

Cataract Surgery and Sustainability: Comparative Study of Single-Use Versus Reusable Cassettes in Phacoemulsification

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Abstract : Objective: This study compares the sustainability, financial implications, and surgical efficiency of two phacoemulsification cassette systems for cataract surgery: a machine with single-use cassettes and another with daily, reusable ones. Methods: The observational study involves retrospective cataract surgery data collection at the Centre Médical de l'Alliance, Braine-L'alleud, Belgium, a tertiary eye care center. Information on cassette weight, quantities, and transport volume was obtained from routine procedures and purchasing records. The costs for each machine were calculated by reviewing the invoices received from the accounting department. Results: We found significant differences across comparisons. The reusable cassette machine, when compared to the single-use machine, used 306.7 kg less plastic (75.3% reduction), required 2,494 cubic meters less storage per 1000 surgeries (67.7% decrease), and cost €54.16 less per 10 procedures (16.9% reduction). The machine with daily reusable cassettes also exhibited a 7-minute priming time advantage for 10 procedures, reducing downtime between cases. Conclusions: Our findings underscore the benefits of adopting reusable cassette systems: reduced plastic consumption, storage volume, and priming time, as well as enhanced efficiency and cost savings. Healthcare professionals and institutions are encouraged to embrace environmentally conscious initiatives. The use of reusable cassette systems for cataract surgeries offers a pathway to sustainable practices.

Keywords : cataract, epidemiology, surgery treatment, lens and zonules, public health

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