

S6-1.10

Protective Box for Aerosol Generation Procedures with High Risk of SARS-CoV-2 Infection

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The coronavirus COVID-19 pandemic has highlighted the widespread necessity for adequate personal protective equipment for healthcare providers, including during the aerosol-generating procedure of tracheal intubation. Apart from the personal protection equipment several other techniques and equipment have been reported to restrict the exposure of healthcare workers to aerosols. This work is devoted to the determination of the minimum ventilation requirements to reduce the transmission of the pathogen and the realization of a variable speed ventilation box for procedures with a high risk of SARS-CoV-2 infection. This will ensure the patient's isolation and accessibility of monitoring, ventilation, treatment devices and convenience to perform the curative procedures on a patient with COVID-19, reducing the risks of pathogen transmission from patients to medical workers during aerosol-generating procedures, but also preventing patients' overinfection by re-inhalation of the agent. The protection box can be used by hospitals that do not have rooms with specific conditions for performing aerosol-generating procedures (rooms with possibility to generate negative pressure, rooms with a ventilation rate of 160 l / s / patient or at least 12 environmental air changes per hour), and the existing ventilation system does not provide the minimum requirements necessary to prevent the infection among the medical staff.

This work is supported by National Agency for Research and Development of Moldova, grant 20.70086.29/COV.