

Impact of MATE (air treatment system using NTP technology) on hospital operating rooms

**Study conducted between
February and March 2017**

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Foreword

This document illustrates the results obtained during the first study on the impact of MATE cabinets on the levels of contamination in two operating rooms in a private clinic.

The study refers to the first trial period conducted between 27th February - 23rd March 2017.

Preparation

MATE cabinets

One MATE cabinet was set up in each of the operating rooms in the clinic, namely in Operating Room A and Operating Room B.

The exact location was chosen together with the operators to meet the following requirements:

- Presence of a power supply point;
- Minimal disruption to routine activities carried out in the operating room;
- Adequate distance from items that could obstruct the regular flow of air through MATE.

The cabinets were positioned as shown in the following photos.



Photo 1 - Position of MATE cabinets inside the operating rooms

MATE was turned on only during the night and was set to manual mode, even though the internal software allows programming switching on operations: the purpose was to guarantee a certain degree of flexibility of use.

The study program was set up so as to better evaluate the effects of MATE, which had to be integrated with the routine activities carried out inside the operating room, which, at the end of surgeries, call for in-

depth environmental sanitation. Furthermore, as required by industry regulations, the air of each operating room was constantly filtered by the treatment system already in place.

The purpose was therefore to use MATE as a support during the standard and ordinary environmental decontamination activities, with the aim of replacing/complementing the existing system, which requires spraying a hydrogen peroxide and silver ions disinfectant solution (400 GLOSAIR).

Control Schedule

The action of MATE was to be monitored by running targeted analyses with the purpose of obtaining the characterisation of the following items in each operating room:

- 3 surface swabs;
- 1 sample of ambient air.

Each sample was analysed for:

Total bacterial count at 37°C (TBC37)	<i>This is the sum of the all the microorganisms that can grow at 37 °C, which are therefore indicators of contamination also by potentially pathogenic germs. Their presence does not provide evidence of the presence of pathogens: it only indicates that they may be present.</i>
Moulds and yeasts (M&Y)	<i>Microorganism that indicate environmental contamination. Together with TBC37, they allow establishing the degree of cleanliness of a certain sample.</i>
Coagulase-positive Staphylococci (SC+)	<i>Opportunistic pathogenic microorganisms that can cause infections in humans. They are normally used as anthropic contamination indicators, often associated with dangerous hospital-acquired infections.</i>

Sampling was prepared based on the ordinary work activities carried out in both rooms, attempting an assessment of both intensive and low activities (figure 1), in compliance with the work-flow illustrated in figure 2.

Nell'immagine: 1, 2...operation – WORKING TIME: LONG/SHORT (L= Monday, Ma= Tuesday, Me= Wednesday, G = Thursday)

DAY 1, DAY 2

ACTIVITY IN OPERATING ROOM: SAMPLING – CLEANING – MATE ON – MATE OFF – SAMPLING – CLEANING –ACTIVITY IN OPERATING ROOM

1° INTERVENTO		2° INTERVENTO		3° INTERVENTO		4° INTERVENTO		5° INTERVENTO		6° INTERVENTO		7° INTERVENTO		8° INTERVENTO	
TEMPO DI UTILIZZO LUNGO		TEMPO DI UTILIZZO BREVE		TEMPO DI UTILIZZO LUNGO		TEMPO DI UTILIZZO BREVE		TEMPO DI UTILIZZO LUNGO		TEMPO DI UTILIZZO BREVE		TEMPO DI UTILIZZO LUNGO		TEMPO DI UTILIZZO BREVE	
27-feb	28-feb	01-mar	02-mar	06-mar	07-mar	08-mar	09-mar	13-mar	14-mar	15-mar	16-mar	20-mar	21-mar	22-mar	23-mar
L	Ma	Me	G	L	Ma	Me	G	L	Ma	Me	G	L	Ma	Me	G

Figure 1 – Sampling program

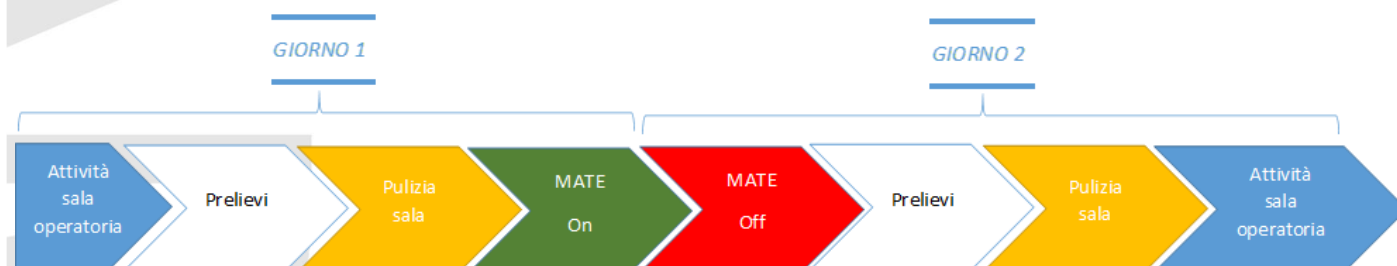


Figure 2- Flow-chart of activities during the study program

Based on the above, it was possible to assess the level of contamination in the room in case of maximum contamination conditions (worst-case) at the end of the working day and compare it with the levels detected when the room is at its cleanest, by way of samples taken the following day, after manual decontamination operations and following the uninterrupted use of MATE during the night.

The samples were taken from the same surfaces in both operating rooms, trying to focus on the areas that are more exposed to contamination due to a more intensive operator presence, or to the fact that they are more difficult to clean by hand due to their shape. Ambient air, instead, was consistently sampled in the middle of each room, near the operating table.

All sampling and analyses were carried out by a qualified and accredited laboratory. Together with the sampling, the switching on and off times of each MATE cabinet were also recorded.

Results

Work surfaces

The data collected, and illustrated in annex 1, evidenced a microbial contamination level that was substantially low.

No moulds or yeasts were isolated from the analysed samples in both sampling conditions (clean/dirty room). Staphylococci were occasionally found in some samples taken after work activities, but only during the first few days of monitoring.

Separate considerations must be made for TBC37.

First, in every case, the microbial load at 37 °C was isolated exclusively in samples taken in the dirty room and never after treatment with MATE; therefore, **after treatment, the samples were totally clean and free from any detectable levels of microorganisms**, evidencing the presence of ideal hygienic conditions.

Obviously, surfaces on which activities are carried out tend to be contaminated, regardless of the type of surface.

The interesting fact that emerged is that, as MATE was used, the average level of fouling (that is the average quantity of what was found in the six sampled surfaces in both operating rooms) tended to decrease over time, as if the treatment made them resistant to contamination during ordinary operating activities.

The chart below shows what has just been described.

Nell'immagine: Microbial load trend (average of 6 dirty surfaces) – Sampling days

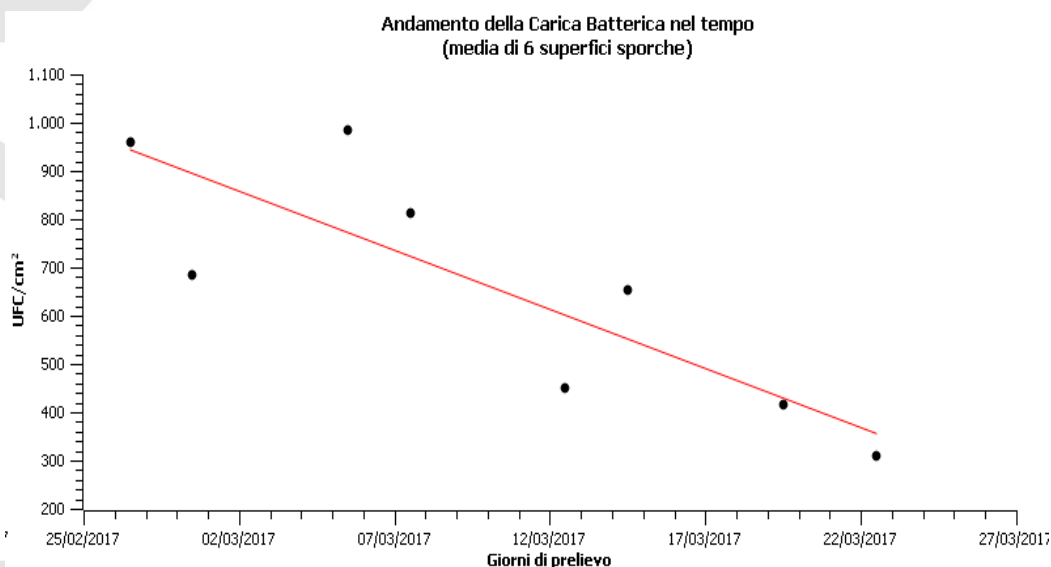


Figure 3 - Average microbial contamination; trend during the testing period. The data represent the average contamination levels detected on the six sampled surfaces in both rooms (3 per room).

The figure illustrates that the TBC37 undeniably tends to decrease, going from an average value of over 900 colony- forming units per square centimetre (CFU/cm²) to just over 300 CFU/cm² with a reduction trend of good linear approximation.

Through the analysis of the results obtained in individual rooms, it was possible to verify whether this behaviour was detected in both rooms.

Nell'immagine: Microbial load trend (average of 3 dirty surfaces) – ROOM A / ROOM B Sampling days

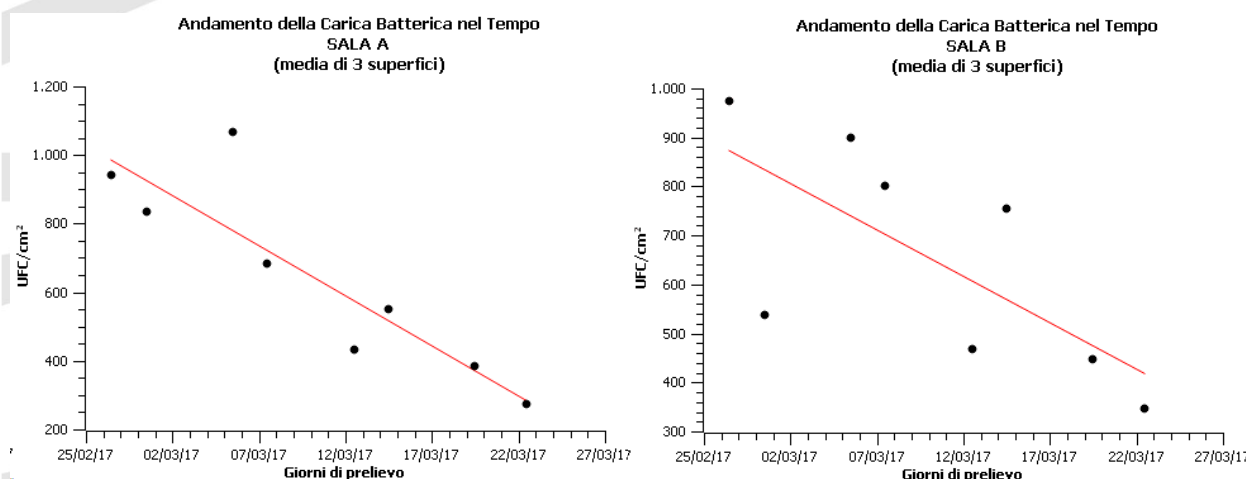


Figure4- Average microbial contamination in the two operating rooms: room A on the left and room B on the right

In this case, it is clear that the observed phenomenon is repeatable in both operating rooms.

As contamination occurs during the normal use of the operating room when MATE is off, the phenomenon seems to be produced by "something" that tends to protect surfaces from contamination, as if the action of MATE made them less hospitable for microorganisms over time.

In general, a surface is less contaminated because:

- a) It is soiled less
- or
- b) With the same level of fouling, the survival rate of microorganisms is lower.

This may be due to:

- b') the presence of biocidal elements (which, in this case, would accumulate over time);
- b'') the lack of elements favouring microbial settlement / survival (free water, nutrients, such as organic matter)

Most probably, it is possible to rule out that the surfaces are soiled less (there is no reason why this should be the case) and therefore the second hypothesis of lower microbial survival rate must be true. In this case, this is unlikely to be due to the permanence/accumulation of biocidal elements (the reactive species generated by MATE have a very short half-life) or to a reduction of free water (this doesn't appear to be correlated with the action of MATE). The most likely hypothesis is that, thanks to the use of MATE, cleaning operations are more effective not only when it comes to eliminating microorganisms (a goal that was achieved right from the beginning of the trial), but also and foremost when it comes to effectively removing the organic matter that settles on the surfaces and constitutes microbial nourishment (dirt).

Regardless of the scientific explanation of the reasons for the observed phenomenon, it seems clear that **the continuous and repeated use of MATE may have a significant adjuvant action to cleaning operations**, without any need for chemical products to be sprayed.

Ambient air

In the same way, also airborne microbial contamination evidenced low levels of microbial contamination, with the same type of isolated microorganisms (TBC37 and only sporadically SC+).

Also in this case, the air showed the same downward trend, as if it were more and more protected over time during surgery (even if MATE is off) and its de-contamination at night became increasingly more effective.

Nell'immagine: Microbial load trend (average of 2 samples) – Air after operations – Sampling days

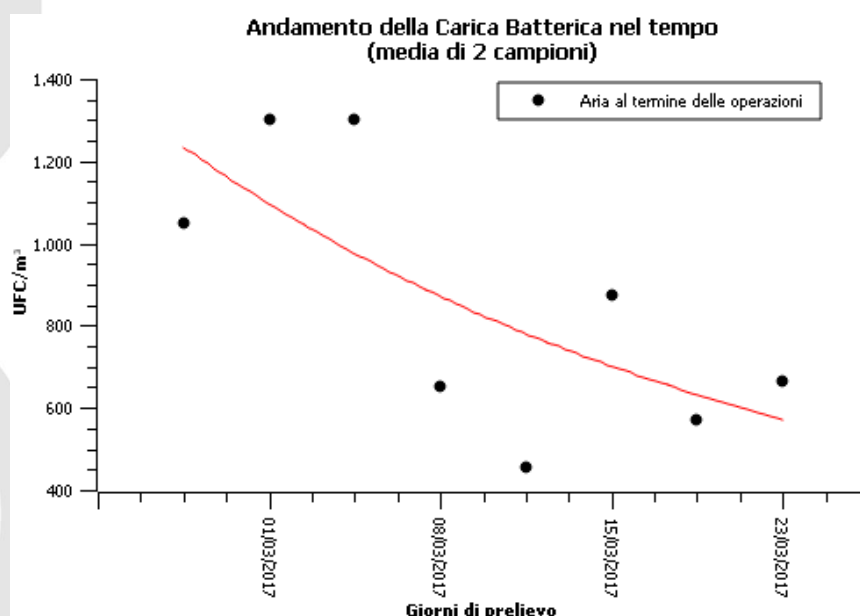
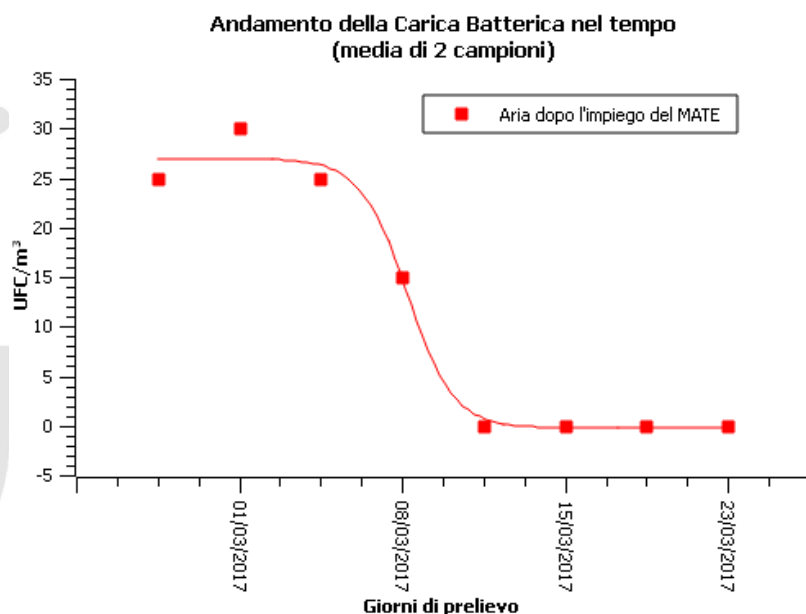


Figure 5 – Airborne contamination trend at the end of the surgery activities (dirty room). Average values detected in both operating rooms

Nell'immagine: Microbial load trend (average of 2 samples) – Air after using MATE – Sampling days



**Figure 6 - Airborne contamination trend when MATE is switched off after working overnight (clean room).
Average values detected in both operating rooms**

The microbial load reduction is evident both in the dirty and in the clean room. In the latter case, a particular phenomenon was observed: whereas at the beginning of the experimental period a minimum amount of contamination was recorded despite the use of MATE (approximately 30 CFU/m³), such contamination suddenly disappeared during the second experimental period (sigmoid trend).

In this case the explanation of the phenomenon may be more complicated: it is in fact difficult to understand why, as MATE is used regularly, the air is less contaminated even during surgery operations, that is when the ionizing system is off.

In the case of airborne contamination, biocidal activity cannot be a reason (as it is very short), nor can be the other factors that were hypothesised for surfaces. An assumption was made regarding the existence of a correlation between the level of fouling of surfaces and airborne contamination, i.e. cleaner surfaces mean fewer microorganisms in the air.

Nell'immagine: Correlation air contamination vs surface contamination Surface contamination – Air contamination

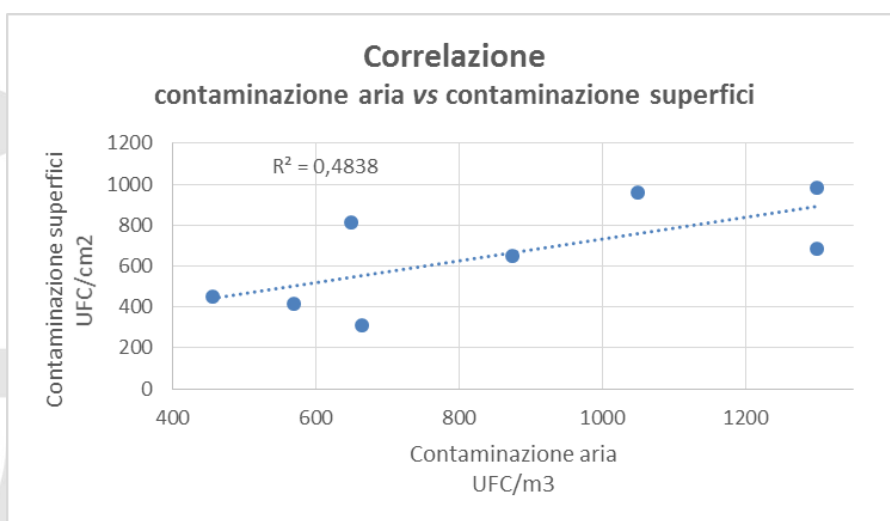


Figure 7 – Correlation between surface contamination and airborne contamination

Data analysis, unfortunately, evidences a poor correlation between these factors ($r^2 = 0.49$) making this assumption inaccurate.

Another option, currently impossible to verify with the data available, is that the combination of reactive species produced during the night by MATE with water vapour in the air generates hydrogen peroxide molecules characterized by a clear higher persistence in air. The prolonged use of MATE would therefore allow, over time, the accumulation of compounds with biocidal action able to contrast the presence of airborne microorganisms.

Even in this case, however, irrespective of strict scientific explanation of the observed phenomenon, it can be concluded that **the use of MATE improves air quality**, leading to a gradual decrease of microbial contamination of air, which greatly improves health and hygienic conditions.

Annex 1

-Analytical results -

Surfaces

						Sala A					
Ora del prelievo	Sporca	17:30	Orario MATE	Mate ON	17:51	Sportello mobile porta fili sutura		Soffietto lettino operatorio		Lampada scialitica lato dx	
	Pulita	07:35		Mate OFF	7:30	27/02/17	28/02/17	27/02/17	28/02/17	27/02/17	28/02/17
Tempo funzionamento MATE (ore:minuti)					13:39	Sporca	Pulita	Sporca	Pulita	Sporca	Pulita
CBT a 37°						1300	<1	1500	<1	30	<1
Muffe						<10	<10	<10	<10	<10	<10
Lieviti						<10	<10	<10	<10	<10	<10
Stafilococco						15	<10	<10	<10	<10	<10
						Sala B					
Ora del prelievo	Sporca	17:55	Orario MATE	Mate ON	18:13	Sportello mobile porta fili sutura		Soffietto lettino operatorio		Lampada scialitica lato dx	
	Pulita	08:00		Mate OFF	07:32	27/02/17	28/02/17	27/02/17	28/02/17	27/02/17	28/02/17
Tempo funzionamento MATE (ore:minuti)					13:19	Sporca	Pulita	Sporca	Pulita	Sporca	Pulita
CBT a 37°						1400	<1	1500	<1	20	<1
Muffe						<10	<10	<10	<10	<10	<10
Lieviti						<10	<10	<10	<10	<10	<10
Stafilococco						<10	<10	<10	<10	<10	<10

Sala A											
Ora del prelievo	Sporca	20:00	Orario MATE	Mate ON	20:15	Tubo corrugato		Macchina anestesia zona pulsanti		Piano inox carrello ferri	
	Pulita	08:10		Mate OFF	07:40	01/03/17	02/03/17	01/03/17	02/03/17	01/03/17	02/03/17
Tempo funzionamento MATE (ore:minuti)					11:25	Sporca	Pulita	Sporca	Pulita	Sporca	Pulita
CBT a 37°						900	<1	1000	<1	600	<1
Muffe						<10	<10	<10	<10	<10	<10
Lieviti						<10	<10	<10	<10	<10	<10
Stafilococco						15	<10	<10	<10	<10	<10
Sala B											
Ora del prelievo	Sporca	19:30	Orario MATE	Mate ON	19:49	Tubo corrugato		Macchina anestesia zona pulsanti		Piano inox carrello ferri	
	Pulita	07:45		Mate OFF	07:42	01/03/17	02/03/17	01/03/17	02/03/17	01/03/17	02/03/17
Tempo funzionamento MATE (ore:minuti)					11:53	Sporca	Pulita	Sporca	Pulita	Sporca	Pulita
CBT a 37°						700	<1	110	<1	800	<1
Muffe						<10	<10	<10	<10	<10	<10
Lieviti						<10	<10	<10	<10	<10	<10
Stafilococco						<10	<10	<10	<10	<10	<10

						Sala A					
Ora del prelievo	Sporca	18:15	Orario MATE	Mate ON	18:34	Carrello portafarmaci cassetto lato dx		Maniglia carrello assistente paziente		Sportello mobile porta fili di sutura	
	Pulita	11:20		Mate OFF	11:15	06/03/17	07/03/17	06/03/17	07/03/17	06/03/17	07/03/17
Tempo funzionamento MATE (ore:minuti)					16:41	Sporca	Pulita	Sporca	Pulita	Sporca	Pulita
CBT a 37°						1300	<1	1000	<1	900	<1
Muffe						<10	<10	<10	<10	<10	<10
Lieviti						<10	<10	<10	<10	<10	<10
Stafilococco						<10	<10	<10	<10	<10	<10
						Sala B					
Ora del prelievo	Sporca	17:10	Orario MATE	Mate ON	17:31	Carrello portafarmaci cassetto lato dx		Maniglia carrello assistente paziente		Sportello mobile porta fili di sutura	
	Pulita	10:55		Mate OFF	10:52	06/03/17	07/03/17	06/03/17	07/03/17	06/03/17	07/03/17
Tempo funzionamento MATE (ore:minuti)					17:21	Sporca	Pulita	Sporca	Pulita	Sporca	Pulita
CBT a 37°						900	<1	700	<1	1100	<1
Muffe						<10	<10	<10	<10	<10	<10
Lieviti						<10	<10	<10	<10	<10	<10
Stafilococco						<10	<10	<10	<10	<10	<10

						Sala A					
Ora del prelievo	Sporca	20:30	Orario MATE	Mate ON	20:46	Soffietto lettino operatorio		Lampada scialitica lato sx		Tubo corrugato	
	Pulita	11:20		Mate OFF	07:47	08/03/17	09/03/17	08/03/17	09/03/17	08/03/17	09/03/17
Tempo funzionamento MATE (ore:minuti)					11:01	Sporca	Pulita	Sporca	Pulita	Sporca	Pulita
CBT a 37°						1100	<1	840	<1	530	<1
Muffe						<10	<10	<10	<10	<10	<10
Lieviti						<10	<10	<10	<10	<10	<10
Stafilococco						<10	<10	<10	<10	<10	<10
						Sala B					
Ora del prelievo	Sporca	20:10	Orario MATE	Mate ON	20:28	Soffietto lettino operatorio		Lampada scialitica lato sx		Tubo corrugato	
	Pulita	07:40		Mate OFF	07:41	08/03/17	09/03/17	08/03/17	09/03/17	08/03/17	09/03/17
Tempo funzionamento MATE (ore:minuti)					11:13	Sporca	Pulita	Sporca	Pulita	Sporca	Pulita
CBT a 37°						1300	<1	650	<1	450	<1
Muffe						<10	<10	<10	<10	<10	<10
Lieviti						<10	<10	<10	<10	<10	<10
Stafilococco						<10	<10	<10	<10	<10	<10

						Sala A					
Ora del prelievo	Sporca	14:50	Orario MATE	Mate ON	15:13	Macchina anestesia zona pulsanti		Carrello portafarmaci cassetto lato sx		Piano inox carrello ferri	
	Pulita	12:45		Mate OFF	12:46	13/03/17	14/03/17	13/03/17	14/03/17	13/03/17	14/03/17
Tempo funzionamento MATE (ore:minuti)					21:33	Sporca	Pulita	Sporca	Pulita	Sporca	Pulita
CBT a 37°						400	<1	400	<1	500	<1
Muffe						<10	<10	<10	<10	<10	<10
Lieviti						<10	<10	<10	<10	<10	<10
Stafilococco						<10	<10	<10	<10	<10	<10
						Sala B					
Ora del prelievo	Sporca	15:40	Orario MATE	Mate ON	16:07	Macchina anestesia zona pulsanti		Carrello portafarmaci cassetto lato sx		Piano inox carrello ferri	
	Pulita	13:10		Mate OFF	13:06	13/03/17	14/03/17	13/03/17	14/03/17	13/03/17	14/03/17
Tempo funzionamento MATE (ore:minuti)					20:59	Sporca	Pulita	Sporca	Pulita	Sporca	Pulita
CBT a 37°						640	<1	410	<1	350	<1
Muffe						<10	<10	<10	<10	<10	<10
Lieviti						<10	<10	<10	<10	<10	<10
Stafilococco						<10	<10	<10	<10	<10	<10

						Sala A					
Ora del prelievo	Sporca	19:10	Orario MATE	Mate ON	19:33	Maniglia carrello assistente paziente		Sportello mobile porta fili di sutura		Soffietto lettino operatorio	
	Pulita	07:40		Mate OFF	07:37	15/03/17	16/03/17	15/03/17	16/03/17	15/03/17	16/03/17
Tempo funzionamento MATE (ore:minuti)					12:04	Sporca	Pulita	Sporca	Pulita	Sporca	Pulita
CBT a 37°						540	<1	710	<1	400	<1
Muffe						<10	<10	<10	<10	<10	<10
Lieviti						<10	<10	<10	<10	<10	<10
Stafilococco						<10	<10	<10	<10	<10	<10
						Sala B					
Ora del prelievo	Sporca	19:40	Orario MATE	Mate ON	19:53	Maniglia carrello assistente paziente		Sportello mobile porta fili di sutura		Soffietto lettino operatorio	
	Pulita	08:10		Mate OFF	07:54	15/03/17	16/03/17	15/03/17	16/03/17	15/03/17	16/03/17
Tempo funzionamento MATE (ore:minuti)					12:01	Sporca	Pulita	Sporca	Pulita	Sporca	Pulita
CBT a 37°						730	<1	1100	<1	430	<1
Muffe						<10	<10	<10	<10	<10	<10
Lieviti						<10	<10	<10	<10	<10	<10
Stafilococco						<10	<10	<10	<10	<10	<10

						Sala A					
Ora del prelievo	Sporca	17:30	Orario MATE	Mate ON	17:55	Lampada scialitica zona centrale		Tubo corrugato		Macchina anestesia zona pulsanti	
	Pulita	12:40		Mate OFF	12:37	20/03/17	21/03/17	20/03/17	21/03/17	20/03/17	21/03/17
Tempo funzionamento MATE (ore:minuti)					18:42	Sporca	Pulita	Sporca	Pulita	Sporca	Pulita
CBT a 37°						430	<1	310	<1	410	<1
Muffe						<10	<10	<10	<10	<10	<10
Lieviti						<10	<10	<10	<10	<10	<10
Stafilococco						<10	<10	<10	<10	<10	<10
						Sala B					
Ora del prelievo	Sporca	18:15	Orario MATE	Mate ON	18:37	Lampada scialitica zona centrale		Tubo corrugato		Macchina anestesia zona pulsanti	
	Pulita	13:05		Mate OFF	13:00	20/03/17	21/03/17	20/03/17	21/03/17	20/03/17	21/03/17
Tempo funzionamento MATE (ore:minuti)					18:23	Sporca	Pulita	Sporca	Pulita	Sporca	Pulita
CBT a 37°						510	<1	310	<1	520	<1
Muffe						<10	<10	<10	<10	<10	<10
Lieviti						<10	<10	<10	<10	<10	<10
Stafilococco						<10	<10	<10	<10	<10	<10

Sala A											
Ora del prelievo	Sporca	19:05	Orario MATE	Mate ON	19:45	Piano inox carrello porta ferri		Cassetto basso carrello portafarmaci		Maniglia carrello assistente pazienti	
	Pulita	09:48		Mate OFF	09:40	23/03/17	24/03/17	23/03/17	24/03/17	23/03/17	24/03/17
Tempo funzionamento MATE (ore:minuti)					13:55	Sporca	Pulita	Sporca	Pulita	Sporca	Pulita
CBT a 37°						210	<1	70	<1	540	<1
Muffe						<10	<10	<10	<10	<10	<10
Lieviti						<10	<10	<10	<10	<10	<10
Stafilococco						<10	<10	<10	<10	<10	<10
Sala B											
Ora del prelievo	Sporca	19:30	Orario MATE	Mate ON	19:33	Piano inox carrello porta ferri		Cassetto basso carrello portafarmaci		Maniglia carrello assistente pazienti	
	Pulita	09:20		Mate OFF	09:15	23/03/17	24/03/17	23/03/17	24/03/17	23/03/17	24/03/17
Tempo funzionamento MATE (ore:minuti)					13:42	Sporca	Pulita	Sporca	Pulita	Sporca	Pulita
CBT a 37°						530	<1	100	<1	410	<1
Muffe						<10	<10	<10	<10	<10	<10
Lieviti						<10	<10	<10	<10	<10	<10
Stafilococco						<10	<10	<10	<10	<10	<10

Ambient air

						Sala A	
Ora del prelievo	Sporca	17:30	Orario MATE	Mate ON	17:51	Aria lettino operatorio	
	Pulita	07:35		Mate OFF	7:30	27/02/17	28/02/17
Tempo funzionamento MATE (ore:minuti)					13:39	Sporca	Pulita
CBT a 37°						1200	50
Muffe						assente	assente
Lieviti						assente	assente
Stafilococco						70	assente
						Sala B	
Ora del prelievo	Sporca	17:55	Orario MATE	Mate ON	18:13	Aria lettino operatorio	
	Pulita	08:00		Mate OFF	07:32	27/02/17	28/02/17
Tempo funzionamento MATE (ore:minuti)					13:19	Sporca	Pulita
CBT a 37°						900	<1
Muffe						assente	assente
Lieviti						assente	assente
Stafilococco						assente	assente

						Sala A	
Ora del prelievo	Sporca	20:00	Orario MATE	Mate ON	20:15	Aria lettino operatorio	
	Pulita	08:10		Mate OFF	07:40	01/03/17	02/03/17
Tempo funzionamento MATE (ore:minuti)					11:25	Sporca	Pulita
CBT a 37°						1400	30
Muffe						assente	assente
Lieviti						assente	assente
Stafilococco						35	assente
						Sala B	
Ora del prelievo	Sporca	19:30	Orario MATE	Mate ON	19:49	Aria lettino operatorio	
	Pulita	07:45		Mate OFF	07:42	01/03/17	02/03/17
Tempo funzionamento MATE (ore:minuti)					11:53	Sporca	Pulita
CBT a 37°						1200	30
Muffe						assente	assente
Lieviti						assente	assente
Stafilococco						assente	assente

						Sala A	
Ora del prelievo	Sporca	18:15	Orario MATE	Mate ON	18:34	Aria lettino operatorio	
	Pulita	11:20		Mate OFF	11:15	06/03/17	07/03/17
Tempo funzionamento MATE (ore:minuti)					16:41	Sporca	Pulita
CBT a 37°						1400	30
Muffe						assente	assente
Lieviti						assente	assente
Stafilococco						assente	assente
						Sala B	
Ora del prelievo	Sporca	17:10	Orario MATE	Mate ON	17:31	Aria lettino operatorio	
	Pulita	10:55		Mate OFF	10:52	06/03/17	07/03/17
Tempo funzionamento MATE (ore:minuti)					17:21	Sporca	Pulita
CBT a 37°						1200	20
Muffe						assente	assente
Lieviti						assente	assente
Stafilococco						40	assente

						Sala A	
Ora del prelievo	Sporca	20:30	Orario MATE	Mate ON	20:46	Aria lettino operatorio	
	Pulita	11:20		Mate OFF	07:47	08/03/17	09/03/17
Tempo funzionamento MATE (ore:minuti)					11:01	Sporca	Pulita
CBT a 37°						500	30
Muffe						assente	assente
Lieviti						assente	assente
Stafilococco						assente	assente
						Sala B	
Ora del prelievo	Sporca	20:10	Orario MATE	Mate ON	20:28	Aria lettino operatorio	
	Pulita	07:40		Mate OFF	07:41	08/03/17	09/03/17
Tempo funzionamento MATE (ore:minuti)					11:13	Sporca	Pulita
CBT a 37°						800	<1
Muffe						assente	assente
Lieviti						assente	assente
Stafilococco						assente	assente

						Sala A	
Ora del prelievo	Sporca	14:50	Orario MATE	Mate ON	15:13	Aria lettino operatorio	
	Pulita	12:45		Mate OFF	12:46	13/03/17	14/03/17
Tempo funzionamento MATE (ore:minuti)					21:33	Sporca	Pulita
CBT a 37°						340	<1
Muffe						assente	assente
Lieviti						assente	assente
Stafilococco						assente	assente
						Sala B	
Ora del prelievo	Sporca	15:40	Orario MATE	Mate ON		Aria lettino operatorio	
	Pulita	13:10		Mate OFF		13/03/17	14/03/17
Tempo funzionamento MATE (ore:minuti)					00:00	Sporca	Pulita
CBT a 37°						570	<1
Muffe						assente	assente
Lieviti						assente	assente
Stafilococco						assente	assente

						Sala A	
Ora del prelievo	Sporca	19:10	Orario MATE	Mate ON	19:33	Aria lettino operatorio	
	Pulita	07:40		Mate OFF	07:37	15/03/17	16/03/17
Tempo funzionamento MATE (ore:minuti)					12:04	Sporca	Pulita
CBT a 37°						810	<1
Muffe						assente	assente
Lieviti						assente	assente
Stafilococco						30	assente
						Sala B	
Ora del prelievo	Sporca	19:40	Orario MATE	Mate ON	19:53	Aria lettino operatorio	
	Pulita	08:10		Mate OFF	07:54	15/03/17	16/03/17
Tempo funzionamento MATE (ore:minuti)					12:01	Sporca	Pulita
CBT a 37°						940	<1
Muffe						assente	assente
Lieviti						assente	assente
Stafilococco						assente	assente

						Sala A	
Ora del prelievo	Sporca	17:30	Orario MATE	Mate ON	17:55	Aria lettino operatorio	
	Pulita	12:40		Mate OFF	12:37	20/03/17	21/03/17
Tempo funzionamento MATE (ore:minuti)					18:42	Sporca	Pulita
CBT a 37°						340	<1
Muffe						assente	assente
Lieviti						assente	assente
Stafilococco						assente	assente
						Sala B	
Ora del prelievo	Sporca	18:15	Orario MATE	Mate ON	18:37	Aria lettino operatorio	
	Pulita	13:05		Mate OFF	13:00	20/03/17	21/03/17
Tempo funzionamento MATE (ore:minuti)					18:23	Sporca	Pulita
CBT a 37°						800	<1
Muffe						assente	assente
Lieviti						assente	assente
Stafilococco						assente	assente

						Sala A	
Ora del prelievo	Sporca	19:05	Orario MATE	Mate ON	19:45	Aria lettino operatorio	
	Pulita	09:48		Mate OFF	09:40	23/03/17	24/03/17
Tempo funzionamento MATE (ore:minuti)					13:55	Sporca	Pulita
CBT a 37°						1100	<1
Muffe						assente	assente
Lieviti						assente	assente
Stafilococco						assente	assente
						Sala B	
Ora del prelievo	Sporca	19:30	Orario MATE	Mate ON	19:33	Aria lettino operatorio	
	Pulita	09:20		Mate OFF	09:15	23/03/17	24/03/17
Tempo funzionamento MATE (ore:minuti)					13:42	Sporca	Pulita
CBT a 37°						230	<1
Muffe						assente	assente
Lieviti						assente	assente
Stafilococco						assente	assente