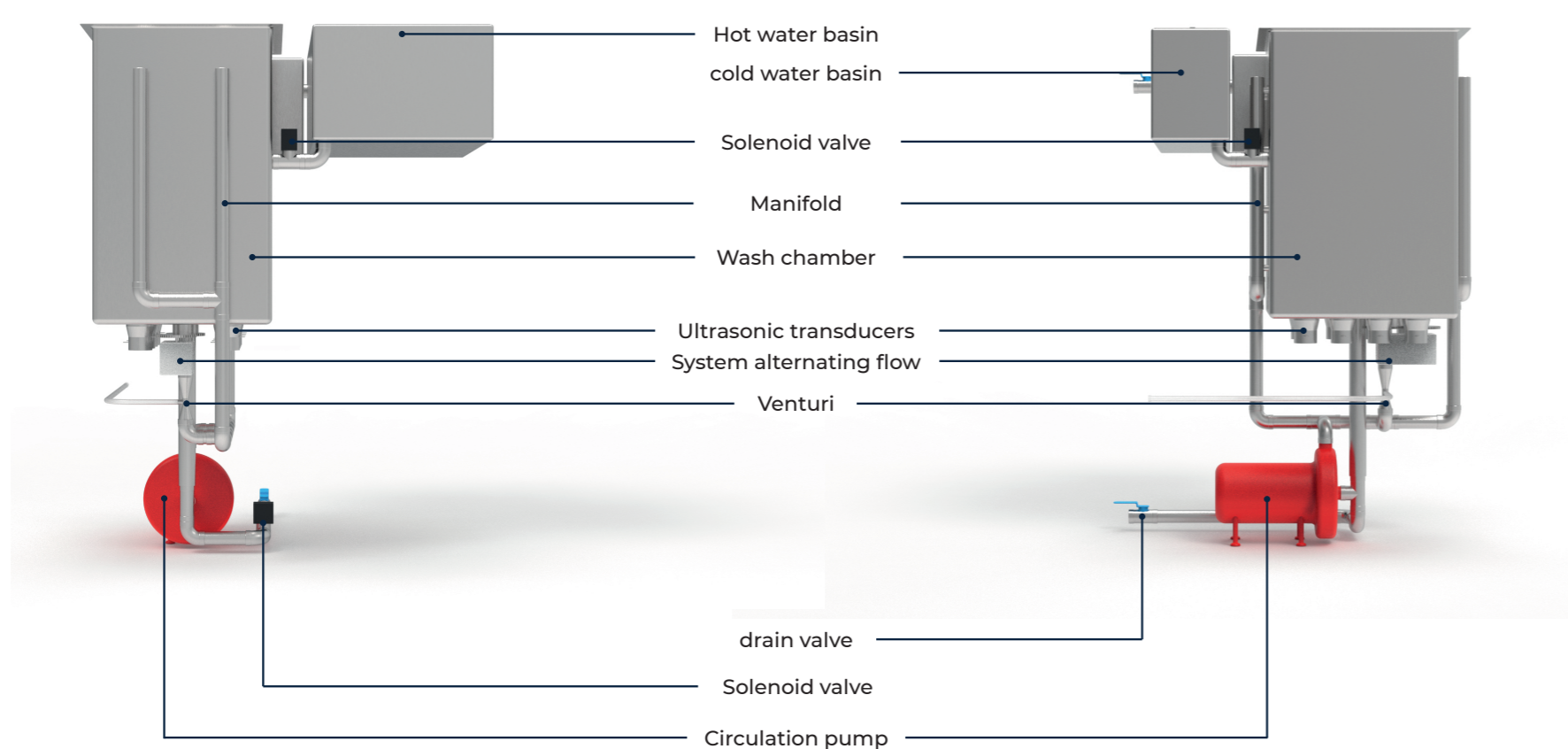
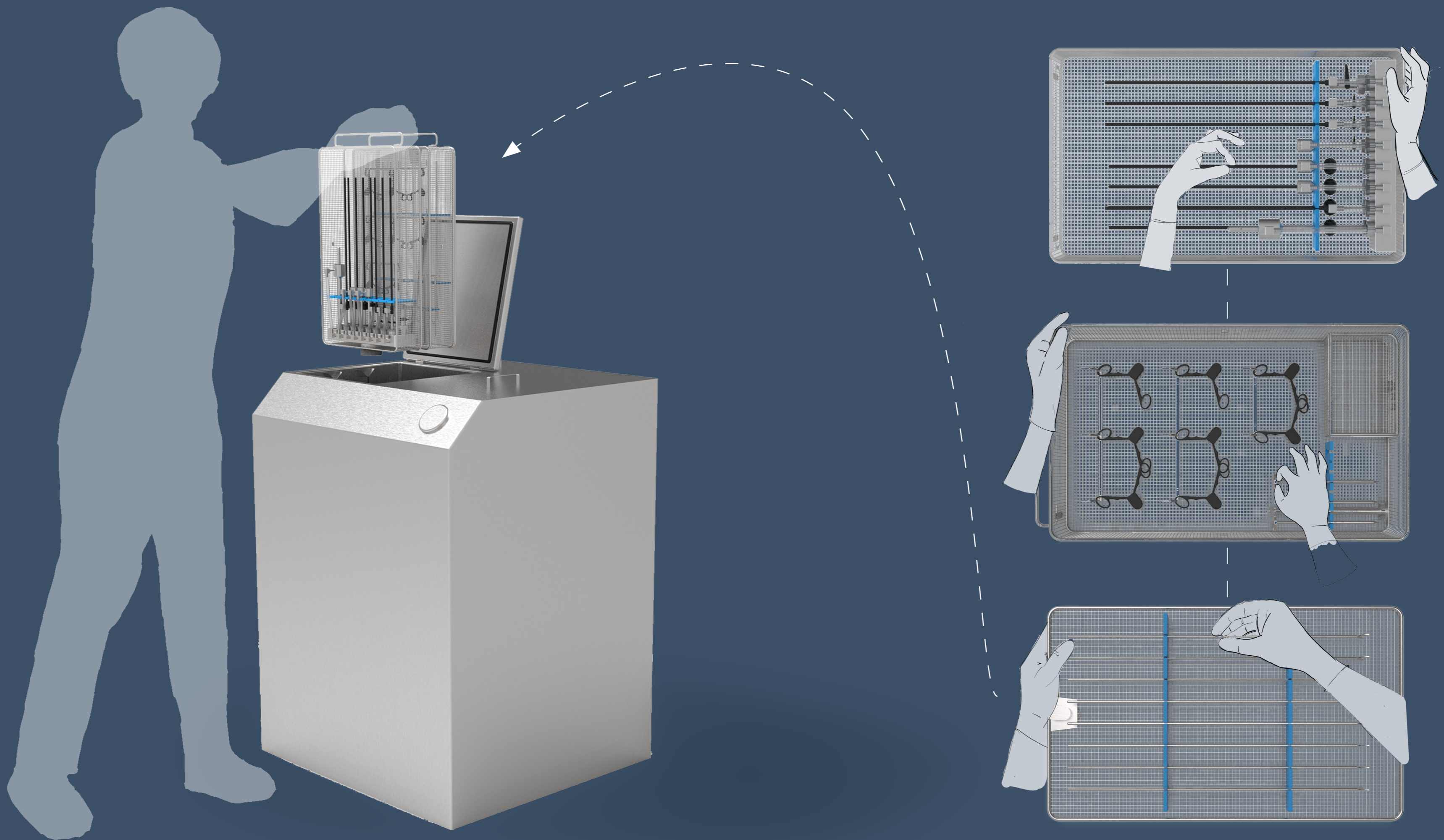


SamarthClean

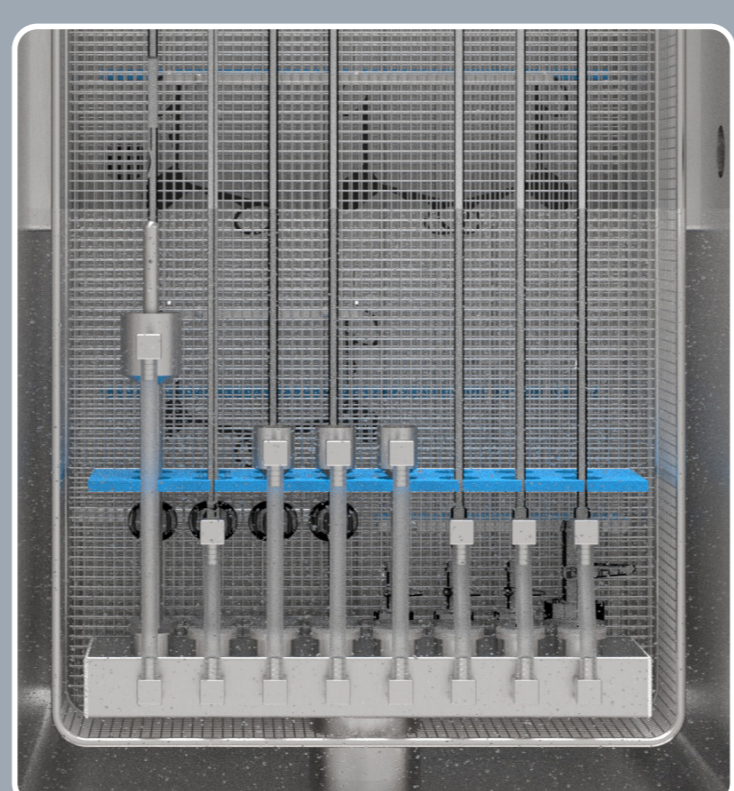
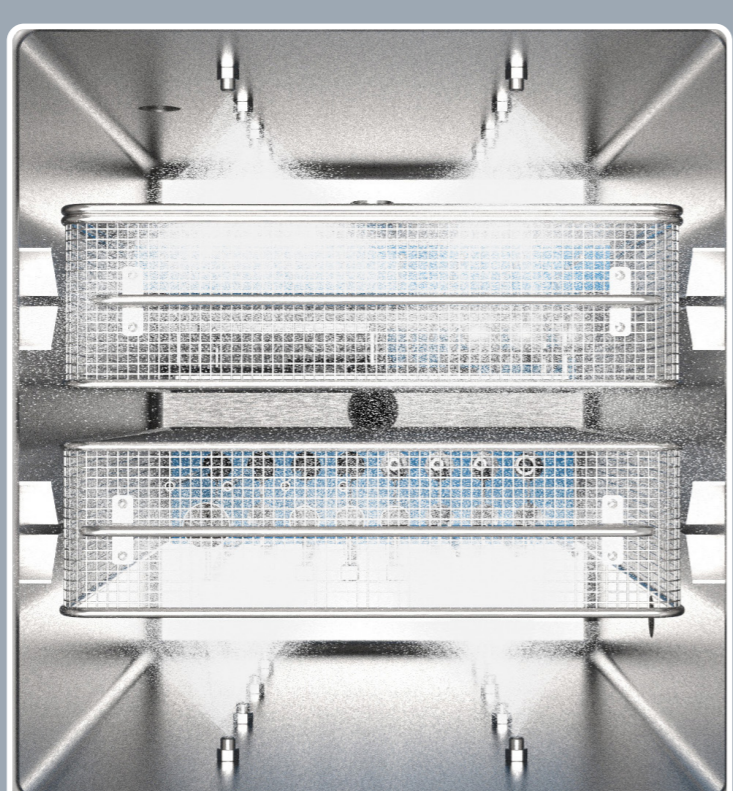
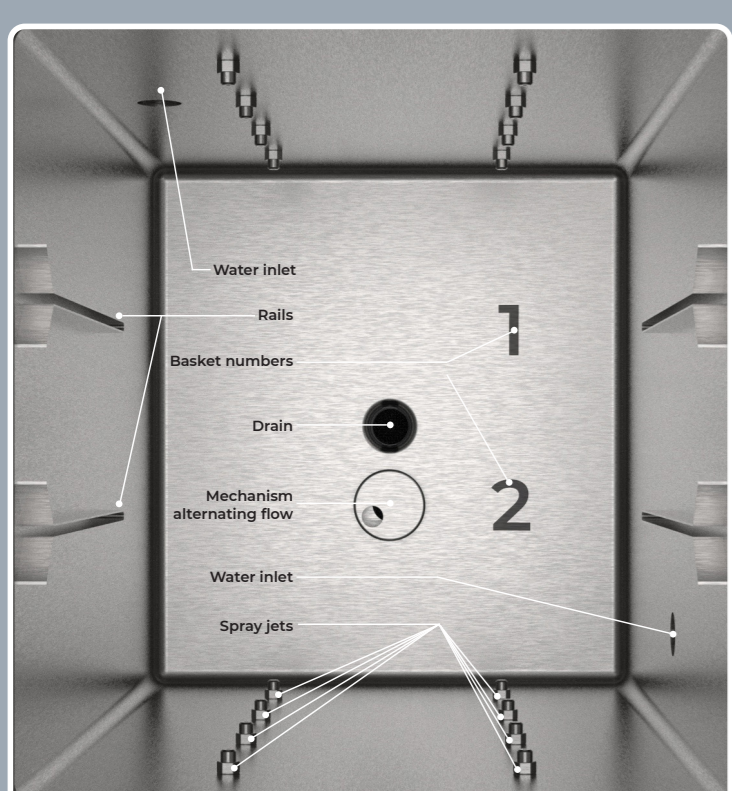
The design and development of a context-specific medical washer for laparoscopic instruments for rural Indian hospitals



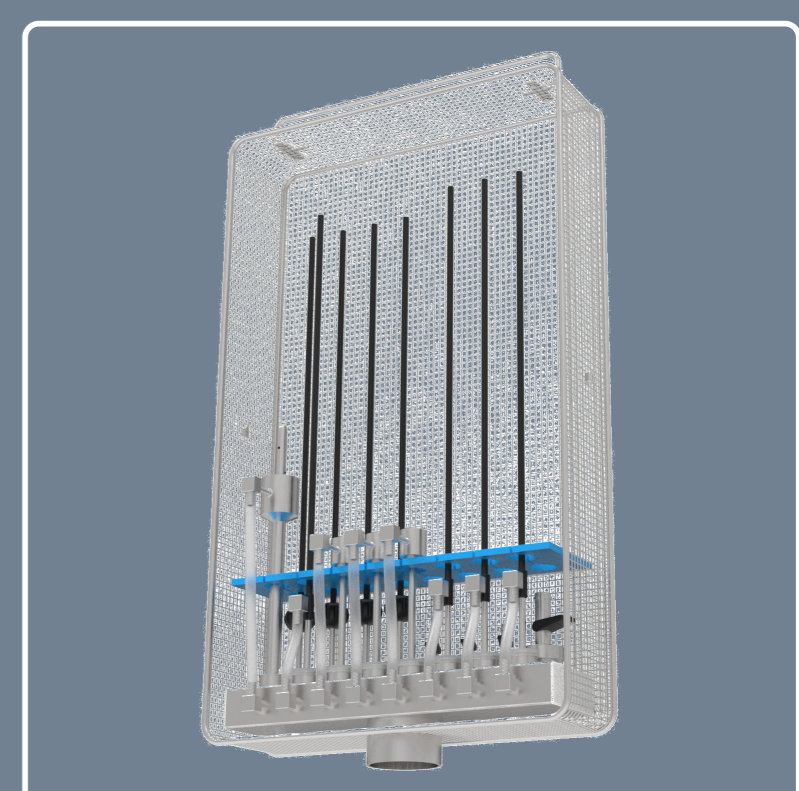
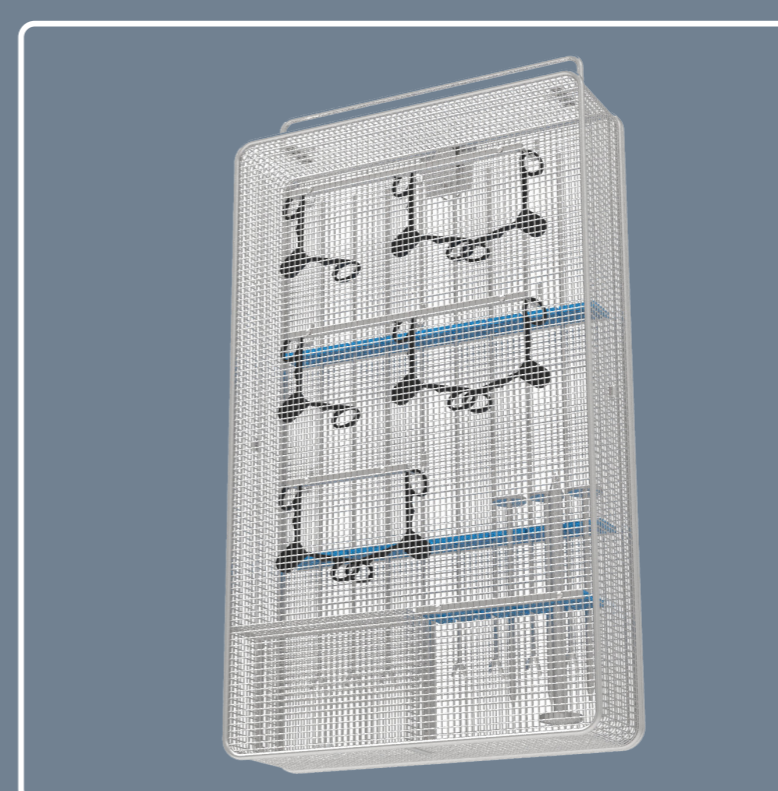
Purpose

Laparoscopy can be highly beneficial for low-resource settings as the risk of contracting a surgical site infection is lowered. However, the current reprocessing practices in rural India negate this advantage. Laparoscopic instruments are insufficiently reprocessed due to lack funds, training and cleaning equipment. To make laparoscopy safe and applicable in low-resource settings a medical washer was developed which fits the context of rural India. The medical washer consists of a cleaning system which minimizes the resource usage by using geometry specific cleaning strategies and a loading system which is designed to be used by nurses who have limited training in the use of medical equipment.

Cleaning system



Loading system



Effective cleaning

The complex geometries are ultrasonically cleaned, while the regular geometries are sprayed with jets and the lumens flushed with two-phase flow.



Supporting nurses

The nurse can focus on other tasks as the medical washer can take over one of her duties: reprocessing the laparoscopic instruments.



Protecting nurses

The medical washer lowers the amount of physical contact between the nurses and the contaminated instruments, thus lowering the risk of possible morbidity.



Minimizing resources

The needed amount of water is minimized by only ultrasonically cleaning the complex geometries of the laparoscopic instruments and using two-phase flow to flush the lumens.