

PRESS RELEASE

Stopping Postnatal Haemorrhages: The BAMBI Medical Device from the Politecnico di Milano

Multidisciplinary research for an affordable kit to be mass produced for use in resource-poor settings

Milan, 11 September 2025 – A potentially life-saving device has been developed for new mothers in high-risk settings. This **low-cost medical device to stop postpartum haemorrhages** is the result of the **BAMBI (Balloon Against Maternal Bleeding)** project conducted by a multidisciplinary research team at the Politecnico di Milano. It is now ready for the final phase of testing, namely clinical trials on patients.

The project's idea was put forward by **Alberto Zanini**, a gynaecologist and former head of the Obstetrics and Gynaecology Unit at the 'Sacra Famiglia' Hospital in Erba. During his volunteer work as a doctor in various African and South-East Asian countries with a high maternal mortality rate, he saw first-hand how serious and widespread the problem is. He therefore contacted the Politecnico di Milano to put his intuition into practice. A multidisciplinary team of professors and researchers from the **'Giulio Natta' Department of Chemistry, Materials and Chemical Engineering, the Department of Mechanics, and the Design Department** (which was involved in the initial phase only) worked on the project.

*'With BAMBI, we want to show that it is possible to combine technological innovation with a social impact. Our goal is to offer a concrete, affordable and safe solution to stop postpartum haemorrhaging. We aim to make this device available wherever it is needed, even in the most vulnerable situations by using an essential, accessibility-oriented engineering approach and a "social" patent: in fact, **all the researchers involved decided to waive any rights to the patent, in order for it to have the most possible widespread availability**,'* explains **Maria Laura Costantino**, scientific coordinator of the BAMBI project and a Professor in the Department of Chemistry, Materials and Chemical Engineering.

'The multidisciplinary approach we took when designing the device made it possible to identify and experimentally test all the requirements needed to develop an effective and affordable solution,' says **Serena Graziosi**, a Professor in the Department of Mechanical Engineering.

BAMBI is **an effective engineering solution that is simple** and quick to apply, **but most importantly, it is affordable**. The prototype of the BAMBI device consists of a kit with components that are available in low-resource contexts, integrated **with an innovative patented connector** that guarantees the safety and assembly of the system, making it easy to use and mechanically efficient. The kit includes a rectal probe, probe cover and bag of saline solution fitted with a clamp. In the event of a uterine haemorrhage following delivery, the probe is inserted and positioned in the uterus. **The probe cover, which is attached to the probe via the connector, is inflated** with saline solution, **turning it into a balloon that stops** blood loss directly from the inside.

The **experimental campaign** for functional testing and usability analysis involving medical and nonmedical personnel **showed that BAMBI is effective** in terms of both procedural correctness and assembly time, **even when used by non-expert personnel**. This is **an essential aspect**. In areas afflicted by insufficient means and weak health facilities, **it may be not only complicated, but sometimes even impossible to find specialised personnel**. However, with BAMBI's intuitive operation (printed and video instructions are included in the kit), anyone can operate it safely, saving lives.

BAMBI is now ready for the shift from the laboratory to production through a call for patent development programmes using funding for proof of concept projects as part of MUSA – Spoke 3 'Deep Tech: Entrepreneurship & Technology Transfer', based on resources from the NRRP. The goal is to **manufacture the connector, the key element of the kit**, using injection moulding, so it can be **mass produced at low cost** (estimated at about \$5). This will allow the device to be disseminated as widely as possible around the world, especially in resource-poor settings.

The project was already awarded by the Politecnico di Milano a **Switch 2 Product** grant in 2019 and a **Polisocial Award** in 2020. The research progress has also been documented through publications in scientific journals, including ***Scientific Reports***, a journal in the ***Nature*** portfolio.

[CLICK HERE TO VIEW THE PUBLICATION IN 'SCIENTIFIC REPORTS'](#)

[CLICK HERE TO VIEW THE PHOTO GALLERY](#)

FOR INFORMATION:

Raffaella Turati | 39 3402652568 | relazionimedia@polimi.it