

# Save lives with blood, tech

## PROJECT BLOODWING: DRONES GET PLASMA QUICKLY TO RURAL AREAS

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Modernisation includes smart fridges, app for donors.



Over a million SA mothers give birth every year. The mortality rate for childbirth remains high with risks such as blood loss resulting from haemorrhaging. A hospital must have access to blood or risk losing the mother and child.

This challenge forms a crucial part of the SA National Blood Service's (SANBS) business case for technology.

If we can pioneer ways to reliably connect blood products and services with rural clinics and hospitals, SANBS will make a massive contribution to the well-being of patients.

By addressing fundamental needs, we can radically improve healthcare in the country.

A few years ago, we unveiled Project Bloodwing, an emergency drone delivery system that can transport blood products within minutes across long distances. Most recently, we have cleared significant regulatory hurdles and earned a ROC certificate from the Civil Aviation Authority (CAA) to conduct regular flights between the Sebokeng Blood Bank and Kopanong Hospital in Vereeniging.

It's the culmination of a lot of effort, working closely with the CAA and our drone pilots to fulfil audits and gain certification.

Though the blood bank and hospital are still relatively close to each other, they provide the perfect space to test our delivery processes against rural healthcare needs.

Project Bloodwing is a twoway logistical system with the two sites exchanging samples and crucial blood products. The drones complement our established national network of couriers, stepping in for blood emergencies and moving vital supplies quickly to rural locations. This new route supplies valuable data that we are using to fine-tune the model to establish additional flight routes.

Blood and its by-products, such as plasma, are fragile and a delicate resource.

SA patients require more than 950 000 units of blood annually. Red blood cells will only be viable for around 42 days before expiring and need to be used prior to the expiry date.

The issue grows more complicated as you move away from major metros. It's also challenging to procure enough blood by engaging with the SANBS' donors.

Project Bloodwing is one piece of a larger strategy to address such concerns through technology. To close availability and logistics gaps, we are also piloting the use of smart fridges at hospitals that do not have blood banks on site.

As with the drones, the smart fridges will complement our established storage network and provide valuable insights on improving blood availability.

On the donor side, we are developing a new donor app that will connect the service to our current and potential donors.

Blood donation is often logistically challenging; for example, informing donors about blood drives in their areas or replacing paper with digital administration platforms. Our app aims to achieve those goals and introduce other features that encourage and reward blood donors.

All these elements will eventually combine under a system called BECS, or the blood establishment computer system. BECS will establish a cohesive and integrated blood management ecosystem, expanding what SANBS can do for donors, patients and stakeholders. We are currently talking to private hospitals and investigating ways to partner with them.

Blood is valuable and important, saving countless lives every day in medical emergencies. It is literally the lifeblood of the medical world. But it is also very fragile, prone to spoiling and technically onerous to match with the right patient. And supply relies on the generosity of donors.

When used smartly and strategically, modern technology can address many challenges in blood ecosystems. This is the guiding vision behind SANBS' modernisation strategy.

Soon, blood supplies will make regular flights between Sebokeng and Kopanong Hospitals, saving the lives of babies and those needing blood.

In the near future, more drones will zip between hospitals; smart fridges will ensure blood supplies are ready, available and safe and the SANBS donor app helps build a legion of donors who keep SA's blood supplies pumping. Once connected through the BECS, the country will have a true vein-to-vein journey where our blood can save even more lives.