

What is BSIS (Blood Safety Information System) and the Blood Safety Strengthening Programme?

Effectively managing information related to the collection, screening, distribution and use of safe blood products is a critical element for all blood services, yet the high installation and licensing costs preclude their use in many low-income countries. *BSIS is an open-source Java web-based information system designed to manage donors and blood-safety information from the point of donation, through to testing, storage, transfer and usage in hospital and clinics. The BSIS solution is primarily targeted for deployment in developing countries and offers a level of configurability to allow for the flexibility of requirements across different blood services.* The BSIS software stems from a CDC-Georgia Institute of Technology's College of Computing research and development project that concluded, in early 2013, with the development of an open source Blood Establishment Computer System (BECS), known as "V2V". This software has since been spun-off to Jembi Health Systems NPC (Jembi) to enhance and refine the system to a production-ready state. The new version of the software is now known as BSIS (Blood Safety Information System). The Blood Safety Strengthening Programme (BSSP) refers to the implementation approach we are taking for BSIS.

Our approach

Successfully implementing a BECS is not simply about the deployment of software; we believe that real success can only be achieved on a whole-system approach that considers the interconnection between policy, practice and technology and looks at:

- Environment (where will the system be used?);
- Process (how will the system be used?);
- Technology (what hardware/software will be used?);
- Capacity building (who will use the system?), and;
- Sustainability (how much will it cost and who will pay?).

The Blood Safety Strengthening Programme (BSSP) is built around the development of the BSIS software and focused on the validation, implementation, training and on-going support of the BSIS software in national blood services in low-resource settings.

Functional Overview (What does BSIS do?)

1. Donor management and unique donor identification, testing donor eligibility and managing deferrals
2. Donor communications – generates a contact list of donors due to donate based on geographic area, last donation date and blood group types.
3. Donation management – full traceability of a donation from donor to processed components to issues
4. Blood group serology (ABO, Rh and antibody screening)
5. TTI testing – HIV, Hepatitis B, Hepatitis C and Syphilis as well as the ability to configure any other TTI stipulated by the NBTS
6. Component processing including splitting and pooling of components
7. Label printing - the critical control point that determines the release of safe blood products for issue. Includes machine-readable ISBT28 compliant pack labels
8. Inventory management - Issues and Transfers
9. Reporting – includes pre-defined reports as well as a PDF or excel report conforming to the WHO GDBS reporting protocol
10. Mobile clinics – the system allows for the synchronisation of data from mobile clinics

BSIS is also designed to :

- Support the AfSBT 3 levels of accreditation
- Use of barcode scanners for faster, more accurate data entry
- Allow for full traceability of blood from donor to donation to processed blood components to issue and transfers
- Give comprehensive role-based access which is configurable to meet the needs of the NBTS
- Create user activity logs and database auditing mechanisms and transaction management

The team (Who are we?)

Jembi Health Systems NPC is a South-African-based not-for-profit organisation working with donors and partners to strengthen eHealth and health information systems in order to improve the quality of healthcare in developing countries. We are working closely with Safe Blood for Africa Foundation, which is a non-profit foundation established to assist African countries to achieve a safe and adequate blood supply and provides Technical Assistance to developing National Blood Services, and the Centre for Disease Control and Prevention. Our programme team is made up of blood safety and quality management experts, IT solution designers and developers, and change management and training specialists.

Frequently Asked Questions

1. Why choose an open-source BECS? Is this safe?

Whilst BSIS is licensed as an open-source solution, any implementation of the BSIS software will be very tightly controlled with an external validation process and a configuration management system in place to ensure the quality of the software such that it is fit for purpose.

Ongoing support and maintenance of the BSIS software under the BSS programme will also be tightly controlled by Jembi in collaboration with our team of blood safety technical experts. Any future releases or upgrades will undergo the same strict validation process as the initial release.

2. Does BSIS support mobile clinics?

Yes, BSIS provides the ability to synchronise donor and donation data between the laptop computers used in mobile clinics and the main central database.

3. Does BSIS support multi-blood banks?

The first version of the system will be deployable as a single instance within the central blood service, with future versions planned to extend the system to be able to support a centralised system serving with multiple blood centres.

4. Is BSIS multi-lingual?

The first version is available English only, but later versions will be available in French and Portuguese.

5. Does BSIS support integration with other systems and laboratory equipment?

The system has the ability to import an excel file containing transmissible disease testing results in a specified format matching the BSIS data model. As automated blood grouping and TTI testing equipment is highly dependent on the implementation environment this integration is dealt with as an implementation activity.

6. What about legacy data?

The system includes functionality to manually import certain data into the system, for the purpose of data migration from previously used systems and this is also dealt with as an implementation activity.

7. How does BSIS facilitate donor communication

Currently BSIS allows for the generation of Donor lists that meet particular criteria (ready to bleed, blood type, geographic area, not differed). Future releases are envisaged to allow the generation of custom email reminders, social media messages and or SMS communications to encourage donors to return to the centres.

Programme and technical information