

# The Clinichill

A reusable cooling vest for patients receiving targeted temperature management in ICU's



Yearly, 300 patients are treated with targeted temperature management at Erasmus MC. The current cooling methods all involve many disposable products. The question was raised by medical staff whether this treatment can be improved with regard to sustainability. Extensive research, stakeholder involvement and familiarising with the clinical environment resulted in the following design concept: the Clinichill.

**“This research is very valuable for us”**

The Clinichill is a reusable cooling vest which is made of a mono-material to enhance recyclability value for end-of-life. The vest is made of PE, which is suitable for the chemicals involved in protocols for reusable products used in the hospital. Furthermore, this material is relatively cheap, easy to manufacture, water resistant and allows heat transfer easily. The Clinichill is compatible with the machines of the Arctic Sun, to accommodate patients who are transferred to other hospitals whilst receiving target temperature management.

The design requirements were all based on insights, opinions and regulations posed by stakeholders such as ICU-nurses, intensivists and infection preventionists. These many requirements and the high involvement of the stakeholders in the process resulted in a desirable concept which has value for its context.

The concept is simple in use, it consists of one pad with easy closing of nano tape, which is reusable during treatment of one patient. The main advantage of the concept is its simplicity according to nurses. Doctors find the concept and the process of how such products can be made reusable to be very valuable.

This thesis has proven that a safe, feasible, sustainable cooling method for patients can be achieved and manufactured. By using the Clinichill, Erasmus MC will decrease waste of disposables by 450 kg per year.

**“The power is its simplicity”**

*Shows disposable hospital products can be made reusable.*

*Adheres to hygiene protocols and medical requirements at EMC.*

*Saves 450 kg of waste per year.*

*Improves quality of care.*

**CLINICHILL**  
*The reusable cooling vest for better care*

Made of translucent PE:  
cleanable and disinfectable

Indent to follow the body's shape

Split at lower rib  
to accommodate  
different body types

Rounded edges  
for patient comfort

Disposable recyclable connectors to  
separate patient from machine

Compatible with Arctic Sun; an  
existing cooling system

Cleanable tubes

Nano tape stored on  
machine, reusable for one patient



Cathelijn Bogers  
Towards Sustainable Cooling  
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Integrated Product Design

**Committee** Jan-Carel Diehl  
Marijke Dekker  
**Company** Erasmus MC

**TU Delft**