

TEAM 2022

INTERDISCIPLINARY THESIS LAB

SUSTAINABLE HOSPITALS

"How can we move towards an environmentally sustainable hospital?"



PROF. DR. FRANK WILLEM JANSEN

“I look forward to applying or implementing the results myself.”

New insights from **young researchers** on this theme are urgently needed to make healthcare more sustainable. Many healthcare professionals want to work with sustainability and it is **high on the agenda of hospital boards** as well. The studies that result from the Interdisciplinary Thesis Lab Sustainable Hospitals will help them with this. Not only as chairman, but also as a cutting specialist, I look forward to applying or implementing the results myself.

Chair **Medical Delta** &
Landelijk netwerk **De
Groene OK**



KIM VAN NIEUWENHUIZEN

“I am very curious to see what these collaborations will lead to, but especially about the road to get there.”

The current climate problems require **cooperation** from professionals in various fields. It is therefore important that students **learn to speak each other's language** early in their career in order to promote optimal cooperation. A diverse group of master's students participate in the Interdisciplinary Thesis Lab 'Sustainable Hospitals', who seek to collaboration in order to arrive at **practical sustainable solutions**. I am very curious to see what these collaborations will lead to, but especially about the road to get there.



Coordinator Thesis Lab
'Sustainable Hospitals' &
PhD student **Gynaecology**

STUDENTS 2022

INTERDISCIPLINARY THESIS LAB

SUSTAINABLE HOSPITALS



Topic: Reprocessing
medical plastic
packaging waste



LIEKE DE ROUW

MS Biomedical
Engineering

My name is Lieke, 24 years old, and currently I am working on my master thesis **"Reprocessing medical plastic packaging waste"**. The first semester of this academic year I decided I wanted to do something besides my master **Biomedical Engineering** (TU Delft). I started working at Umincorp, a company which has developed a unique process to recycle post-consumer plastic packaging. From that moment I realized I wanted to combine my knowledge on the recycling industry with my medical/technical background, so I applied for the Sustainable Hospitals Lab. This program has offered me the opportunity to do a graduation project at **Greencycl**. This is the first company worldwide to recycle hospital waste.

“The final phase of my project will be designing a new product made of this recycled plastic, so circularity within the hospital is achieved.”

For my master thesis I will be **investigating the mechanical properties of the most used plastics in medical packaging waste** (PP, PE, PET, PVC, PS) via tensile tests and working out the **optimal process steps to recycle these materials**. The final phase of my project will be **designing a new product made of this recycled plastic**, so circularity within the hospital is achieved. The thesis lab has been a great addition to my graduation project. I have gained much knowledge on the topic sustainability within health care, by looking at this theme from **different perspectives throughout the workshops**. It made me see **the broader picture of sustainability** which has benefited my own thesis.



ELAINE VAN EE

MSc Health Care Management (EUR)
MSc Medicine (UL)

“The collaborations and discussions within the Sustainable Hospitals Lab are valuable for me, because you can always learn from someone else’s perspective.”

My name is Elaine van Ee, 22 years old and I currently live in Leiden. I have a background in **Medicine** and now I am following the MSc **Health Care Management** at Erasmus University Rotterdam, next to my MSc Medicine at Leiden University. Moreover, I work at the **Emergency Department** of the LUMC, where I came up with an idea for my master research. My research topic is centered around investigating **how the emergency department can become more environmentally sustainable**. The collaborations and discussions within the Sustainable Hospitals Lab are valuable for me, because you can always learn from someone else’s perspective. In addition, I am really enjoying the meet-ups for this Sustainable Hospitals Lab, because it is interesting to hear the experience and ideas from practitioners in the field, the things that have already been accomplished, and what can be improved regarding sustainability in healthcare.

Topic: ways to make the emergency department more environmentally sustainable



CATHELIJNE PALLANDT

MS Global Business & Sustainability

“The workshops portray the diverse angles that need to be taken into account when implementing sustainability in a hospital.”

My name is Cathelijne Pallandt, I am 24 years old and currently live in Amsterdam. I studied **Politics, Psychology, Law, and Economics** at the University of Amsterdam, and I am currently finishing the **MSc Global Business & Sustainability** in Rotterdam. After finishing **a project about sustainability in the operating room** last year, I knew that for my thesis I wanted to learn more about sustainable healthcare! When I read about the Sustainable Hospitals Lab program, where students with different backgrounds work together on sustainability matters in the LUMC, I knew this was the right fit for me! These months I will be focussing on how the LUMC can implement a sustainable business model, whilst taking into account different stakeholders like the Dutch government. I really enjoy working together with **students from different disciplines**, and the **workshops** portray the **diverse angles** that need to be taken into account when implementing sustainability in a hospital. Although this is a challenging and complex issue, it is **elevating to see how different departments, companies and researchers are passionate about making healthcare more sustainable**. I hope that through the Lab, we as students will contribute to this sustainable development as well.



Topic: how the LUMC can implement a sustainable business model, whilst taking into account different stakeholders like the Dutch government.



ALICE WU

MS Global Business & Sustainability



My name is Alice Wu, I am 23 years old and I am currently doing my master **Global Business & Sustainability** at Erasmus University Rotterdam. I studied Marketing for my bachelor's degree in the United States and found my passion in Environmental Sustainability there. I started to realize that companies should not only make a profit, but also care for society and the environment. After this program I want to **start my own sustainable marketing consultancy** to help companies and organizations that want to actively make a positive contribution to the world.

“This project really opened my eyes to how much waste and pollution comes from the industry.”

Topic: implementing circularity in a clinical microbiology laboratory setting

I chose to participate in the sustainable hospital project because I became interested in healthcare after living in the US and saw how much the system needs to be improved there. This project really opened my eyes to how much waste and pollution comes from the industry. My topic specifically addresses **how circularity can be implemented in a clinical microbiology laboratory setting**. So far, I've certainly learned a lot because I didn't have a background in Medicare, and it's been interesting trying to apply my sustainability expertise in a hospital setting.



RIXT VAN DER GIESSEN

MS Industrial Ecology (joined degree)

“With everybody doing their part we can achieve great things!”

As a teenager I decided that I wanted to become a doctor. However, throughout my life I made different choices and ended up studying Neuroscience, Psychology, and now something to do with sustainability. For my master thesis I was looking for a topic and stumbled across LDE sustainability centre and they were offering labs in the field of sustainable hospitals. This seemed perfect: combining my interest in sustainability while also being able to take a peek in the field I was initially interested in. My name is Rixt van der Giessen and I'm 23 years old. I am doing my masters in **Industrial Ecology** at Leiden University and TU Delft. My research is about **looking at ways to make In silico modelling more sustainable, specifically in the osteoarthritis modelling lab** that will be built in Erasmus Medical Centre. Personally, I strive to live a sustainable life. Doing the little things and the big things where I can. I bring my reusable water bottle and coffeecup wherever I go and I am vegan. With everybody doing their part we can achieve great things! And of course, I'm hoping that my master thesis will contribute to this!



Topic: ways to make In silico modelling more sustainable, specifically in the osteoarthritis modelling lab



ANOUK DE REEDER

MS Global Business
& Sustainability



Topic: the influence of this patient safety culture on employee's green behavior



I'm Anouk de Reeder, 24 years, and I'm very excited to participate in the thesis lab about sustainable hospitals as the finishing chapter of my **MSc Global Business and Sustainability** at the EUR. In my BSc Science, Business & Innovation, I learned on the one hand about **life sciences and health** and on other the hand about **energy and sustainability**. I was always surprised that these topics never really 'met', as the healthcare sector itself has a very high environmental impact. Personally, I'm interested in the **potential of employees in creating a more sustainable hospital**.

“I'm interested in the potential of employees in creating a more sustainable hospital.”

Employees have most knowledge of the (complex) activities in the hospital and thus can be a great source of ideas. They also are vital in the execution of sustainability-related practices, like adequately separating waste. However, in hospitals employees are embedded in a **culture of patient safety**, which is not illogical as patient safety is a top priority. My thesis is about **the influence of this patient safety culture on employee's green behavior**. More fundamentally, it is about the **tension between safety and sustainability**. Next to my thesis, I'm doing a more practical study in the Interventional Radiology department about opportunities to become more sustainable.

MS Biomedical
Engineering

LISANNE WIGCHERT

“In terms of making healthcare more sustainable, there is still a lot to gain, such as energy consumption, the use of plastics and the circular use of medical instruments.”

In terms of making healthcare more sustainable, there is still a lot to gain, such as energy consumption, the use of plastics and the **circular use of medical instruments**. I will deal with the latter in the near future. As a master's student **Biomedical Engineering** (TU Delft), circularity really appeals to me; by looking at the possibilities of **re-processing, re-manufacturing and/or re-using of medical instruments (or parts thereof), the raw materials used can be used much smarter and more efficiently**. In addition, the (further) optimization of medical instruments is being examined from a technical point of view. In this way, medical instruments will last longer and healthcare will become more sustainable. I would be happy to contribute to that!



Topic: circular use of medical instruments

MARLEEN UNGERATHEN

MS Global Business
& Sustainability



Topic: sustainability in
the Central Sterile
Services Department



“Working closely with people in hospitals and companies gives me the feeling of contributing to sustainability and motivates me to give my best for the thesis.”

I am Marleen and I study **Global Business and Sustainability** at the Erasmus University. For my final project, I wanted to do something **practical** and investigate a problem that is actually **relevant** for people in real life. That is why I choose to apply for the interdisciplinary thesis lab for sustainable hospitals, seeing the workshops and lectures that were offered directly at the hospital or companies in the healthcare sector. I really enjoy working with **people from different backgrounds** and to learn more about an area that I did not know anything before. The topic of my thesis is **sustainability in the Central Sterile Services Department**, the department where all reusable instruments of the hospital are cleaned and sterilized. I investigate **how sustainability is perceived and implemented in hospitals compared to companies** that take over the sterilization for hospitals and therefore need to make a profit out of the cleaning process. My focus lies on **the role of money and the values in the healthcare sector, such as safety and patient care**. For me, working closely with people in hospitals and companies gives me the feeling of contributing to sustainability and motivates me to give my best for the thesis.



ROBIN WEIJLAND
INGENA BOTH

