Sustainable waste disposal system for surgical suction fluids Salem Hospital, Heidelberg, Germany

Demographic information

- **Country: Germany**
- **Type of institution: Hospital**
- **Number of staff: 550**
- **Number of beds: 238**

GGHH agenda goals

- Waste

Case study summary

The issue

The issue Suction bags at the theater generate a great amount of medical fluid waste from the surgical site. This fluid waste has a high CO2-balance for its complex storage, transportation and incineration. With the Nemo-device the fluid waste can be emptied on-site, reducing the waste up to 92%, costs by at least 66%, and CO2 emissions by up to 97%.

Suction bags – fluid medical waste with high CO2-balance

Every day, surgical procedures generate a significant amount of medical fluid waste. Fluids such as wound secretions, blood, and rinsing liquids from the surgical site are collected into 2- or 3-liter suction bags and are then usually disposed of as liquid waste. Consequently, high costs are incurred for storage, transportation, and waste disposal of the fluid-filled suction bags. Incinerating fluid waste is a complex process that produces high CO2 emissions.

Hospital goal

- Sustainable disposal of medical fluid waste
- Reducing costs
- CO2 emissions reduction

Sustainability strategy implemented

An innovative alternative to disposing of fluid medical waste is on-site emptying of suction bags using a stationary device, such as Serres Nemo (figure 1). This disposal method significantly reduces waste, lowers costs, and protects the environment. The filled suction bag is placed into the Serres Nemo®

device, and the lid is closed (figures 2-6). In 15 seconds, the fluid waste is flushed and drained into the sewer system. Local water authorities should be consulted to ensure compliance with regional wastewater regulations. The emptied bag is disposed of as residential waste. As a result, waste volume is decreased by up to 92%, leading to cost savings of at least 66%. Additionally, since waste transportation and incineration are avoided, CO2 emissions are reduced by up to 97% in the disposal phase.

Implementation process

Disposing of fluid medical waste on-site reduces the risk of contamination for staff and lowers internal logistics by decreasing the amount of waste that needs to be transported. The cost savings mentioned relate to Salem Hospital, which has 6 theaters and produces about 6 tons of fluid waste annually. In larger hospitals, there may be greater cost-effectiveness, depending on factors like the location of waste disposal companies, the number of operating theaters, the types of surgeries performed, and the amount of suction bags used. Serres Nemo® requires a cold-water supply, a sanitary waste line, and electrical power. Handling and maintaining the device is simple and intuitive. The investment costs can be amortized in a couple of months.

Progress achieved

Using the Serres Nemo® is a sustainable on-site solution for disposing of fluid medical waste. Hospitals benefit from:

➔ Sustainability: Significantly reducing fluid waste by up to 92% and waste-related carbon footprint by up to 97%
➔ Economy: Saving at least 66% in waste disposal costs
➔ Healthcare professionals: Minimizing contamination risk and enhancing workflow efficiency

> *"The Nemo device effectively decreases the amount of waste in the OR. Thus, it reduces costs and CO2 emissions. This is an effective climate protection measure that can be implemented in any hospital. I am glad about such a technical development."* Michael Letschert, resident, Anesthesiology

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Appendix – Images

Sustainability strategy implemented. Photo credits: All images © Till Kochendörfer, Salem Hospital

Figure 1

Figure 2

Figure 3

Figure 4

Figure 5

Figure 6