

# ISCC'18

INTERNATIONAL SYMPOSIUM ON CONTAMINATION CONTROL  
THE NETHERLANDS | THE HAGUE



## Workshop Hospital Ventilation

Roberto Traversari en Frans Saurwalt



# Introduction



- Roberto Traversari senior researcher/consultant at TNO **TNO** innovation for life

Convener of CEN TC156 working group 18 “Ventilation in Hospitals”



Experts in various project groups of the VCCN



Chair of the ISSO Advisory board (ISSO = the Knowledge centre for building and installation technology)



After completing primary and secondary education, Roberto followed a course in General Operations Technology (AOT) at Utrecht University of Applied Sciences where he graduated in 1993. Then he started working at TNO and fulfilled various functions there. In 2002 he graduated as a Master of Business Administration (MBA). During his employment at TNO Roberto focused his work on heating and ventilation devices and systems related to energy efficiency and renewable energy. He also developed the TNO test and development center for heat pumps.

He works as an expert on energy saving and renewable energy in healthcare, especially hospitals. He has developed into an expert in the field of air distribution systems and contamination control in operating theatres and isolation rooms as well as central sterilization departments. He is involved as an independent expert in numerous design processes, design evaluation and troubleshooting projects as well as training operating room staff. Roberto is also involved in drafting national and international guidelines for ventilating these high-risk departments in hospitals and has led various research projects resulting in scientific articles.

# Introduction



- Frans Saurwalt Technical Manager at **KROPMAN**  
CONTAMINATION CONTROL

Chairman of EHEDG-NL



Convener of ISO TC209  
WG4 'Design, Construction, Start Up'  
Expert in WG3 'test methods'



Convener in PG04 VCCN RL 7/8  
Expert in PG15 VCCN RL10

Chairman of ICCCS



Secretary of CEN TC156  
'Hospital ventilation'

# Introduction



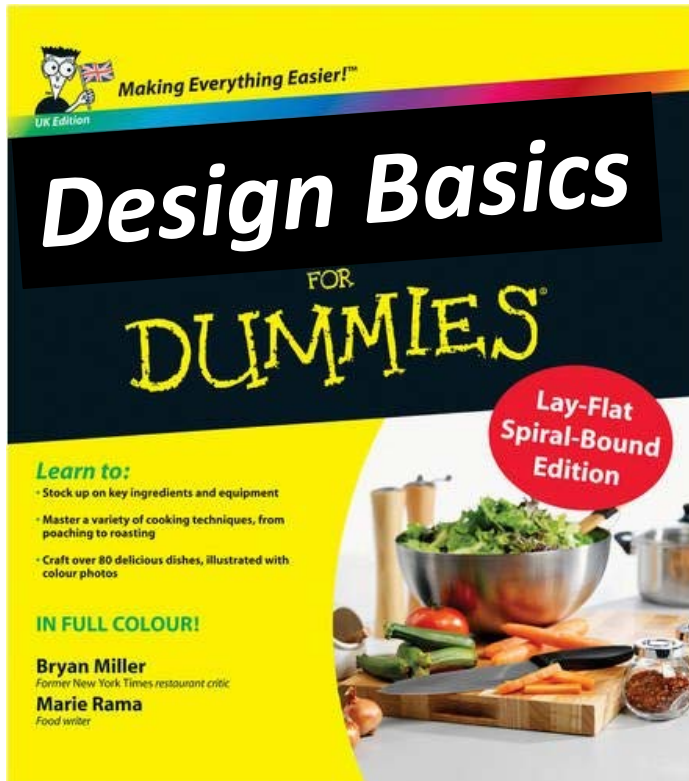
On national and international level standardisation activities on contamination control in general as well as applied contamination control in hospitals are being performed.

These processes show differences in the approach between various countries and application fields. What are the different directions and what would be a common ground to make progress? This workshop will provide ample possibility to learn, discuss and explain the various positions looking for common grounds in the benefit of the health of the patient and the staff in operating theatres, isolation rooms, central sterilization departments.



# Dilemma's

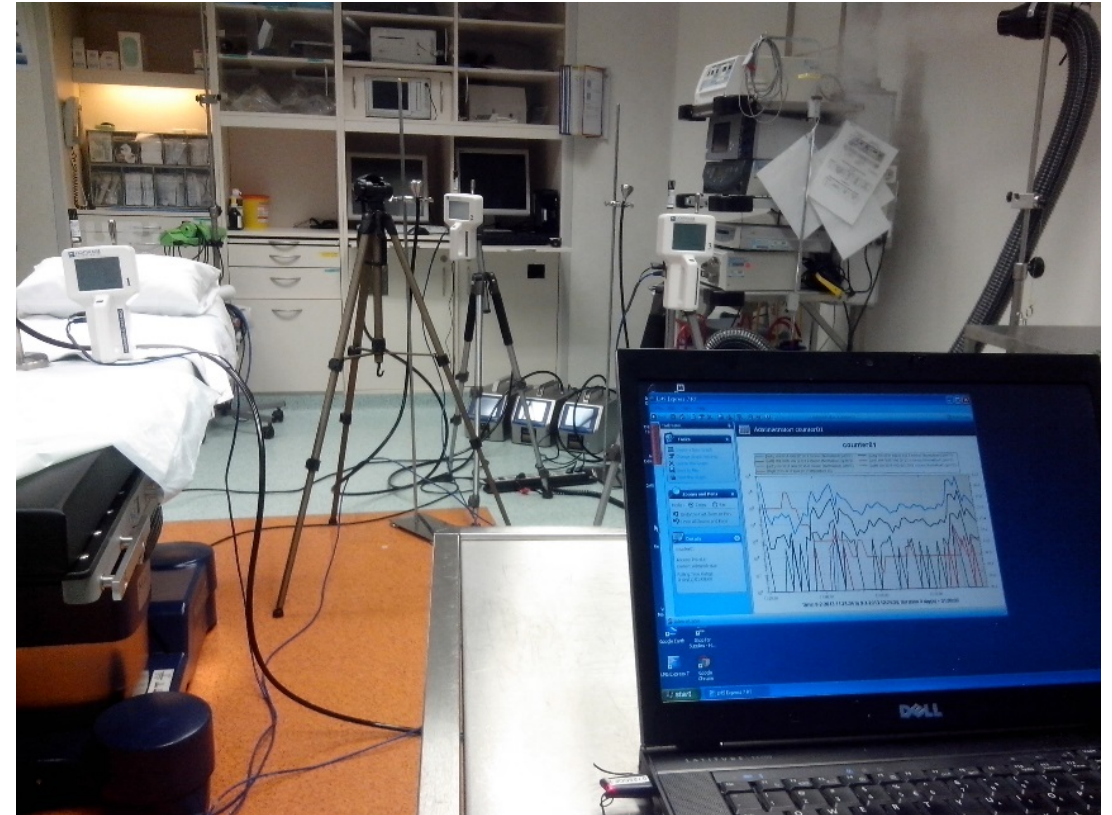
Cooking book, how to design a system



Workshop Hospital Ventilation

OR

Requirements and verification of performance



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# Dilemma's

Relying completely on  
ventilation systems

OR

Addressing important variables like  
behavior and clothing system also

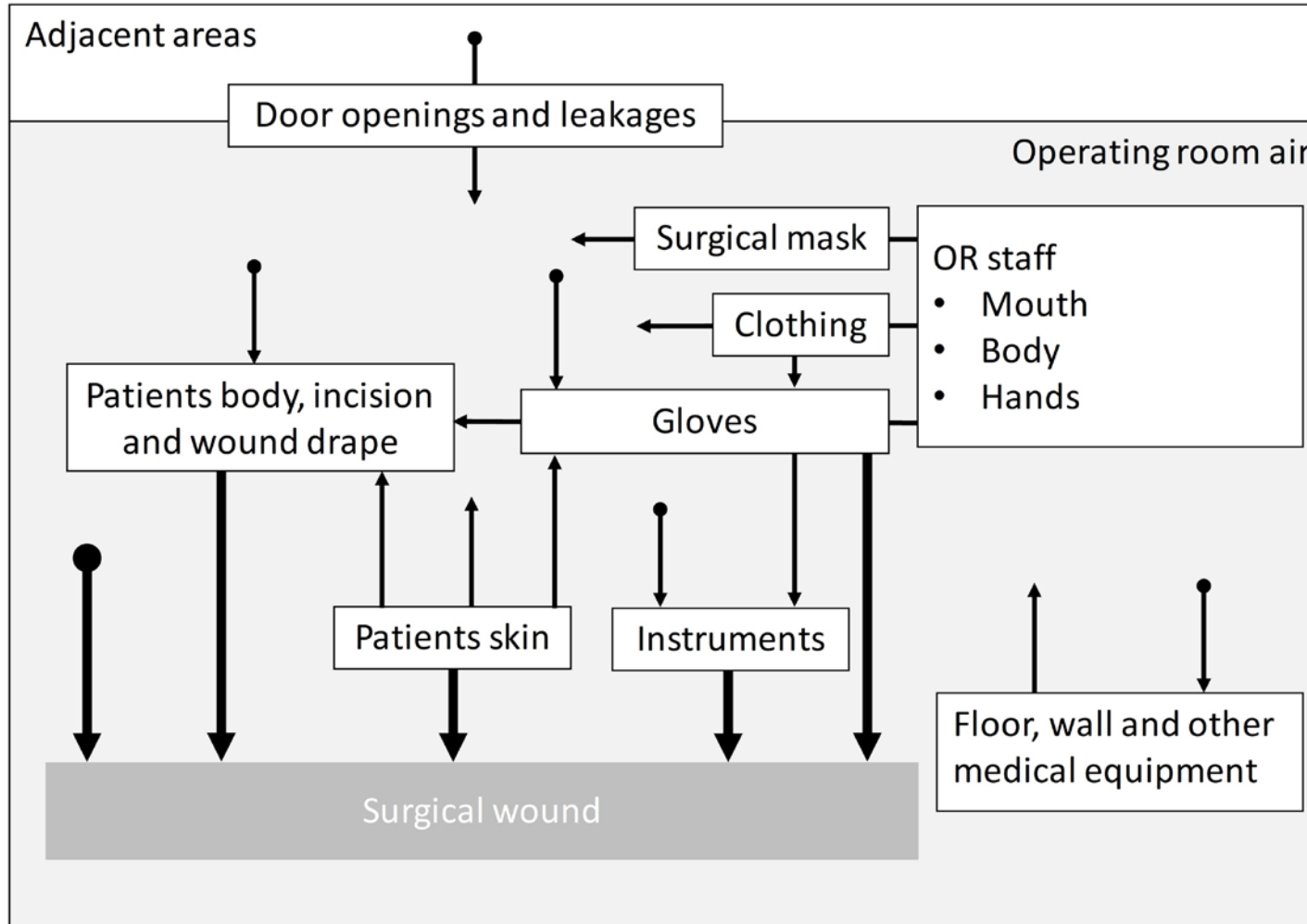
Ultra Clean  
Ventilation  
Systems



OPERATING ROOM  
PROTOCOLS



# Aerogenic contamination route



Source: Roberto Traversari. Aerogenic Contamination Control in operating Theatres.



# Dilemma's

UDF



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OR

NON-UDF



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# Dilemma's

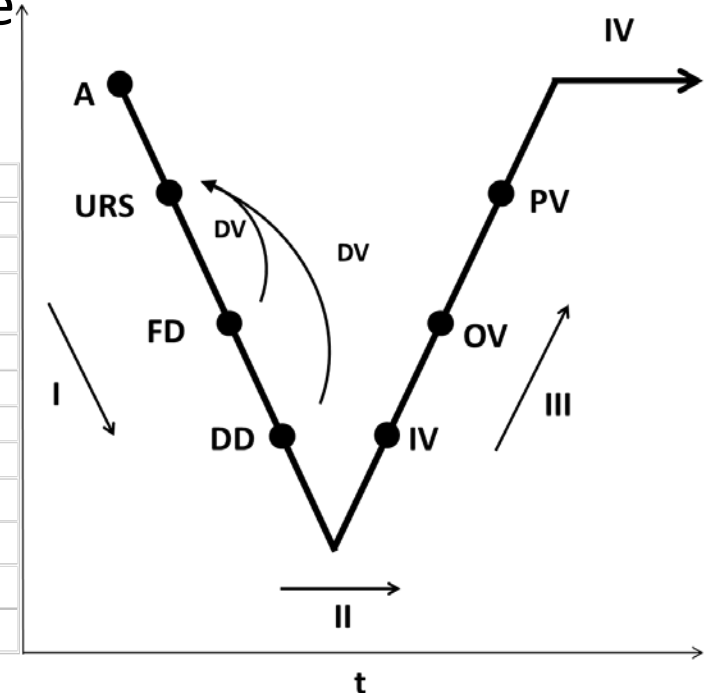
Take the acceptance test as the most important moment for handing over the system



OR

A complete transparent process with the performance verification (PV) as the most important objective

I	Design phase
II	Construction phase
III	Qualification phase
IV	Operational phase
A	Analyses
URS	User requirement specification
FD	Functional design
DD	Detailed design
DV	Design verification
IV	Installation verification
OV	Operational verification
PV	Performance verification



# Dilemma's

Counting particles at rest (online)

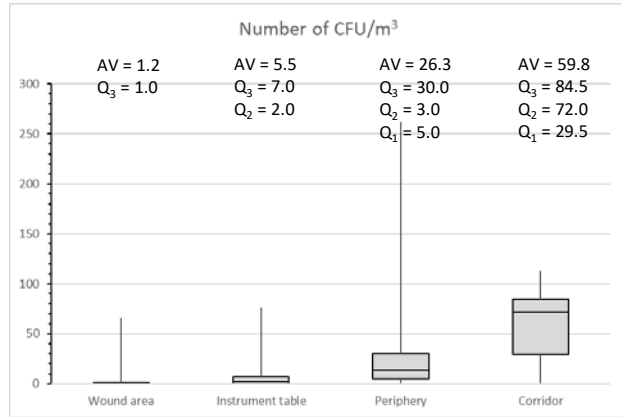
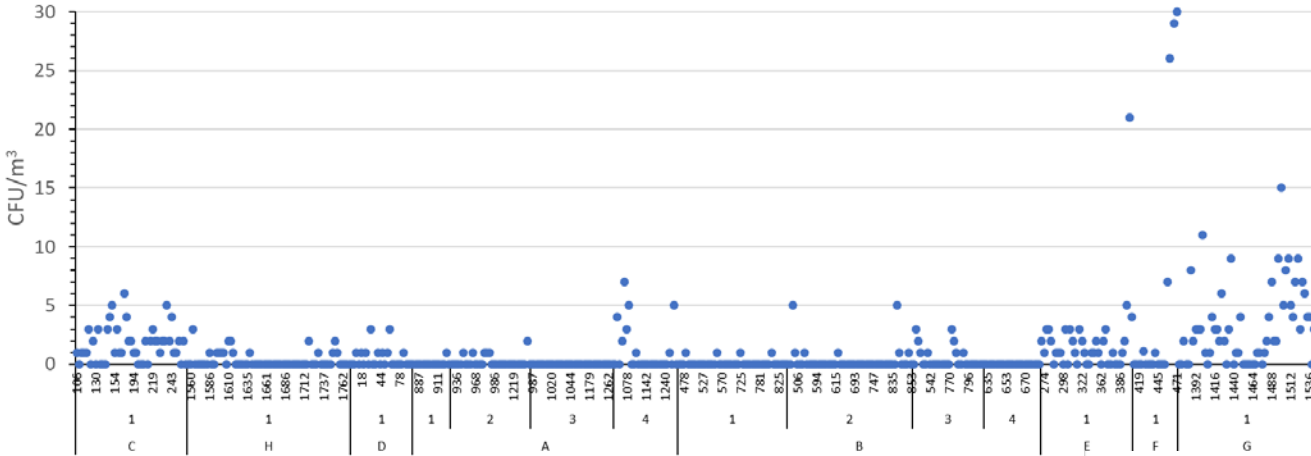
OR

CFU's during the ongoing surgical procedure (delayed results)



# Results

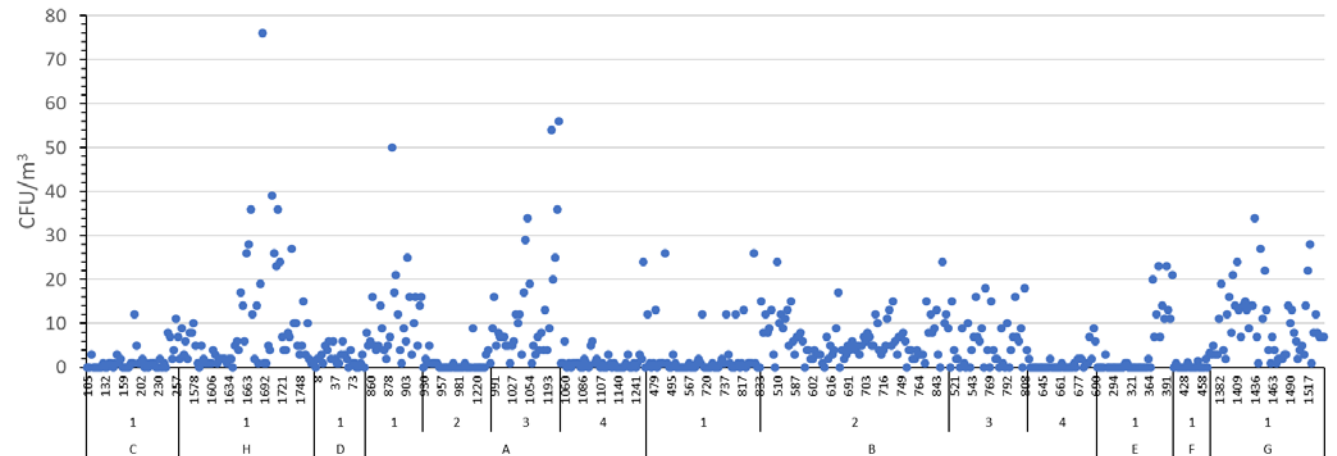
CFU-level wound area  
(n = 524 samples)



AV = Average  
Q<sub>3</sub> = 75<sup>th</sup> percentile  
Q<sub>2</sub> = 50<sup>th</sup> percentile (median)  
Q<sub>1</sub> = 25<sup>th</sup> percentile

Source: TNO, see also tutorial VCCN guideline 8. ISCC'18 on Monday the 24<sup>th</sup>.

CFU-level instrument table  
(n = 631 samples)



# Dilemma's

Your dilemma / Question

