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Professional Assessment

Hygienic preparation of medical products and aids Rebotec commode roller chair, Model Bonn

We examined the commode roller chair Model Bonn made by Rebotec company for its suitability for re-use, and did so based on the requirements of the German *Medizinproduktegesetzes MPG* (Medical Products Act). Products for re-use must have the capability of being securely disinfected in order to eliminate the risk of the next user/patient becoming infected. Regulations provide for such medical products that disinfection measures with steps in accordance to the RKI Guidelines analogous to the methods for surface and instrument disinfection are to be carried out. Based on the guideline for "Inspection and Assessment of Chemical Disinfection Processes" of the German Society for Hygiene and Microbiology (DGHM), the possibility of disinfection of the commode roller chair is to be checked, as in the case of a contamination of a potentially infectious material through the user a further use of the medical equipment would be prevented.

1. Test Object

The Rebotec commode roller chair Model Bonn is manufactured of solid plastic, whose properties include a high level of durability and is not prone to get dirty easily, which means cleaning can be facilitated.

2. Test Set-up and Execution

18 test-points were determined and defined that could potentially come in contact with the user. Here possible risk areas were selected in order to check the most difficult areas to disinfect. A suspension containing the test-germ was placed on the areas and dried at 30°C for 30 minutes using a heat lamp. Then a spray-disinfection and wiping disinfection was carried out.

3. Test Germs

Staphylococcus	ATCC 6538
Enterococcus faecium	ATCC 5037
Escherichia coli	ATCC 11229
Proteus mirabilis	ATCC 14153
Pseudomonas aeruginosa	ATCC 15442
Candida albicans	ATCC 10231

In addition to the five bacteria *Staphylococcus*, *Enterococcus faecium*, *Escherichia coli*, *Proteus mirabilis* and *Pseudomonas aeruginosa*, *Candida albicans* was used to represent fungus in order to cover this medically relevant flu.

4. Germ Concentration

The germ concentration was set at exactly 10 million CFU/ml for all species by using titration. Using a pipette the germs were applied to each test point in liquid form with a quantity of 0.1 ml. This was equivalent to a contamination of 1 million CFU. In order to reach a secure disinfection, it is necessary to have a reduction of 5 log phases.

5. Disinfectant

To represent other disinfectants, the DGHM-listed disinfectant called Antifect® (Schulke & Mayr) was selected as a rapid alcohol disinfectant for medical products and medical supplies when short reaction times are a requirement. For this agent, the reaction time as to the DGHM list is 5 minutes, 30 minutes for risk of tuberculosis bacteria, 60 minutes for Hepatitis B virus (HPV).

For the studies performed, a reaction time of 5 minutes was taken as a basis.

6. Results

Specimen No.	Test point	Germ	Total CFU	Reduction rate log phase
1	Seat surface left	<i>E-coli</i>	germ-free	6.00
2	Leg socket left	<i>E-coli</i>	germ-free	6.00
3	Backrest Rear side	<i>E-coli</i>	germ-free	6.00
4	Bowl cover	<i>S. aureus</i>	germ-free	6.00
5	Armrest right	<i>S. aureus</i>	germ-free	6.00
6	Rear wheel right	<i>S. aureus</i>	germ-free	6.00
7	Column back right	<i>P. aeruginosa</i>	germ-free	6.00
8	Back side seat surface	<i>P. aeruginosa</i>	germ-free	6.00
9	Back wheel right	<i>P. aeruginosa</i>	germ-free	6.00
10	Wheel right	<i>E. faecalis</i>	germ-free	6.00
11	Seat surface	<i>E. faecalis</i>	germ-free	6.00
12	Backrest	<i>E. faecalis</i>	germ-free	6.00
13	Seat surface rear	<i>P. mirabilis</i>	germ-free	6.00
14	Hand support left	<i>P. mirabilis</i>	germ-free	6.00
15	Foot support right	<i>P. mirabilis</i>	germ-free	6.00
16	Bowl cover	<i>C. albicans</i>	germ-free	6.00
17	Foot support right	<i>C. albicans</i>	germ-free	6.00
18	Back surface, lower side	<i>C. albicans</i>	3	5.53
Total log phase reduction				5.97

7. Conclusion

The real-life simulation test for the commode roller chair Model Bonn of Rebotec Company for all tested germs, including the *Candida albicans* fungus, provided a total value of 5.97 log scales. The required germ-count reduction of at least 5 log phases is thus reached. Thus the commode roller chair can be safely disinfected by manual cleaning through a professional execution of spray and wipe disinfection and can be recommended for re-use.

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