



# Osservatorio Nazionale

delle Buone Pratiche sulla sicurezza nella Sanità

Scheda per la rappresentazione dell'esperienza

**Level:** Hospital

**Topics:**

- Health and safety in hospital

**Contact details:**

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**Robotic procedure for transport of blood products and medicines and for environmental sanitization of the Campus COVID center**

In response to the COVID-19 emergency and, in particular, to the high risk healthcare workers who are treating COVID patients are exposed to, the Directorate General of the University Teaching Polyclinic Campus Bio-Medico of Rome, the person in charge of the COVID center and the Research Unit on Advanced robotics and Person centered technologies of the Campus Bio-Medico of Rome, developed and integrated into the COVID center a collaborative robot to help medical staff and healthcare workers.

The aim is twofold:

1. Reduce the exposure of medical staff and healthcare workers to risk of contagion by using the robot when moving medicines and blood products within the Campus COVID center and optimize the COVID center activities by carrying them out in parallel between the robot and medical and nursing staff. Furthermore, using the robot allows medical staff to interact with the patients.
2. Optimize and automate the environmental sanitization procedure, thus making it more frequent and structured thanks to a robotic system that intervenes whenever needed sanitizing the requested area independently based on a defined path, thus guaranteeing coverage of the whole area. This improves healthcare workers safety, as they will access areas that are already sanitized by the robotic system.

The robotic system is a robot (named TIAGo and developed by the PAL robotics company). It is equipped with an autonomous mobile robot base capable of navigating, an extensible torso, a seven-degrees-of-freedom-arm, a pan-tilt head with a RGBD camera. The robot is programmed to move around independently within the COVID center. It can detect and avoid obstacles thanks to ultrasound sensors it is equipped with. Thanks to its navigating and perception capabilities and its structural solidity, it is used to move drugs and blood products up to 5 kg. It is also programmed to move UVC lamps and move around independently in the areas to be sanitized.

The system has a specific user interface allowing selection and management of different scenarios. In case of drugs or blood products transport, the destination is selected by the operators and then command sent by typing on the interface available on a laptop or tablet installed on the robot.



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Once the robot reaches the destination, a voice message is emitted to acknowledge medical staff about the successful operation.

As per the sanitization scenario, the operator will select the area to be sanitized via the interface. The robot will reach the area independently and will carry out the sanitization turning on the UVC lamps at a safety distance from COVID center workers.