

## Assignment 7

### Towards sustainability in the clinical microbiology laboratory

#### Problem statement

Only recently, hospitals started to take sustainability into account by signing a Green Deal to improve environmental sustainability in healthcare (Green Deal Duurzame Zorg, 2019). Although healthcare is necessary, it is carbon-intensive and has a negative impact on climate change. Besides patient-care, care-supporting departments, like a microbiology laboratory should also take responsibility for these developments.

In a microbiology lab, infectious samples are handled, which should not be contaminated and should not be transmitted to health care workers. It is important to keep patients and healthcare workers safe, which has led to strict regulations for handling products and materials. Due to regulations that focus on safety and stability of clinical specimens, complex procedures take place with many disposable products to decrease the risk of infection. Despite all the positive characteristics of disposable consumables, the amount of waste has grown exponentially, and the harmful environmental consequences concern all parts of the product cycle: production, transport, use and disposal. This raises the question of how did this non-sustainable behavior build up over the past few years and how can we improve this?

#### Research question(s)

- How did unsustainable behaviour build up over the past years and which regulations played a role?
- What is the environmental impact of the clinical microbiology laboratory?
- Are there alternatives for the products and materials used that have a high environmental impact?
- Can these alternatives be designed?

#### Suggested academic backgrounds

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

- MSc Health Economics, Policy & Law
- MSc Governance of Sustainability
- MSc Healthcare Management
- MSc Health Sciences
- MSc Industrial Ecology
- MSc Technical Medicine
- MSc Medicine
- MSc Industrial design Engineering
- MSc Biomedical Engineering

#### Expected type of work

Ecological footprint analysis, life cycle assessment of disposable plastics; possibly design of alternative materials, engagement of companies and distributors.