

FOCUS LAMINAR AIR FLOW

Operio mobile laminar air flow creates cleanroom conditions for intravitreal injections and cataract surgery. Operio generates aseptic conditions that is up to 100 times higher than a conventional operating room for eye surgery.



IVI and cataract surgery with clean room conditions



Can be used immediately



Mobile



Cost effective



Plug in solution



Many studies available



400 m3 air filtered via hepa filter H14 over instruments and operating field



In combination with operio clinic up to 880 m3 filtered hepa air



Operio

Operio Clinic



Intravitreal Injections (IVI)



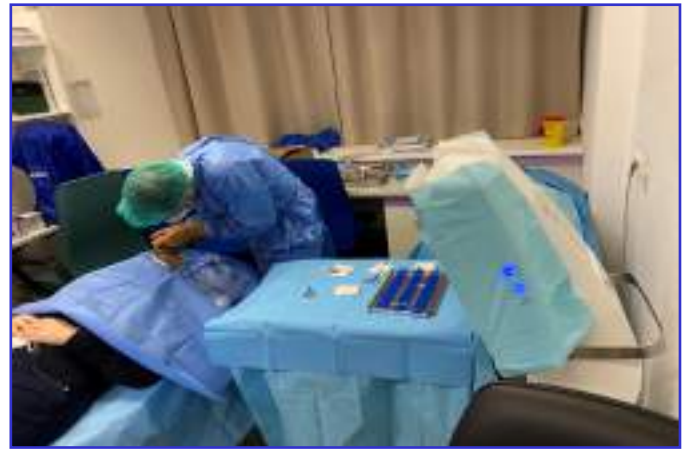
Operio mobile laminar air flow system can be easily wheeled and quickly set up, turning any room into a cleanroom with sterile conditions like an operating theatre. Operio is an ISO 5 class device; it means that it achieves a very high level of asepsis preventing the sedimentation of microorganisms inside the wound. Operio laminar air flow sweeps over the surgical area and instrument area with ultraclean air without turbulence. In this way, it generates a sterile air for the operating field and instruments. The sterile, ultraclean air flow is directed to the instruments and the surgical field without any obstacles such as the surgical microscope or the surgical team and hence creates an extreme high level of asepsis!

Operio works with high-purifying Hepa H 14 filters which purify the air in the operating room and on the instruments practically completely (99.995%) of bacteria and other microorganisms

Operio sterile Air Flow is perceived by the staff and patients as very pleasant - many persons even have problems to perceive it at all.

Endophthalmitis: many elder patients do not respect a good hygienic care anymore. The time between one operation / injection and the next is too short in ophthalmology to guarantee good aseptic conditions for the next patient! No operating room can be sterile again in such a short time! Microorganisms can remain for hours in a room especially if the room is not good ventilated.

Operio creates sterile conditions in the operating field immediately – even with many persons or patients in the room!!!



The sterile OP-Air Flow device Operio enables affordable aseptic conditions to be created for operations and intravitreal injections in eye surgery.

With electrical height adjustment.

Cleanroom conditions for the preparation of instruments and the operating field.

The sterile air created from Operio is very comfortable for patients and surgeons.

Many persons do even have problems to perceive it at all during surgery. No cold air.

Cataract surgery, glaucoma surgery, refractive surgery, etc.



The sterility of the surgical field and the instruments is not restricted by the horizontal flow, neither by the surgical microscope nor by the surgical team. Turbulence and germs are largely excluded. This principle achieves up to 95% more “sterility” than with conventional air supply ceilings in the operating theater and on the instruments (see studies).



Traditional air flow ceilings only work very limited. When you dry your hair, the hairdryer is very close to your hair to obtain the best result. In a conventional operating room, the air outlets are far too distant to the operating field and in addition there is the microscope in its way which makes it almost impossible to get good aseptic conditions in the operating field for ophthalmic surgery.

Studies

Mobile ultra clean unidirectional airflow screen reduces air contamination in a simulated setting for intra vitreal injection *Int Ophthalmol.* 2017; 37(1): 131–137. Published 2016 Apr 30. doi: 10.1007/s10792-016-0236-1 PMCID: PMC5306071 PMID: 27138593 Ruth Lapid-Gortzak, 1,2 Roberto Traversari, 3 Jan Willem van der Linden, 2 Sarit Y. Lesnik Oberstein,1 Oren Lapid,4 and Reinier O. Schlingemann1

Infectiological significance of ventilation and air conditioning systems in operating and intervention rooms 2010

Kramer1, R. Külpmann2, F.Wille3, B. Christiansen4, M. Exner5, and Koll. *Zentralbl Chir* 2010; 135 (1): 11-17
A study by the University of Greifswald showed a 1000-fold reduction in the particles in the surgical field. The colony-forming units in the OR field were reduced by 250 times in simulated OR operations (Prof. Dr. med. Axel Kramer, Institute for Hygiene and Environmental Medicine, Greifswald).

Purifying air over the operating field with anew mobile laminar airflow device to reduce the possibility of airborne contamination 2021

J Cataract Refract Surg 2021; 47:1327–1332 Copyright © 2021 Published by Wolters Kluwer on behalf of ASCRS and ESCRS: Robert H. Osher, MD, Gabriel B. Figueiredo, MD, Julia G. Schneider, MD, Jens Kratholm, MD

Intravitreal Injections during the COVID19 Outbreak in Northern Italy: An Innovative Approach for a High Quality and Safe Treatment 2022 *European Journal of Ophthalmology* 1–7 © 2022 DOI: 10.1177/11206721221078554 Giuseppe Scarpa1, Francesca Urban1, Margherita Scarpa1, Stefano Formentini1 and Andrea Beccastrini.

Technical specifications



The Operio devices are extremely small and handy and can also be used in very small rooms. The removable instrument table from Operio is available in various lengths of 45 cm (for intravitreal injections), 60 cm (for ophthalmic operations and intravitreal injections) and 75 cm (for operations that require a lot of instruments). The electrical height adjustment can be carried out by the sterile OR staff (using a sterile screen) as well as by the other OR staff using a separate display. There is no need to purchase a separate instrument table for storing the instruments. By constantly cleaning the air with Hepa filters, the germ level in the entire OR can be reduced.

The devices have the CE mark and meets the also the new requirements for medical devices EU Regulation 2017/745 CE 2862 and 93/42 EEC / Class I, 2007/47 EEC, as well as the guidelines 2004/108 / CE, EN 60601-1-2: 2014, EN 60601-1: 2006 , EN ISO 14971: 2012 and EN ISO 13485: 2012. The protective effect according to DIN 1946-4 is fulfilled

Operio Clinic – ultra clean air with Hepa filters



- **Possibility to connect with fresh air from outside**
- Generation of overpressure in the operating room by connecting to outside air
- **Up to 880 m3 ultra clean air in combination Operio and Operio clinic possible**
- 99.9% efficiency against bacteria, spores, pollen, aerosols and microorganisms
- With highly cleaning F7 pre-filter and HEPA H 14 filter according to OR standard
- Variable volume setting (200 m3, 300 m3 or 480 m3 air per hour)

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