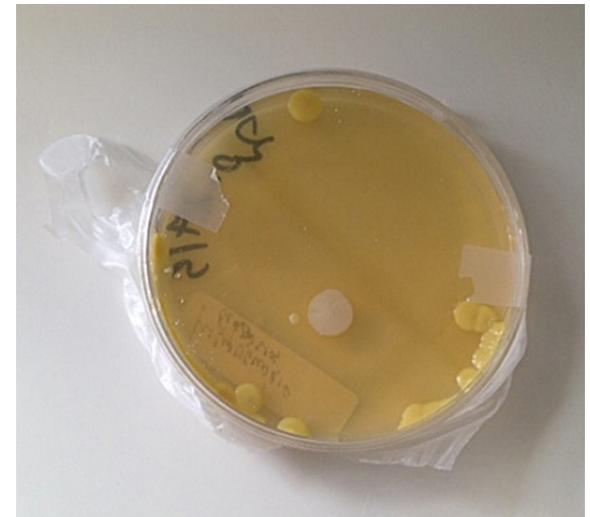


# Microbial patient and operating-room personnel sampling and culture evaluation of ambulatory ophthalmology unit: Novel Protocol

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**LaserVision.gr**  
Institute for laser



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  - i-Optics
- Remaining authors: none



# Purpose

- To evaluate an elaborative, novel protocol of
- personnel and patient nasal and conjunctival mucosa sampling as well as
- surface and air sampling of the several levels of sterility operating rooms
- in a modern ophthalmological ambulatory surgical center



# Methods

- Three levels of sterility were defined in the 8 rooms comprising the ambulatory surgical center:
  - Level 1: Changing rooms and pre-op and recovery area,
  - Level 2: Connecting hallways and sterilization room,
  - Level 3: Intraocular and laser refractive operating rooms.
- All rooms were sampled biweekly with
- 1-swab smears( floors, walls and ceilings)
- 2-precipitation 24h loci (Tryptic soy agar) as well as by sampling the
- 3-Large air volume sampling with Biotest RCS
- Last, the air filters of the ventilation system were removed, swabbed and cultured as well.



# Methods-conjunctival and nasal cultures

- Operating room staff (total 15 persons): surgeons, nurses, technicians, assistants) and
- 122 consecutive patients were sampled with swab smears of nasal and conjunctival mucosa, prior to any ophthalmic drop administration and disinfective measures (i.e. betadine swab).



# Air Sampling specialized Device

## Biotest RCS Handheld microbial air sampler-

### Ashtead Technology



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## Biotest RCS Handheld Microbial Air Sampler



### Key features

- Grab it and go
- Pushbutton operation, integrated display

### Applications

Use the Biotest RCS Plus air sampler to evaluate the microbiological quality of

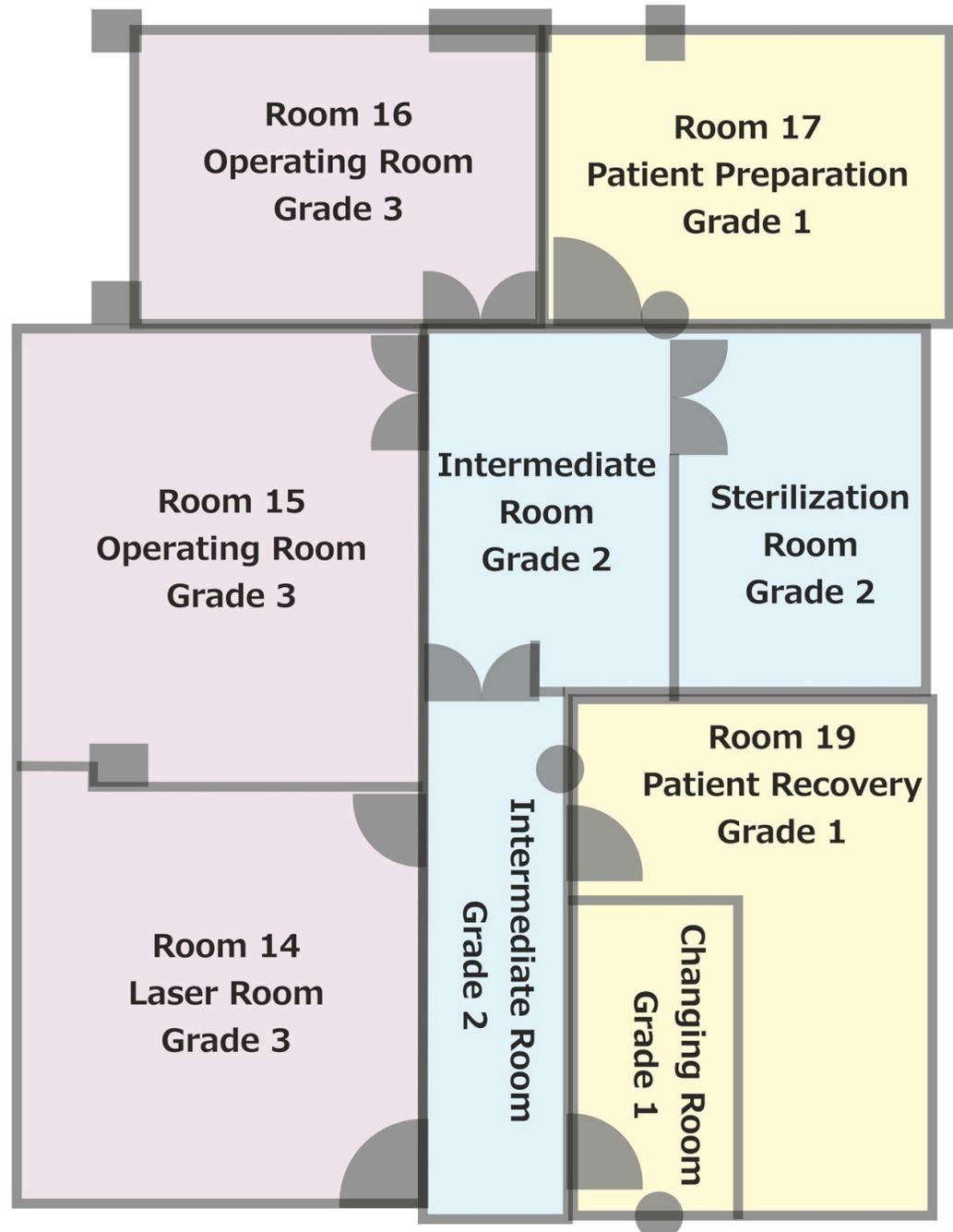


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# OR Floor plan and Sterility levels

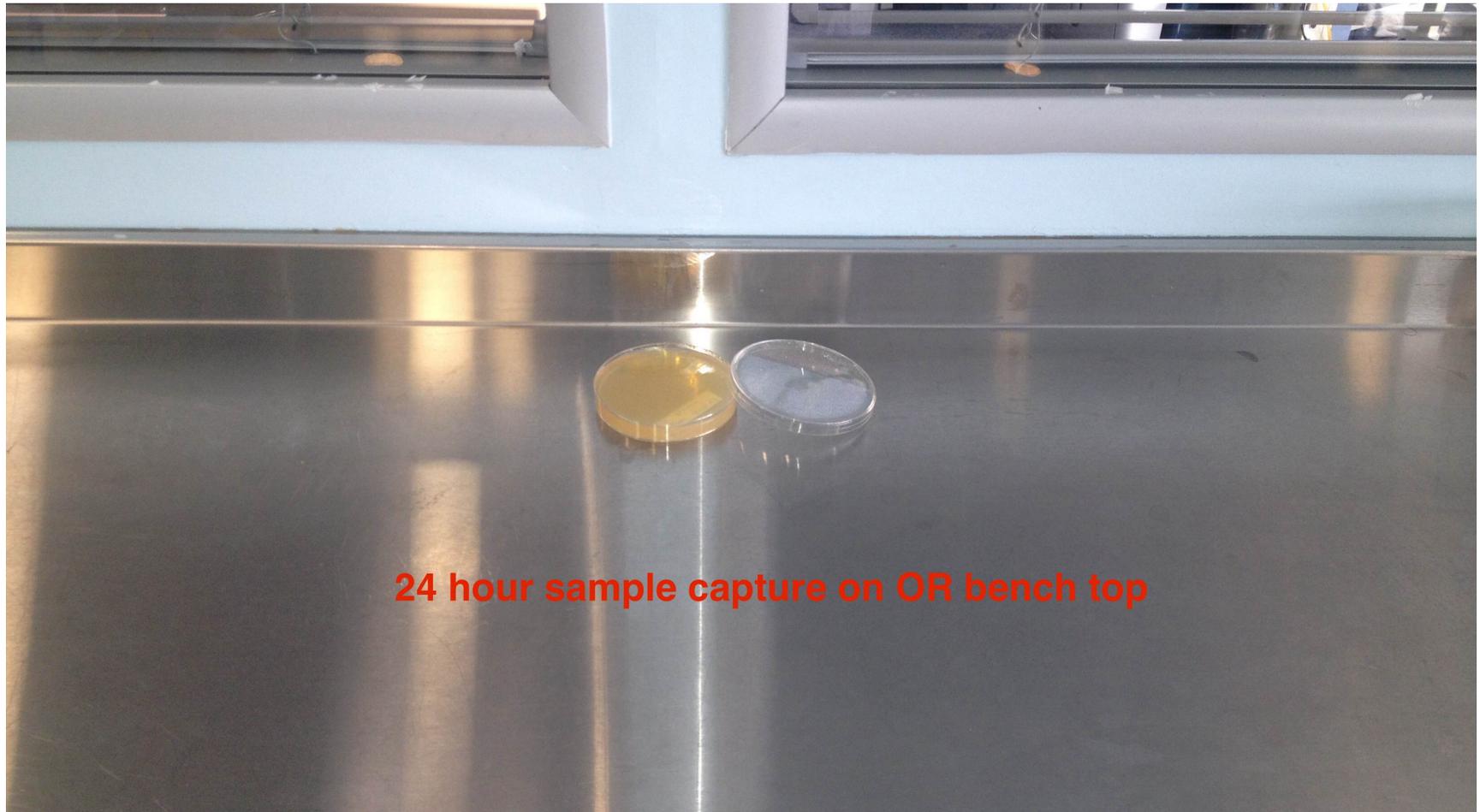




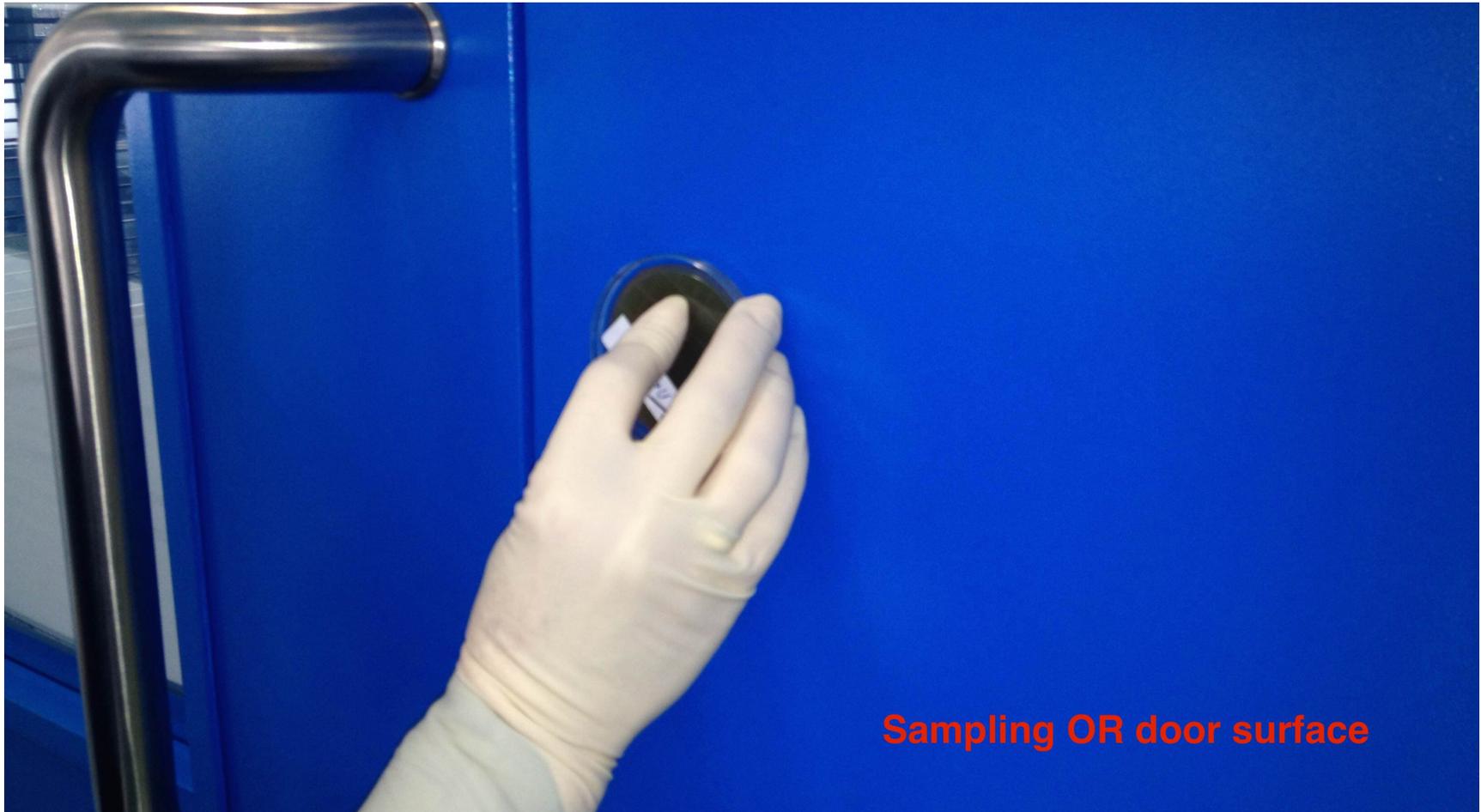


# Precipitation sampling





**24 hour sample capture on OR bench top**



Sampling OR door surface



Sampling the OR bed and headrest surface

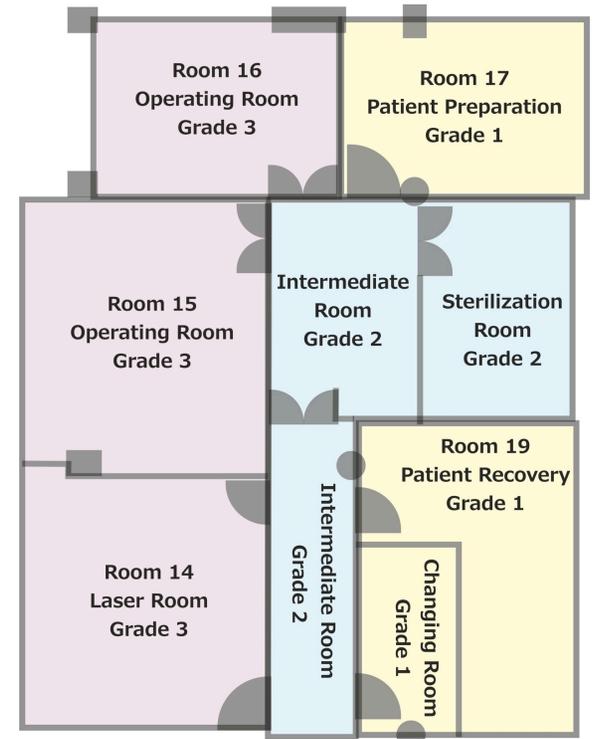
# Results-facility cultures

- Level 1 areas showed:
  - Air samples: 200 CFU/m<sup>3</sup> (CFU: bacterial colonies only)
  - Wall and door swabs : 5 CFU of bacteria only (no fungus).
- Level 2 areas showed:
  - Air samples: 120 CFU/m<sup>3</sup>,
  - Wall, door and microscopes swabs: 2 CFU of bacteria only (no fungus).
- Level 3 areas showed:
  - Air samples: 88 CFU/m<sup>3</sup>,
  - Wall, door and microscope swabs: 3 CFU of bacteria only (no fungus).

# Results-Patient/staff cultures

- All conjunctival cultures were negative for both staff and patients.
- Nasal cultures:
- Staff: Surgeons cultures showed: 1-case **Staphylococcus epidermidis**,
- Nurse and technician cultures showed showed mostly ***Staphylococcus epidermidis and logdunensi***,
- Patients cultures showed ***Staphylococcus epidmidis and Streptococcus pneumonia***.
- Most cultures isolated ***micrococcus luteus*** (sensitive to moxifloxacin and Chloramphenicol the ABT we use prophylactically)

# Results compared to EU suggested hospital OR levels



Suggested limits of microbial load			
Level	Air Sample cfu/m <sup>3</sup>	Precipitation plates cfu/4 hours	Contact plates cfu/plate
A	<1	<1	<1
B	10	5	5
C	100	50	25
D	200	100	50

Microbial Load Analysis Results			
Level	Air Sample cfu/m <sup>3</sup>	Precipitation plates cfu/4 hours	Contact plates cfu/plate
1	200	60	5
2	120	48	2
3	88	4	3



# Conclusions

- This novel elaborative microbial monitoring system of an ambulatory operating unit provided detailed data of the classification and population of microbes and the exact topographic location in the operating rooms.
- We suggest this protocol as it cautioned our team for ongoing disinfecting techniques and methods, and helped surgeons and staff in planning appropriate ongoing antimicrobial prophylaxis for prospective patients.

