ShareGuard99 Differential Pressure

Abstract In this test the differential pressure between the inside and outside of the ShareGuard99 hood was measured. The test demonstrated that ShareGuard99 effectively maintains a negative pressure environment which is essential for containing pathogens that transmit through the air (via infectious respiratory particles, IRPs) and preventing their spread beyond the enclosure.

Introduction The purpose of this test was to verify the effectiveness of the ShareGuard99 hood in maintaining a negative pressure environment. Differential pressure measurements were conducted to assess the differential pressure between the inside and outside of the hood. This verification is crucial for ensuring the containment of pathogens that transmit through the air, particularly in healthcare settings where the prevention of transmission via infectious respiratory particles (IRPs) is critical for infection prevention and control.

Materials and Methods The ShareGuard99 hood was installed on an 800 mm wide bed (Merivaara, Futura Plus) with a 120 mm thick mattress. Installation was performed according to the manufacturer's instructions, with the hood's hems securely bedded under the mattress and the zipper closed (Figure 1 and 2).

The test was conducted using a Testo 512-1 digital differential pressure measuring instrument. The ShareGuard99 was attached to the Merivaara, Futura Plus hospital bed, and the test was conducted with Hood. The details of test set up are shown in Table 1.

Table 1. *The details of the test set up.*

Test Device	ShareGuard99 SN-SG99234701 Hood LOT992230101
Bed	Merivaara, Futura Plus (800 mm wide)
Analyzer	Testo 512-1 digital differential pressure measuring instrument (Testo SE & Co. KGaA)
Test date	25.3.2024
Test location	Martinsyrjäntie 8, 05810, Hyvinkää, Finland

Figure 1. *ShareGuard99 installed on the hospital bed.*

Figure 2. *Test setup with the patient.*

Results and Discussion The differential pressure between the inside and outside of the ShareGuard99 hood was measured in both normal mode and BOOST mode with the patient on the bed. The measured results are shown in Table 2.

Table 2. *The differential pressure between inside and outside of the ShareGuard99 hood.*

Test condition	Result
Normal mode	-2.7 Pa
BOOST-mode	-6.3 Pa

The test results show that the ShareGuard99 effectively maintains a negative pressure environment when installed according to the manufacturer's instructions. The observed differential pressures in both normal-mode and BOOST-mode (-2.7 Pa and -6.3 Pa, respectively) validate the device's capability to create and sustain negative pressure within the hood. This is essential for ensuring that pathogens that transmit through the air (via infectious respiratory particles, IRPs) generated inside the hood do not spread beyond the enclosure; instead, all air is filtered before being released into the surrounding room environment.

Conclusions ShareGuard99 effectively maintains a negative pressure environment, which is essential for containing pathogens that transmit through the air (via infectious respiratory particles, IRPs) and preventing their spread beyond the enclosure.