



POLITECNICO  
DI TORINO

# Honors thesis

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COURSE OF ECODESIGN

*Abstract*

***A new cultural paradigm and a sustainable network against hospitals food waste. Realization of a systemic procedure in order to achieve the spread of sustainable practices for the valorization of wastes in high-value sources.***

*Tutor*

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*by*

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The study presents the analysis regarding the food waste phenomenon in the hospital foodservice in collaboration with Maria Vittoria Hospital of Turin. This study has allowed to define the quantities of food surpluses generated in the hospital wards and to elaborate design solutions for the analyzed problem.

Expert observations were carried out in the Neurology and Pediatrics wards of the hospital, in order to understand the dynamics of the hospital and to obtain the quantities of food surpluses generated. In this stage was also identified the “level of fungibility” of incoming food, that is to say the possibility of reusing this food with a lowest level of additional activity by the actors involved in the supply-chain. The greater the “level of fungibility” is, the easier it gets to reuse and consume food surpluses.

The daily menu of each ward provides a full meal with first course, second course, side dish, fruit, dessert and bread. The courses of the meal appeared to be characterized by a low to medium “level of fungibility”, because they are exposed to numerous maneuvers that ensure the suitability and the maintenance of the hot or cold chain. For the bread, however, an average “level of fungibility” has been assigned, since it is not bound to predefined temperature standards and it is easier to manage.

According to the experimental design of the study, we focused on the bread, due to its “level of fungibility”. Additional observations were made in 13 wards in order to give an estimate of the amount of daily wasted bread. The selected departments were: Cardiology, General Surgery, Plastic Surgery, Day Surgery, Emergency Room, Emergency Medicine, Neurology, Orthopedics, Obstetrics, Otorhinolaryngology, Pediatrics, Intensive Care and Cardiac Intensive Care.

The amount of bread surpluses recorded has been around 6,25 kilos total per day that correspond to 2,000 kilos per year of wasted bread (see Table 1).

As a result, two design solutions have been defined in compliance with the Food Recovery Hierarchy, a food sustainable management strongly encouraged by the recent Italian Law known as “Law n. 166, 19 August 2016”. The two design solutions are the following:

1. A Training Course, called “*Ecoalfabetizzazione*”, with the aim of educating the hospital actors and reducing the food waste upstream. The hospital actors involved in the food management are the Intermediate Care Technicians and the Coordinators of the wards. Their actions determine both the possibility of an upstream reduction of food waste and the possibility to give it a second life. The Training Course would introduce new “good practices” about the daily quantities of bread to order every day. The new quantities were defined according to the needs of the single wards leading to a daily waste of 2,60 kilos, namely 950 kilos per year, with a 60% reduction of food waste compared to the current situation. (See Table 2).

2. An action of Redistribution of the generated food surpluses by feeding people in need. This process of Redistribution defines a collaboration between the food donator, the Hospital, and the food receiver, a Food Bank engaged in a distribution service of breakfast to poor people in Turin.

The study attempts to lay the foundations for the spread of a new cultural paradigm of “Virtuous Hospital”, towards a sustainable culture and a systemic network of relationships. This would be an open system that puts humans at the center of the project, giving them an active role in the society in order to fight the food waste, in an environmental sustainability perspective (See Table 3).

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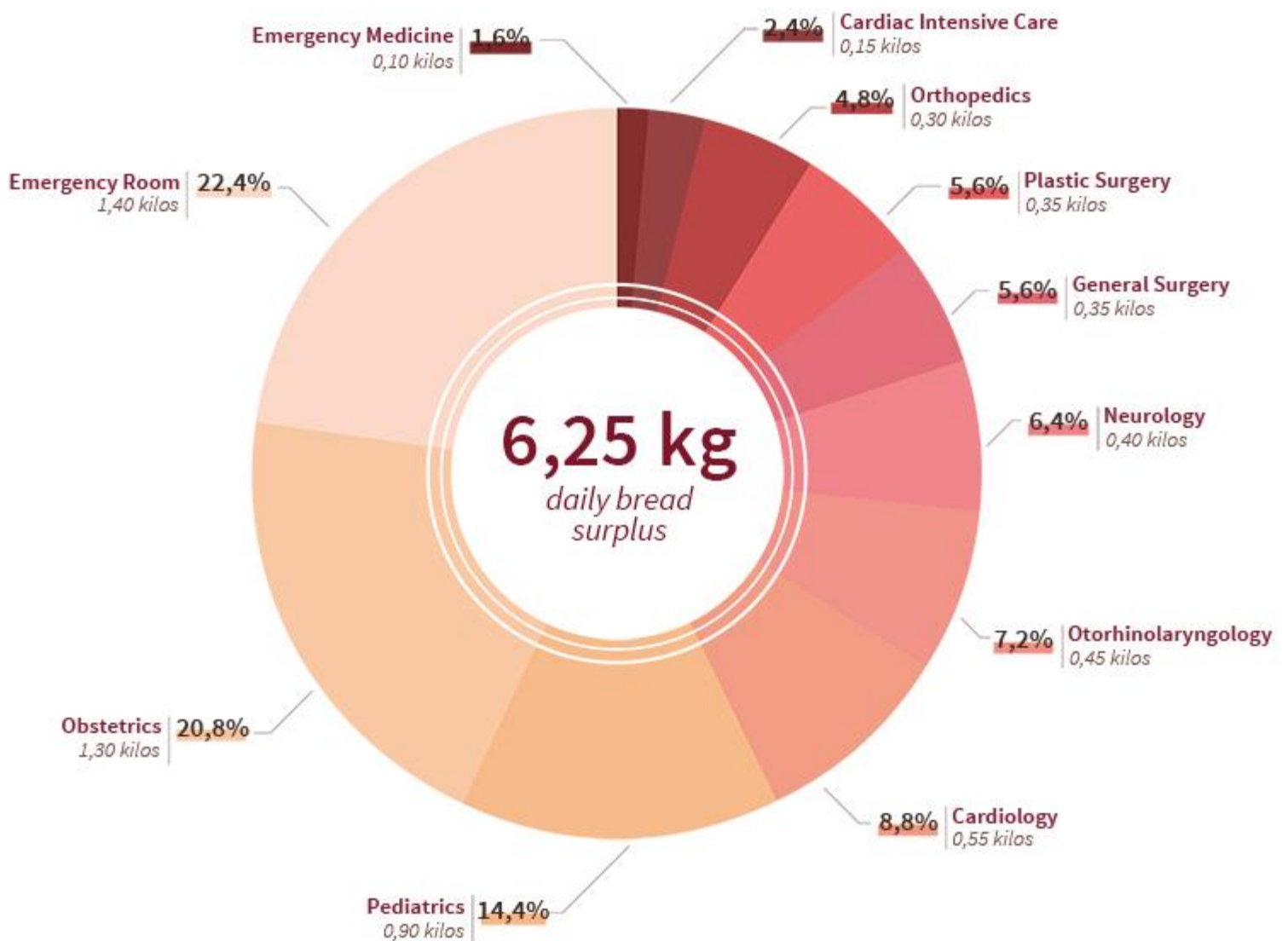
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Table 1

## DAILY FOOD SURPLUSES MARIA VITTORIA HOSPITAL

Today

Overview of the total daily surpluses of bread produced by the hospital's wards



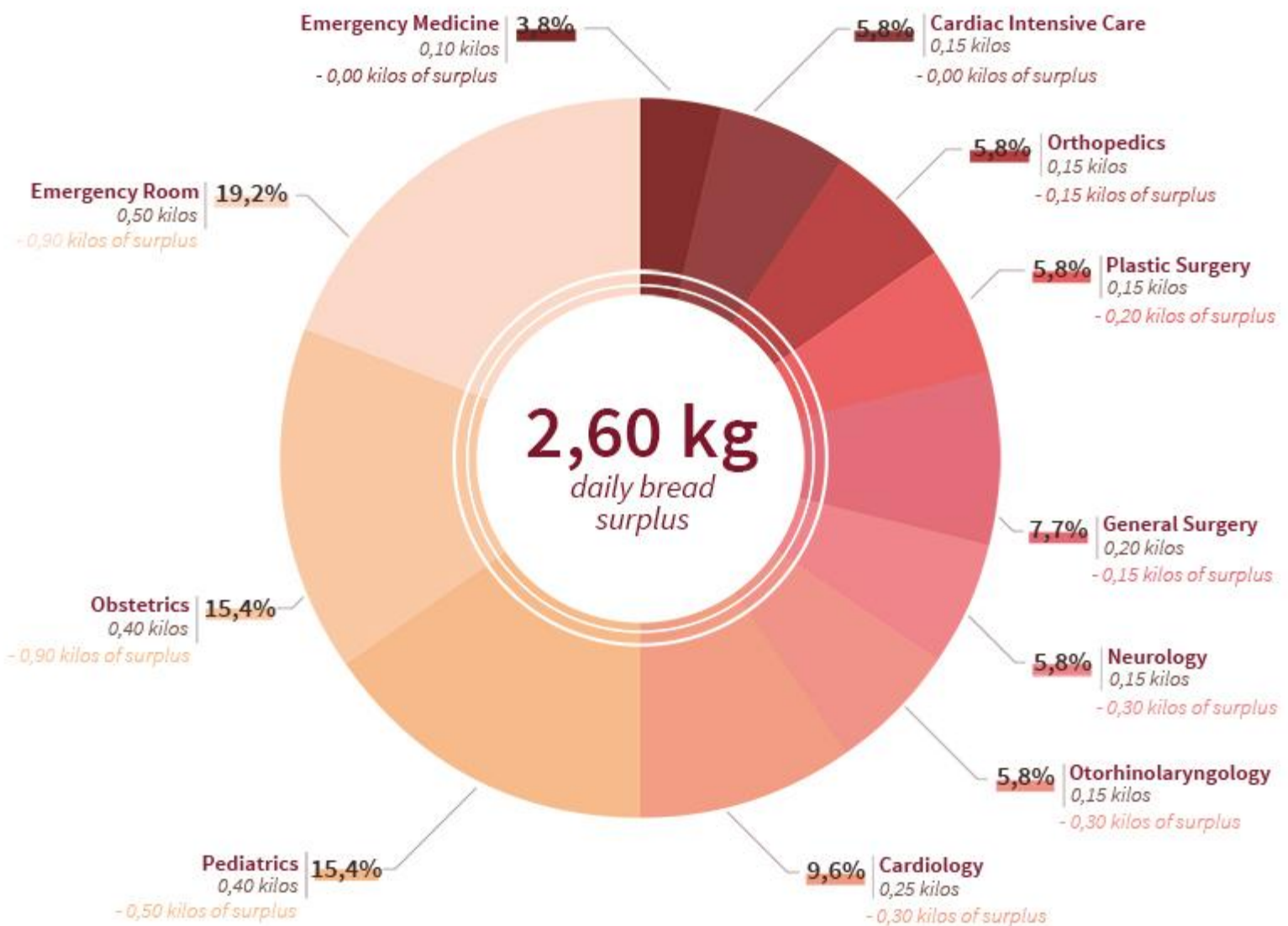
\*Day Surgery: 0%  
Intensive Care: 0%

Table 2

## DAILY FOOD SURPLUSES MARIA VITTORIA HOSPITAL

*Reduction hypothesis*

Overview of the total daily surpluses of bread produced by the hospital's wards



\*Day Surgery: 0%  
Intensive Care: 0%

Table 3

# FOOD SURPLUSES MANAGEMENT VIRTUOUS HOSPITAL SYSTEM

