

VANIMAN



VANGUARD MOBILE 2.0

PRODUCT CASE STUDY

AEROSOLS vs. INFECTION PREVENTION & CONTROL

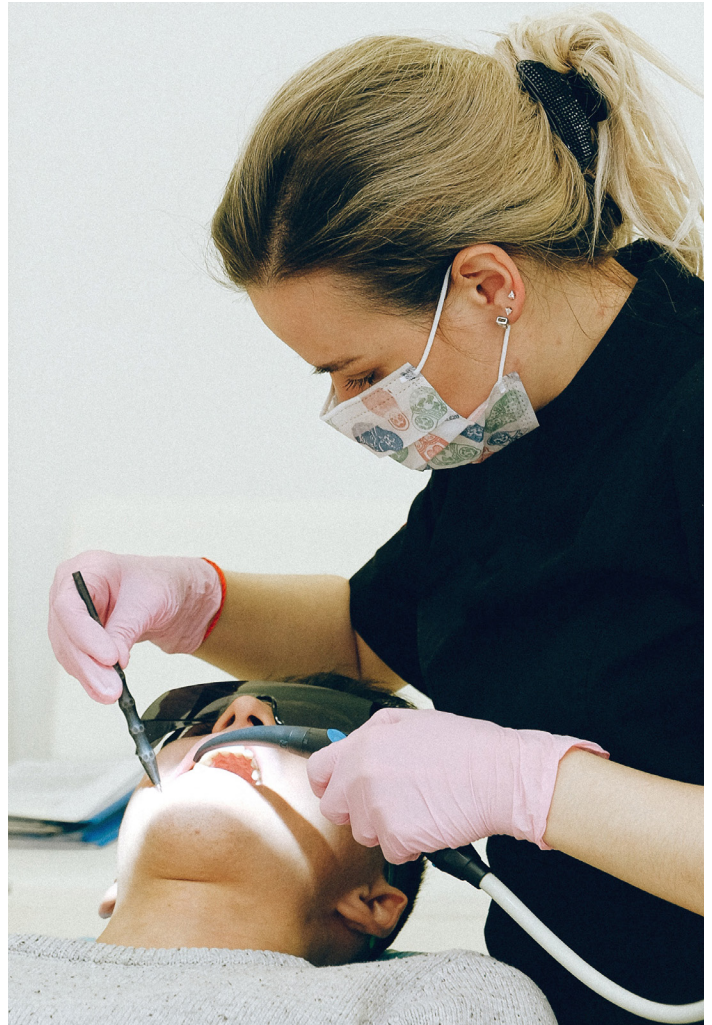
According to the National Institute of Health, dental care professionals are among the highest at risk for exposure to airborne contagious diseases (source: NIH).

Infection prevention and control (IPC) in dental clinics is a multi-pronged approach, but **aerosol exposure** is a chronically understudied and underappreciated area.

Dental care workers operate very close to the patient's mouth during aerosol generating procedures. A dental treatment, especially when using a high-speed turbine, generates a high amount of aerosol and splatter, possibly contaminated with bacteria, viruses, fungi, and blood. Some common tools for preventing the spread of these aerosols include saliva ejectors and high volume evacuators. Intraoral aerosol capture tools like these are somewhat helpful, and have been widely adopted.

However, most intraoral suction devices are too finely localized to capture a significant outpouring of aerosols. They are designed more for large droplets.

But droplets drop; aerosols—and the bacteria or viruses they carry—are airborne, and can linger in the air for hours.



THE VANIMAN VANGUARD MOBILE 2.0 HEPA EXTRAORAL SUCTION DEVICE

The **Vanguard Mobile 2.0** is Vaniman's first dedicated aerosol source capture device, designed for quiet and convenient chairside operation to capture aerosols in large quantities before they have a chance to float away and spread throughout an indoor space.

It is not meant to replace intraoral capture. Rather, it should be used in addition to those capture techniques for **a more complete approach to aerosol safety in dental settings.**

This unit contains **two layers of filtration:** first, a pleated filter for larger particulates, and second, a **laboratory-grade HEPA filter** to capture greater than 99.97% of particulates as small as 0.3 micron.

It is designed for operatories, with a small footprint and durable caster wheels for easy mobility. Sound dampening technology and design keeps this unit a whisper-quiet 54 dBA even on the highest setting. (For comparison: 60 dBA is an average human conversation.)



ASSEMBLED IN USA

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TESTING THE VANGUARD MOBILE 2.0 IN A REAL WORLD SETTING

Vaniman wanted to know the **real world effect** of this unit, especially in regards to bacteria in the air.

We enlisted Dental Advisor, a professional scientific testing company well respected for combining clinical experience with laboratory data and reporting on long-term in-vivo performance of materials over time.



The test took place in an **active dental operatory**, though during testing the clinic was closed for testing purposes. Three patient volunteers were given ultrasonic scaling procedures by a licensed dental hygienist wearing full PPE, including a mask and face shield.

The test worked like this:

- Bacterial load samples taken with an SAS Super 180 Bioaerosol Sampler placed 18 inches from the patients' mouths (measuring primarily aerosol bacterial load), and contact plates placed on the patients' chests (measuring primarily spatter bacterial load)
- The Vanguard Mobile 2.0 placed 4 inches from the patients' mouths
- Samples collected for five minutes both with and without the Vanguard Mobile 2.0 operating (HVE used the entire time)
- Measurements of colony forming units (CFUs) on the sample plates used for comparisons to determine the effectiveness of the Vanguard Mobile 2.0 in this setting

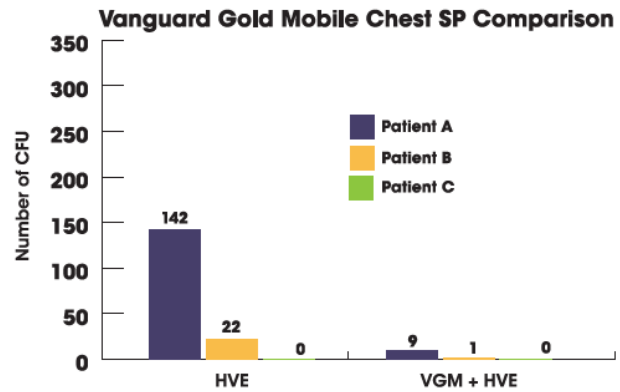
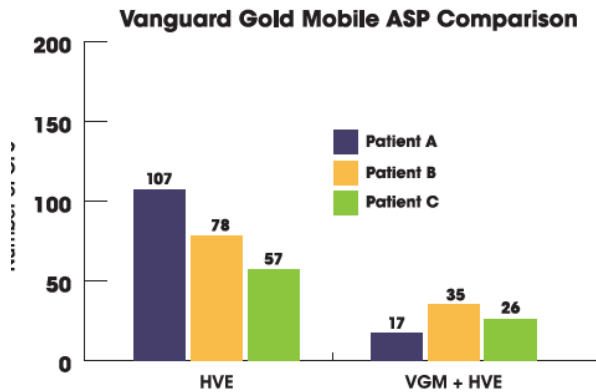


SAS Super 180 Bioaerosol Sampler



RESULTS OF THE STUDY

A control sample of the operatory air was taken for 5 minutes while the first patient and the dental hygienist were in the room, prior to any aerosol generation procedure. The observed trends showed the **bacterial loads were dramatically reduced when the Vanguard Mobile 2.0 was used.**



The chest (spatter) plates showed up to **95% reduction in bacterial load.**

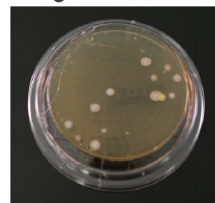
The sampler (aerosol) plates showed up to **84% reduction in bacterial load.**

HVE Alone:



ASP (CFU = 107)

Vanguard Gold Mobile + HVE:



ASP (CFU = 17)

As a side note: Decibel levels were also taken during the procedure, and the difference in noise for the procedure was negligible (a mere 1 dB increase with the unit running).

Independent, unbiased comments from patients and staff indicated that it was indeed much quieter than expected, non-obstructive, and easy to use. One patient even remarked they noticed a “nice cool breeze, even though it was suctioning.”

EXPLORE THE VANIMAN VANGUARD MOBILE 2.0

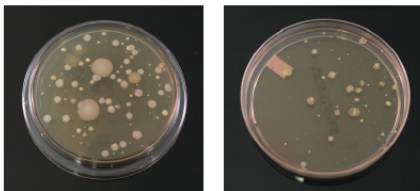
- Vaniman.com
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SCAN FOR MORE INFO



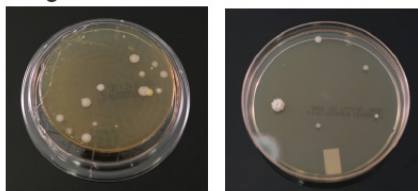
HVE Alone:



ASP (CFU = 107)

Chest (CFU = 142)

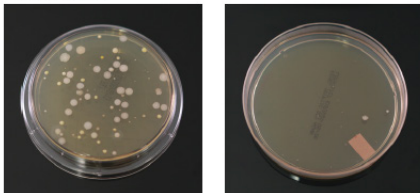
Vanguard Gold Mobile + HVE:



ASP (CFU = 17)

Chest (CFU = 9)

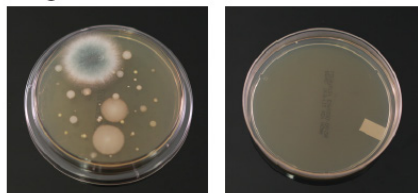
HVE Alone:



ASP (CFU = 78)

Chest (CFU = 22)

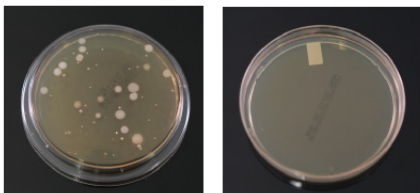
Vanguard Gold Mobile + HVE:



ASP (CFU = 35)

Chest (CFU = 1)

HVE Alone:



ASP (CFU = 57)

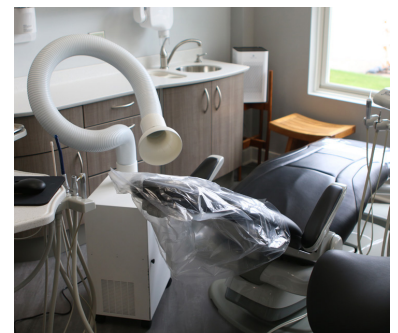
Chest (CFU = 0)

Vanguard Gold Mobile + HVE:



ASP (CFU = 26)

Chest (CFU = 0)



SOURCES:

NIH - National Library of Medicine, *Exposure Risks and Preventive Strategies Considered in Dental Care Settings to Combat Coronavirus Disease (COVID-19)*: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7459178/>

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Dental Advisor, *Microbiology Issue #183 - Aerosol Reduction Efficacy of Vanguard Gold Mobile*: https://www.vaniman.com/wp-content/uploads/bsk-pdf-manager/2023/09/RR-138-Vanguard-Gold-Mobile-0924_FINAL.pdf