

Short Report

Open Access, Volume 1

Simple solution to diagnostic lens fogging during the COVID-19

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Received: Nov 04, 2021

Accepted: Nov 23, 2021

Published: Nov 26, 2021

Archived: www.jclinmedimages.org

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Description

Lens fogging is commonly noted in vitreoretinal [1], robotic, laparoscopic surgery or endoscopy, and in the clinic using auto kerato-refractometer, subjective refraction, ophthalmoscopy or laser (indirect and slit lamp) as well as during visual field testing [2-5]. This is especially noted in the context of severe sweating (physical activity, high fever, excessive thyroid secretion, severe stress, pregnancy, intake of diaphoretic medications, morbid obesity, primary focal hyperhidrosis of the face or hot humid weather), and more recently in subjects wearing one or several face masks during the COVID-19 epidemic. Lens fogging occurs when the warm breath from the top of the face mask condenses on the cooler lens surface forming light-scattering finite droplets. Aside from being a general inconvenience, fogging can also give rise to safety concerns. Lens fogging can be frustrating to the eyeglass wearer (during driving), to the surgeon, or to the examiner (ophthalmologist) and can be overcome by [2-5]: removal of the patient face mask with risk of respiratory virus spread; pressing on the top of the mask by the examiner; applying a tape on the mask top; use of antifog agents; Clearpod™ lens holder for 90-diopter or 78-diopter lens (Volk Optical, Mentor, OH, USA); altering environmental parameters such

as temperature (heating the lens surface by rinsing with warm water), relative humidity (decrease ambient humidity), and air flow (fan to increase air velocity). A commercially available portable battery or electrically driven fan can be attached to the phoropter handle facing the patients' eyes (Figure 1). The use of this easy inexpensive tool was helpful in both reversing lens fog or preventing its occurrence in subjects wearing various face masks (surgical or N95 or cloth mask) (20-diopter indirect ophthalmoscopy; 90-diopter slit lamp bio-microscopy; subjective or objective refraction; air puff tonometry; visual acuity check in subjects with glasses and visual field testing).

Hermetically sealed eyewear reduces the risk of contamination of the eyes by airborne particles or aerosols, yet they can impair the operator fine performance by lens fogging. Familiarization with the various options to decrease fogging can help reduce stress in an ophthalmologist daily task.

Citation: Mansour SA, Mansour AM, Battaglia Parodi M, Tripathy K. Simple solution to diagnostic lens fogging during the COVID-19. *Open J Clin Med Images*. 2021; 1(1): 1012.

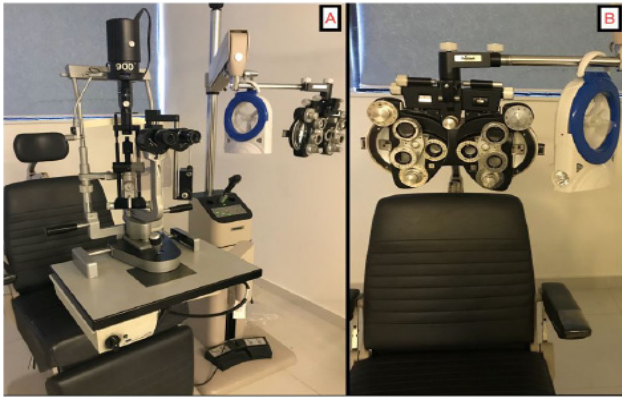


Figure 1: Commercial small portable fan hanging from the arm of the phoropter and directed to the patient's eye.

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