%. Therefore, FFRs are part of "personal protective equipment" (PPE) and are intended to be used in the prevention of airborne infectious diseases. They are inlet filters for the operator and their main function is to protect the airways of the wearer from external agents, including aerosols. They do not protect against gases and vapors and, for the protection against micro-organisms, only FFP2 and FFP3 (or facial filters with P2 or P3 filters) can be considered suitable. There are two types: with and without interchangeable filter. All masks may or may not have an exhalation valve which has the function of allowing the exhalation without filtration, in order to reduce the expiratory resistance for the wearer [7]. The purpose in these cases is also to facilitate its use for long periods and minimize the discomfort and to extend the duration of the PPE. It is essential to correctly wear the respirator, that there is no hair on the face at the contact points (moustache, beard) and that it is kept in the correct position including nose and mouth for the entire duration of exposure to the contaminant.

As reported in some studies, the infected person during even simple acts, such as talking, coughing or sneezing or

simply breathing, produces a cloud of aerosols and particles of various diameters, even a few microns, however certainly less than 10 microns coded for droplets and not so easily catalogued with respect to the path, distance, distribution. These particles are also variable according to the source of emission and the environment in which they distribute. Airborne transmission in some cases has even been hypothesized for Covid 19 even in asymptomatic patients. Once this transmission route has been hypothesized, it's easy to deduce that additional protective measures must be implemented beyond those indicated by any authorities, such as respiratory tract protection with minimum FFP2 facial filters [8-11].

It is well known that Covid 19 causes respiratory tract infections with several clinical symptoms such as runny nose, sore throat, fever, cough and breathing problems. However if a person is immunocompromised or has underlying any kind of cardiopulmonary disease, than it can result in pneumonia or bronchitis and severity will be stronger. If the infection is not detected and treated early can lead to life-threatening respiratory failure and even death [12,13]. Apart from respiratory tract infections the presence of coronaviruses were also reported in tears and gastrointestinal tract. Respiratory viruses such as Sars-Co-V-2 are capable of inducing ocular infections such as conjunctivitis or uveitis if not protected [14,15].

In previous outbreaks of influenza and coronavirus (i.e. MERS and SARS coronaviruses), ocular implications like conjunctivitis are well-recognized. Also in Covid-19 disease ocular involvement is demonstrated by viral findings in tears. That emphasized the need for necessary precautions to prevent potential transmission through ocular tissues and secretions [16-18]. In an ophthalmic hospital, operators are the first health care providers to evaluate whether patients are infected or not with Sars-Co-V-2. So, preventive measures must be followed to void the chance of infection. In addition to that all, hospital staff traffic should be reduced. All the chirurgical propedeutic procedures, such as cannulation, catheterizations, local anesthesia, intubation and extubations, should be done with caution [19].

In conclusion, personal protective equipment (PPE) including FFP masks, cap, face protective transparent barrier, glasses and shoe covers should be weared properly by all the staffs.

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