Ecolab® Disinfectant 1 Wipe made 100% from wood pulp

Wipe Reduction Case Study

Background:

Properly disinfected healthcare environments are critical to helping mitigate the risk of healthcare associated infections. Pre-saturated, ready-to-use disinfectant wipes make it easier to follow cleaning protocols and prevent cross-contamination. Most healthcare disinfectant wipes are made from synthetic plastic fibers that can take hundreds of years to break down[1], and contribute to the growing challenge of microplastics accumulating in the environment. **The majority of the plastic in disinfectant wipes comes from the wipes themselves, with 58% originating from the wipe and 42% from the plastic canister[2]. There is a need for more sustainable healthcare products that have a lower environmental impact, without compromising effectiveness and performance.**

Setting/Study Design/Methods:

A 4-week observational study was conducted at North Memorial Ambulatory Surgery Center Maple Grove in Minnesota. The baseline was conducted using a quaternary ammonium chloride plus alcohol-based wipe on a plastic-based substrate with a 2-minute contact time (Wipe X) and the intervention phase used a wipe with 100% plastic-free substrate[3], dodecyl benzenesulfonic acid (DDBSA) as the disinfectant active and a 1-minute contact time (Ecolab Disinfectant 1 Wipe[4]). Both wipes were approximately 40 square inches in size (See Table 1).

Table 1. Ecolab Disinfectant 1 Wipe versus Wipe X

	Active Ingredient	Contact Time (minutes)	Dimensions (inches)	Area (sq in)
Wipe X	Quaternary ammonium chloride + alcohol	2	6 x 6.75	40.5
Ecolab Disinfectant 1 Wipe	Dodecyl benzenesulfonic acid	1	5.75 x 7	40.25

The operating room (OR) used, the number of procedures per room, and the specialty type of each procedure were recorded. Following AORN Environmental Cleaning guidelines, staff performed a damp dusting of all horizontal surfaces before the first scheduled procedure of the day. Each damp dust was counted as one additional procedure for each OR used that day.

After each phase, the number of wipes used was counted and an average count of wipes per procedure was calculated.

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Results:

During the baseline, a total of 131 procedures were performed plus 33 damp dustings, totaling 164 procedures. A total of 1,938 wipes were used, averaging 11.8 wipes per procedure.

In comparison, during the intervention phase, 109 procedures were performed and 27 damp dustings, totaling 136 procedures. Only 637 wipes were used, averaging 4.7 wipes per procedure. **This demonstrated a 60% reduction in wipe utilization (See Table 2).**

Table 2. Procedure and Wipe Counts

	Baseline	Intervention
# of Procedures	131	109
# of Procedures (with damp dust)	164	136
Total Wipes Used	1938	637
Average # of Wipes per Procedure	11.8	4.7
Average # of Procedures Per OR	4.0	4.0

Discussion:

The intervention significantly reduced the number of wipes used per procedure. **The Ecolab Disinfectant 1 Wipe, with substrate derived from wood pulp, has the capacity to hold more disinfectant liquid and demonstrated its ability to maintain wetness and contact times over a larger surface area than Wipe X.** By contrast, Wipe X, which is comprised of alcohol-based active ingredients, demonstrated a much faster rate of evaporation, which contributed to the increase in wipes used, in order to maintain wetness and contact times. **As a result, the Ecolab Disinfectant 1 Wipe was more effective at reducing consumption of disinfectant wipes and maintaining contact time to ensure kill claims.**

The study was conducted in an ambulatory surgery center providing various surgical services, with no significant difference in case mix between study periods, including those of robotic procedures. While more wipes are typically used for robotic procedures, there was no difference in the number of robotic procedures performed. (See Table 3). Staff noted the wipe was wetter, thicker, and provided more friction during cleaning[5].

Table 3. Procedure by Specialty

	Ortho	General	ENT	Gyn	Misc*	Total	% of total procedures
Baseline	49	44	25	7	6	131	
# of robotic procedures		9				9	6.9%
Intervention	37	30	30	7	5	109	
# of robotic procedures		8		2		10	9.2%

*Misc = colon rectal, GI, oral surgery, podiatry, urology

Conclusions:

This study demonstrates how the Ecolab Disinfectant 1 Wipe, a 100% plastic-free[3] and degradable disinfectant wipe, **led to a 60% reduction in wipes used,** per procedure, compared to Wipe X, the market leading alcohol-based hospital disinfectant wipe [5, 6]. The Ecolab Disinfectant 1 Wipe helps healthcare facilities **reduce overall wipe usage, save costs, improve operational efficiencies, maintain effectiveness, and advance sustainability efforts to protect the health of people, the planet, and healthcare businesses across the globe.**

Request a sample at Ecolab.com/offerings/disinfectant-wipes

Footnotes:

1. Kibria MG, Masuk NI, Safayet R, et al. Plastic Waste: Challenges and Opportunities to Mitigate Pollution and Effective Management. Int J Environ Res. 2023;17:20.doi:10.1007/s41742-023-00507-z
2. Based on product specifications of a 6" x 6.7" wipe, with 34 gsm substrate, 160 wipes per canister and combined canister and lid mass of 100 g.
3. Wipe substrate is 100% plastic-free. Soft pack packaging comprised of plastic. Represents a 90%+ reduction in total plastic compared to the total plastic mass of a wipe canister containing 160 plastic wipes
4. Disinfectant 1 Wipe, EPA Reg. No. 1677-263, refer to product label for use directions.
5. Ecolab interviewed three operating room nurses over the 4-week study during 2H 2024.
6. 2023 DRG data

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