Focused laminar flow systems: the air is filtered through hepa filters free of microorganisms and then directed immediately onto the surgical instruments and surgical site. It is only then distributed throughout the operating theatre. This protects the critical area of the operating theatre, i.e. the instruments and the surgical site. With this system, the bacterial load on the instruments and surgical site is reduced by more than 95% compared with conventional ventilation systems.
Conventional ventilation system

Air filtered through conventional ventilation systems is first directed towards the floor and then distributed homogenously throughout the operating theatre. Despite all measures to maintain asepsis, the floor of the operating theatre is always contaminated. Thus, bacteria can be transmitted to the patient through the instruments and surgical wound.

Conventional ventilation systems cannot ensure a high degree of asepsis in the wound area as the sterile flow is always hindered by surgical lights and medical staff, thus favouring bacteria to the wound area. In the presence of implants, even a very low bacterial load is enough to cause bacterial biofilm infections or rejection of the implant.
Focus laminar air flow
The traditional laminar air flow protect the instruments only inside the laminar air flow.

Most instruments are prepared outside the traditional laminar air flow and thus already being contaminated during the preparation.
The clean “sterile air” is first touching the unsterile floor and then distributed in the O.R. There isn’t any real protected sterile area in the operating room to keep instruments or operating field sterile!
The clean “sterile air” is first touching the unsterile floor and then distributed in the O.R. There isn’t any real protected sterile area in the operating room to keep instruments or operating field sterile!
Study: Possible instrument contamination in the operating room during implantation of Knee and Hip Arthroplasty Thieme Verlag 2016
Study: Possible instrument contamination in the operating room during implantation of Knee and Hip Arthroplasty. 

Thieme Verlag 2016
**Instrument contamination after 60 minutes (*1,2)**

**Conclusion:** Only the instruments prepared inside the laminar air flow or with the focussed laminar air flow shows good aseptic results

1) Possible instrument contamination in the operating room during implantation of knee and hip arthroplasty. Journal for orthopedic and trauma surgery. April 2016, Germany

2) Influence of different ventilations systems upon the contamination of medical devices; Hyg Med 2013; 38 – 4.
Enlarge your protected zone with focused laminar air flow.
Consumation of antibiotics in Europe

Consumo per 1000 abitanti e per giorno

- 0
- 10.832 to < 15.114
- 15.114 to < 19.397
- 19.397 to < 23.679
- 23.679 to < 27.961
- 27.961 to 32.243
Klebsiella pneumoniae: percentuale di isolati invasivi resistenti ai carbapenemici

2010


2014
Escherichia coli: percentuale di isolati invasivi resistenti alla terza generazione di cefalosporina

2010

2014
Figure 2. Occurrence of carbapenemase-producing Enterobacteriaceae in 38 European countries, using an epidemiological scale indicating the level of national spread, 2015.
Orthopaedic surgery: The focussed oriented laminar air flow can be placed to protect the instruments and the operating field.
Particle counting after 90 minutes

with Toul focus laminar air flow

without Toul laminar air flow
The helmets protect the operating field but not necessarily the instruments as they are placed outside!
Cardiac surgery  Florence
Transplantation surgery Torino
Cardiac surgery San Michele Caserta
Cardiac surgery Udine
Cardiac surgery Rome Tor Vergate
The instruments can be prepared in every place of the operating room under sterile conditions. Afterwards the unit is transported to the operating field protecting both the instruments and the operating field.
The focus laminar air flow keeps the instruments and the operating field extreme sterile as there are no obstacles like surgical lights or operating staff in between.
Intravitreal injections should be given in a clean room. Operio provides with very high aseptic conditions. The aseptic conditions achieved with Operio are superior to any operating room due to the fact that the sterile air is immediately directed to the instrument table and operating field in combination with the use of hepa h14 filters.
Orthopaedics

info@normeditec.com
Traceability with bar code system even after years!

info@normeditec.com
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**Università Uppsala**

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Without focussed laminar air flow

with focussed Laminar air flow

info@normeditec.com
San Martino Genova
instrument contamination

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