

Title *STAUFrei – Out-patient detection and decontamination to prevent Staphylococcus AUreus complications in patients undergoing elective surgery*

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Sources https://innovationsfonds.g-ba.de/downloads/beschluss-dokumente/557/2024-04-19_STAUFrei_Ergebnisbericht.pdf
<https://innovationsfonds.g-ba.de/beschluesse/staufrei-praestationaere-detektion-und-sanierung-zur-vermeidung-von-staphylococcus-aureus-komplikationen-bei-elektiven-patienten.202>

Background and aim of the study Patients are at risk of infection during surgical procedures. The current German standard care to prevent the spreading of pathogens, e.g. pre-operative patient decontamination, focuses primarily on the in-patient sector.

The aim of the study was to prevent the transmission of methicillin-resistant *Staphylococcus aureus* (MRSA) / methicillin sensitive *Staphylococcus aureus* (MSSA) during the transition between in-patient and out-patient sectors by implementing a sector-overarching patient decontamination before elective intervention. Therefore, MRSA and MSSA colonization rates should be lowered upon hospital admission and wound infection rates should be reduced to save costs in the in-patient sector. If the investigated measures proved successful, implementation in standard care would be suggested.

Methods A new form of standard care was studied in a prospective, controlled, non-randomized intervention study. It was comprised of (1) the out-patient screening of both pathogens, (2) the out-patient patient decontamination with proven pathogen colonization and (3) the post-surgical care of patients (Figure 1, Table 1). The primary endpoint was the reduction of the MSSA colonization rate, secondary endpoints were surgical site infection, hospital re-admission and recolonization. A health economic evaluation was also carried out.

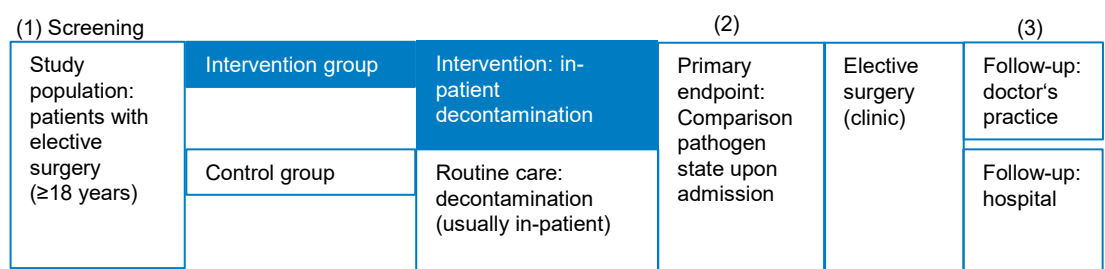


Figure 1: Study design

Table 1: Products used in the intervention group

Set A (mobile patients)	Set B (immobile patients)	Product
-	5 x washing gloves	octenisan® wash mitts
-	5 x washing cover	octenisan® wash cap
1 x decontaminating washing solution	-	octenisan® wash lotion
5 x mouth rinse solution	5 x mouth rinse solution	octenidol® mouth rinse solution
1 x nasal gel	1 x nasal gel	octenisan® md nasal gel (upon positive MSSA-findings)
2 x alcoholic hand disinfection	2 x alcoholic hand disinfection	Sterillium® classic pure
1 x surface disinfection wipes	1 x surface disinfection wipes	Bacillol® 30 Tissues Flow Pack
5 x single use combs	5 x single use combs	Wash bag with 5 single use combs and 10 toothbrushes
10 x single use toothbrushes	10 x single use toothbrushes	
1 x deodorant	1 x deodorant	Anti Trans Deo Spray
1 x decolonization manual	1 x decolonization manual	Manual by Schülke & Mayr GmbH
1 x Turixin® nasal ointment	1 x Turixin® nasal ointment	Turixin® (Mupirocin) nasal ointment Upon MRSA finding exchange from nasal gel to Turixin® nasal ointment by the MFA (excluding pregnant patients).

Results



Reduction of the MSSA*-colonization rate - No significant difference was observed in the intervention group (IG) as compared to the control group (CG).

After baseline and risk factor adjustment, a statistically significant change for the IG was observed with respect to the colonization status, albeit only with a moderate effect. The IG had a 14% lower colonization upon in-patient admission in comparison to the CG (Table 2).

Table 2: Colonization with MSSA

	Odds ratio	p-value	95% Confidence interval	
			Lower	Upper
Comparison IG to CG	1.014	0.790	0.920	1.120
Baseline adjusted comparison IG to CG	0.859	0.046	0.740	0.997



Surgical site infection - When comparing the IG and CG, no significant change was observed.



Hospital re-admission - The secondary endpoint hospital re-admission was statistically significantly better for the IG as compared to the CG. In total, re-admissions were observed 2.4 times more frequently in the CG (Table 3).

Table 3: Hospital re-admission within 30 days of discharge

	Total (n=7503)	CG (n=4415)	IG (n=3088)	p-Value
Hospital re-admissions	333 (4.4)	258 (5.8)	75 (2.4)	< 0.0001



Recolonization - The secondary endpoint recolonization also showed a statistically significant improvement for the IG as compared to the CG. Patients of the IG with a positive finding upon study inclusion were 33% less likely to have a positive MSSA result after surgery in comparison to the CG (Table 4).

Table 4: Recolonization

	Odds ratio	p-value	95% Confidence interval	
			Lower	Upper
Comparison IG to CG	0.67	< 0.001	0.55	0.81



Health-economic evaluation - Analyses of the health-economic evaluation indicate that the new form of standard care is connected to lower total costs (out-patient and in-patient) and a shorter average length of stay in the hospital (Table 5).

Table 5: Health-economic data

	Study group	Number of participants	Average	Standard deviation
Length of the calculated stay	IG	2171	4.30	4.04
	CG	3391	4.89	6.45
Total cost out-patient and in-patient per patient [€]	IG	2581	2422.88	2966.16
	CG	3989	2853.32	4698.18

Conclusion

In total, complete implementation of out-patient decontamination in the domestic setting was low (10%). Therefore, no recommendation for switching to this new proposed standard care could be given. The project still provided important insights into the feasibility of out-patient pre-operative decontamination in case of MRSA- and MSSA-positive patients. This should be considered when designing future studies and developing similar approaches to care.