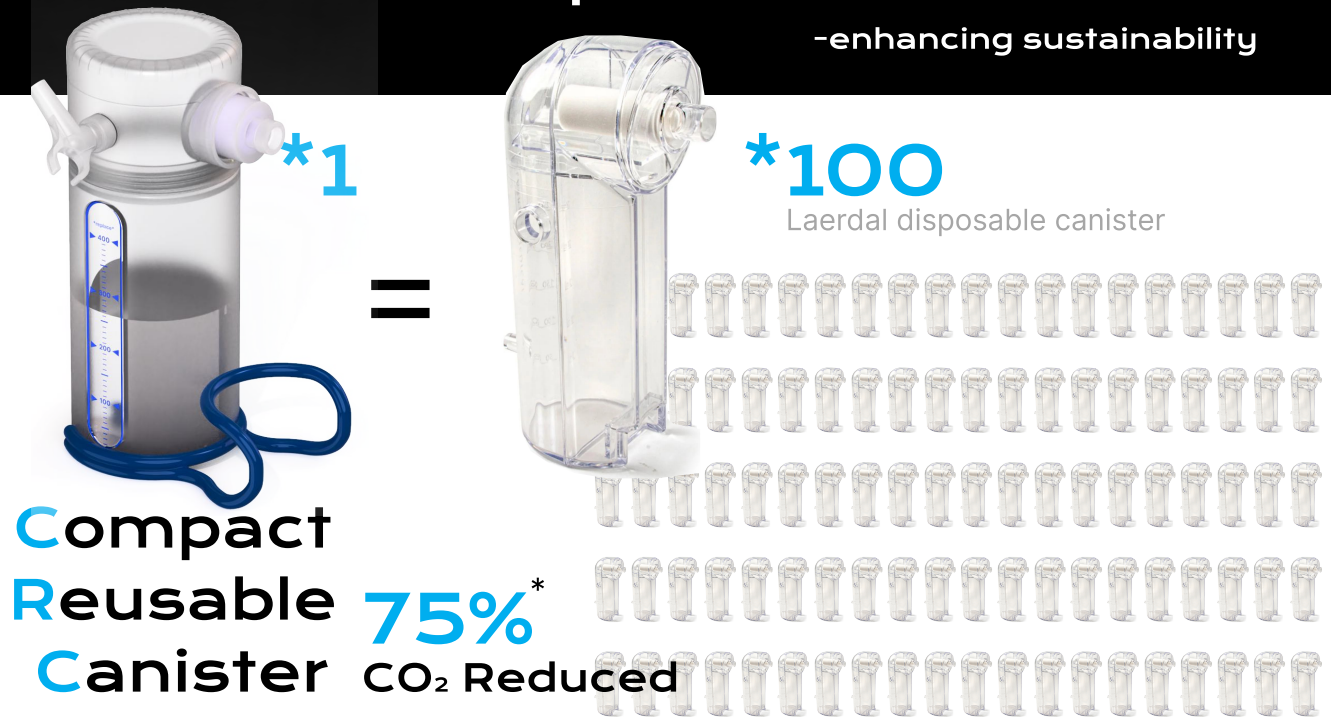


Design of a reusable canister for Laerdal's Compact Suction Unit.

-enhancing sustainability



Context

Disposable medical consumable products are widely utilized in various medical contexts. A canister is a medical device used with suction unit, it contains the human liquid content from a patient. Currently disposable solutions are widely used in different contexts. Laerdal Medical has set a goal to achieve a 70% reduction in carbon emissions by the year 2030. The impetus behind this project is driven by Laerdal's commitment to improving the sustainability of its medical consumable products, specifically canisters.

Final Design

Based on insights from the design research phase:

1. Personal users tend to reuse canister despite its reusability
2. Current no reusable canister is available for LCSU

I proposed a Compact Reusable Canister (CRC) specifically for personal use. The CRC is sustainable, durable, easy to use, set up, and compact. It consists of seven parts, allowing users to easily replace the filter and access all components for cleaning and disinfection. The CRC is also dishwasher-safe. Its size is comparable to a water bottle, making it portable, and it fits perfectly into the original LCSU carry bag when used with the canister holder.

How sustainability is addressed in the design?

The original Laerdal disposable canisters present a sustainability challenge: the filter inside the canister cannot be replaced, making reuse impossible.

As a result, plastic canisters are discarded after a single use. In a home usage context, where the risk of cross-infection is significantly lower than in medical organizations, reusing a canister is both reasonable and practical. Personal users can greatly reduce costs by reusing canisters, while also conserving the resources required for manufacturing new plastic canisters. Furthermore, a Life Cycle Assessment (LCA) has shown that the carbon emissions associated with reusing canisters are minor compared to the use of single-use canisters. Additionally, the design features durable construction with simplified parts and increased wall thickness, ensuring a long service life.



*even in the worst-case scenario, the CRC reduces carbon emissions by at least 75% if reused 100 times compared with Laerdal disposable canister

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Integrated Product Design

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