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Biosafety in health personnel during pandemics time

Coronavirus is a large family of virus that can cause several symptoms, such as fever, cough, and breathing difficulty, and in the most severe cases pneumonia, acute breathing syndrome, and kidney failure [1].

The Covid-19 pandemic has caused a health emergency that has required immediate action from governments, companies, and people. This epidemiological situation has overcome the capacity of response of hospitals and health personnel such as nurses and medics, who among others are in the first line of care, which is considered a very high risk area with direct exposure to the virus. In this first care line is where the procedures that generate aerosols such as intubation, cough induction, and bronchoscopies take place. These procedures also generate breathable and inhalable microparticles of less than 10 microns, which remain spread in the environment, generating infectious inoculants that are transmitted from the patients to the health personnel. In this context, there are thousands of contagions and hundreds of deaths of health personnel such as medics and nurses. Therefore, it is urgent to adopt the proper measures, such as training on prevention and control of infections (updating these competences on a regular basis) and in the Covid-19 areas. Additionally, engineering control should be monitored, as well as the preventive and corrective maintenance of the air, isolation cubicles, and carry out administrative follow-up of sanitization and decontamination of the areas, provision of supplies and regular monitoring of the health of the personnel exposed; regulations, and biosafety protocols, mandatory use of ergonomic, safe, and efficient personal protection equipment (PPE) such as fog proof goggles, masks, and face shields that resist scratches and chemical substances, easy to clean and disinfect, nitrile gloves with touch sensitivity and resistant to tearing; disposable tyvek-type coats and overalls that cover the whole body, waterproof cloth that isolate body fluids that may contain pathogen agents and prevent direct contact with the potentially infected patient, and disposable anti-slip waterproof boots [2].

With respect to breathing protection, as the main route of entry of the coronavirus, positive or negative pressure mask breathing apparatus that purify the air or supply air and protect the user against contaminants that are in the working environment shall be used, which are named according to their type and level of filtering efficiency, as follows:

- Minimum level of efficiency of 99.97 percent, N 100, R 100 and P 100 filters.
- Minimum level of efficiency of 95 percent, N 95, R 95 and P 95 filters.
- Minimum level of efficiency of 90 percent, N 90, R 90 and P 90 filters.

Where "N" means "not resistant to oil"; "R", relatively resistant to oil; and "P", very resistant to oil, or oil proof. Most of this equipment has a relief valve that facilitates breathing and help to dissipate heat, humidity and CO_2 [3]; for the user's safety, it is recommended to check their adjustment, considering three elements: sealed, stability, and compatibility. The mask has to seal perfectly to the skin. It is necessary and recommendable not to wear makeup or have beard or mustache since this could prevent sealing and stability; and the mask must be compatible with the rest of the PPE that could interfere with the sealing of items such as goggles and faceshield, amongst other. Regarding the PPE, in order to have the maximum effectiveness and prevent the risk of contagion, it is important to adhere to the supplier instructions.

Nursing personnel is a key piece in the operation of a hospital. It is necessary to invest, value, and empower the nursing sector. Promote the social value of health workers, as well as train and sensitize them with respect to their own care and biosafety, value their lives as part of a high risk profession, in addition to struggle to have regulations and proper work conditions in order to have a dignified work and fair salary, since these professionals expose their lives to care for the health of others.

Miriam Gómez Ortega, PhD

Full-Time Research Professor
Autonomous University of the State of Mexico
Nursing and Obstetrics School
mgomezo@uaemex.mx

BIBLIOGRAPHIC REFERENCES

1. Coronavirus [en línea]. Organización Panamericana de la Salud (OPS); 2020 [Acceso 21 de abril de 2020] Disponible en: https://www.paho.org/es/temas/coronavirus

2. Guía sobre la preparación de los lugares de trabajo para el virus Covid-19 Administración de Seguridad y Salud Ocupacional (OSHA) USA. (2020). [Acceso 28 de mayo de 2020]Disponible en: www.osha.gov

3. Seguridad equipo de protección personal respiradores purificadores de aire de presión negativa contra partículas nocivas especificaciones y métodos de prueba. NOM-116-STPS 2009: SEGOB (2009) Acceso 26 de mayo de 2020] Disponible en: http://www.dof.gob.mx/normasOficiales/3926/stps3/stps3.htm

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