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Editorial
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Conserving Supply of Personal Protective Equipment—A Call for Ideas

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The editors of JAMA recognize the challenges, concerns, and frustration about the shortage of personal protective equipment (PPE) that is affecting the care of patients and safety of health care workers in the US and around the world. We seek creative immediate solutions for how to maximize the use of PPE, to conserve the supply of PPE, and to identify new sources of PPE. We are interested in suggestions, recommendations, and potential actions from individuals who have relevant experience, especially from physicians, other health care professionals, and administrators in hospitals and other clinical settings. JAMA is inviting immediate suggestions, which can be added as online comments to this article.

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Use of Ozone Medical Devices for PPE [personal protective equipment]

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Ozone is being used successfully for sterilization of water and air (in rooms and air installations) obtaining low ozone concentrations in large volumes during moderate/long time (1-5). Class IIb medical ozone generators are designed to obtain controlled moderated/high ozone concentrations in small/moderated volumes during short/moderate time. These are small and portable devices currently used in many private and some governmental centers around the world for several clinical conditions. Indeed, currently, the potential benefit of ozone as a complementary treatment in the management of patients with COVID-19 is under evaluation in 3 randomized clinical trials in China (6).

However, with a different focus, class IIb medical ozone devices could easily lead to high ozone concentrations (50 to 80 µg/mL of O3/O2) in moisturized latex-free bags containing personal protective equipment (PPE), glasses and N95 masks, with the inactivation of COVID-19. Small and irregular spaces could be reached by O3/O2 because of gas diffusion properties. High ozone concentrations in humid environments could require a few minutes for COVID-19 inactivation, which would depend on ozone concentration. Anyway, it should be necessary to evaluate the most fruitful time/concentration relationship for virus inactivation and verify that the properties of protective equipment are not altered. This easy procedure could be performed in each center and facilitate the fast re-utilization of the protective equipment. Ozone is a very strong oxidant and there are preliminary projects who assay the possibility to create sterilization devices with ozone.

Additionally, a considerable time (no risk-free) is required for an appropriate PPE dressing/undressing procedure. So, it could be interesting to evaluate the possibility to

sterilize the PPE without undressing, decreasing the risk for the health workforce. Thus, for example, it could be placed a closed standard oxygen mask during the requiring time (probably lower than 10 minutes), while the standing staff with its PPE could be inside a big and closed plastic bag (below the neck) to sterilize the PPE in situ. Later, staff could assist other patients or go to other lower-risk areas.

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CONFLICT OF INTEREST: Grants related with ozone treatment from: the Instituto de Salud Carlos III: PI 17/00120 (NCT03282695) and PI 19/00458 (NCT04299893), from FIISC: PIFUN44/17, from Colegio Oficial de Médicos de Las Palmas: I19/18 and I24/15), and from Fundación DISA: 016/2019. Ozone medical generators used at our Hospital have been partially supported by Dr. Hansler GmbH, Iffezheim, Germany.

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