

## Assignment 9

### Future perspectives for sustainability in the Central Sterile Services Department

#### Problem statement

Any procedure in the operating room (OR) requires the use of reusable surgical instruments. These instruments are supplied in so-called *instrument nets* that are specifically put together for an operation. As an indication, the Leiden University Medical Center (LUMC) has more than 2500 nets in stock with 2000 different compositions and uses more than 15,000 different types of instruments.

All surgical instruments are cleaned, disinfected, manually checked and sterilized after each use by 'Central Sterile Services Departments (CSSD)'. This 'RDS process' is a labour-intensive process in which a lot of water, chemicals and energy is consumed. The CSSD thus contributes to more than 10% of the CO<sub>2</sub> footprint in the OR center (converted ~0.5kiloton CO<sub>2</sub>-eq per year). With this impact, the CSSD contributes to CO<sub>2</sub> footprint and thereby has a negative impact on environmental sustainability. However, out of literature it is not clear what the exact environmental impact is and how it can be improved. The question arises to what extent sustainability plays a role in the CSSD? Is there awareness and are departments trying to improve, or is this a subject that is still on the background because little is known?

#### Research question(s)

1. What is the state-of-the art of environmental sustainability in CSSD's?
2. What is the environmental impact of a CSSD?

#### Suggested academic backgrounds

*This research assignment is open to any graduating Master students from Leiden University, TU Delft and Erasmus Rotterdam*

- MSc Industrial Ecology students
- MSc Global Business and Sustainability
- MSc Healthcare Management
- MSc Global Business and Sustainability
- MSc Health sciences
- MSc Governance of Sustainability
- MSc Medicine
- MSc Technical Medicine

#### Expected type of work

Qualitative study, interviews, life cycle assessment

#### Available data/reports or other relevant information sources for the assignment

McGain et al. Hospital steam sterilizer usage: could we switch off to save electricity and water? *J Health Serv Res Policy*. 2016 Jul;21(3):166-71.

McGain et al. Steam sterilisation's energy and water footprint. *Aust Health Rev*. 2017 Mar;41(1):26-32.