

Annex

Circle U. Challenge : Creating Eco-responsible solutions in Healthcare

About the Partners

The APHP (Assistance Publique des Hôpitaux de Paris – PARIS) hospitals is the largest hospital group in Europe with 39 hospitals and more than 100 000 health professionals, including doctors, researchers, paramedics, administrative staff and workers. APHP is the largest employer in the Paris region and has several purposes: it provides medical care, conducts research and it organizes educational programs across the Paris Region. APHP medical teams offer advanced treatments in all medical disciplines to 8 million patients annually. [Read more](#)

CONTEXT

The World Health Organization (WHO) has declared that climate change is the greatest threat to global health in the 21st Century. Eco-responsibility is a major societal challenge that should be applied to all human activities. The healthcare system has the responsibility to implement the Hippocratic oath “first, do no harm” as it relates to its own carbon footprint, (while influencing other sectors to do the same). In France, the healthcare industry alone produces 5-8% of green gas emissions. The Paris Hospital Federation (APHP) is aiming for a greener hospital.

Aware of their environmental impact, APHP have tried to become more eco-friendly over the past decade. Every year, 1 000 GWh of energy and 4 000 000 m³ of water are used by APHP. In terms of waste, APHP produces 7 000 tons of DASRI (Déchets à Risque Infectieux

= Potentially Infectious Hazardous Waste.) and around 33 000 tons of waste similar to household waste.

APHP have already launched several programs to reduce their environmental impact and they have managed to implement new, innovative practices conceived in the framework of public calls. As a result, their energy consumption decreased by 3,9 % between 2013-2016.

In a span of a few years, their production of green gas decreased by 18%.

In January 2019, APHP launched a call for expression of interest regarding the environmental impact of hospitals. Among the 301 projects that were submitted, six were rewarded:

- **The project « vers un bloc opératoire éco-responsable » (towards an eco-responsible operating theatre) and the « Sub-Or » project.** These two complementary projects aim to reduce the carbon footprint of the surgical unit by 30%. The hospitals in Paris produce 40000 tons of waste including 16% infectious waste. The project “bloc-opératoire éco-responsable” aims to reduce waste in the surgical unit by implementing a recycle loop in the hospital. The project Sub-Or also deals with waste management and aims to stop wasting anaesthesia equipment, reduce greenhouse gas emissions related to aesthetic gas and reduce energy consumption. [Watch here](#)
- **The “Nesting” project:** The purpose of the project is to train healthcare professionals (such as doctors, nursing nurses, midwives etc.) on the impact of the environment on health. Therefore, they can raise awareness among future parents and educate them on best practices. Indeed, pregnant women and newborn babies are particularly vulnerable to environmental pollutants and must be protected. This project was submitted by WECF (Women Engage for a Common Future). [Watch here](#)
- **The Eco-Tech platform aims to help physiotherapists (and other healthcare**

professionals) exchange assistive technologies. Thanks to the platform, these equipments will be reused, therefore their consumption will be reduced as well as the waste produced by the hospital. Since assistive technologies can be expensive, this platform will also be a way to reduce the expenses of the hospital.

[Watch here](#)

- **The Zéphyr** project aims to implement a bioclimatic energy system powered by renewable energy to heat, ventilate and provide air conditioning within hospitals.
[Watch here](#)
- **The “label alimentation durable” and NAGA** (nutrition, achat, gaspillage alimentaire) are two complementary projects that aim to reduce food waste in hospitals. The NAGA project is already tested at the university hospital of Grenoble-Alpes (which has 3 departments dedicated to nutrition, purchases, and food waste). The NAGA project might be extended to the AP-HP. The “Label alimentation durable” project consists of promoting healthy food (products without pesticides, well balanced and local foods) by rewarding them with a label.
[Watch here](#)
- **The BioTexMed project:** This project aims to reduce the environmental impact of conventional plastics. On the initiative of Seabird, a design office specialized in bioplastic, this project intends to supplant/replace disposable items by biodegradable plastics (hygiene caps, diapers, compresses etc...) at the hospital.
[Watch here](#)

DESIRED OUTCOME

The aim is to contribute to a significant reduction of hospitals' CO2 emissions. Given the size of their network, APHP understands the influence it can have in swaying public health and climate change policies across the Paris region and is constantly working towards the implementation of them. APHP seeks to create awareness about sustainable development and climate change issues among health professionals and concerned government stakeholders.

POSSIBLE CAUSES OF THE PROBLEM

1. SYSTEMS

Several systems must be taken into account. Among those, the supply chain is one of the main issues: 70% of healthcare emissions are generated in the supply chain, including the manufacture and disposal of medical devices and pharmaceuticals. When looking beyond the supply chain and direct provision of care, more than half of all emissions come from energy utilization (e.g., electricity and gas use).

2. EQUIPMENT & MATERIAL

More sustainable manufacturing processes and medical devices: · Investing in the development of reusable products with durable, long-lasting designs, that can be acceptably sterilized without energy requirements · Facilitating the recycling or reprocessing of products through device design and support healthcare workers to engage with these programs switching to more sustainable materials.

3. EXTERNAL FORCES

Several external forces such as the Covid-19 pandemic (increase in the use of disposable items like masks) might increase the waste production. Political crises (or war) might supplant environmental concerns.

CONSTRAINTS

Some factors such as the hospital culture (healthcare professionals might be unwilling to change their practices/habits). The staff will have to be educated about the ecofriendly solutions, but this will have a significant cost for hospitals (awareness campaigns, classes ...). The implementation of ecofriendly solutions might hit other hurdles such as existing regulations, budgetary restrictions, or logistics.

END USERS

The end users are the employees of APHP, the institution itself, in case they wish to upscale the solution and patients can also benefit from the solutions secondarily.

The aim of the potential solutions is to create a more environmentally friendly and sustainable hospital, to reduce carbon emissions and potentially to draw the attention of providers to the issue. (Education, training for sustainable solutions etc.)

The developed solutions will hopefully change everyday practices within the hospital in order to make the institution more eco-responsible.

BOOTCAMP

Information on the Bootcamp is to be published by the end of September.

MENTORED DEVELOPMENT PHASE

Information on the mentored development phase is to be published after the Pitching Day on the 23rd of November.

