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Real Life experience on Organ Transport with PerTravel®: Continuous Temperature and GPS Tracking Without Ice



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Introduction

The traditional method for transporting liver graft involves static cold storage (SCS) using water and ice to cool and preserve the liver within a triple-layer of bags. Although this technique is simple and widely used, it has several limitations: inability to precisely control temperature, thermal heterogeneity, risk of freezing injury, and lack of traceability during transport.

PerTravel, an innovative hypothermic organ transport system, maintains a stable temperature between 2 and 6 °C for up to 36 hours without ice, employing phase change material (PCM) plate. This device can also monitor in real time both the temperature of the organ and surrounding environment, as well as the GPS location of the container, ensuring full control and continuous traceability throughout the logistic process.

Methods

Between March and May 2025, five livers from extended criteria donors were harvested and transported using the PerTravel system on dedicated vehicles. Organs were prepared for transportation following the standard protocol, including a triple layer of bags and a rigid container filled with preservation solution.

During each transport, real-time data on organ temperature, environment temperature, and device location were recorded continuously (Figure 1).

Results

The longest transport duration was 1 hour and 47 minutes. The mean organ temperature recorded was 7.53 °C, with an average preservation solution temperature of 8.2 °C, while ambient temperature ranged between 22.7 °C and 26.8 °C. No adverse events were reported. All grafts were implanted without graft-related complications.

Conclusion

The data from this first real-life application demonstrate that PerTravel is a safe, effective, and highly innovative system for organ transport.

The device maintained stable temperatures of the preservation solution -and consequently of the organ- even when the initial temperature of the solution was not ideally around 4 °C in some cases. The absence of ice, thermal stability, and continuous real-time monitoring represent a significant advancement in transplant logistics.

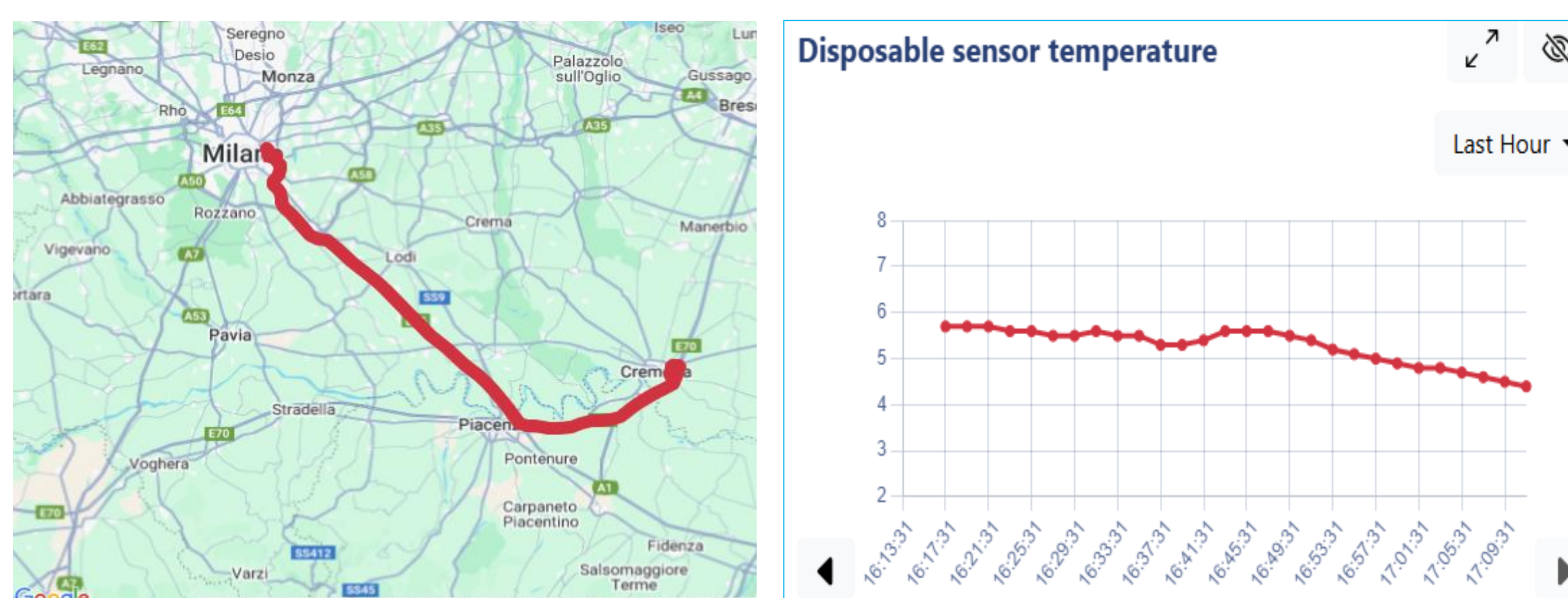


Figure 1