Blood Safety Strengthening Programme (BSSP) Implementation Plan

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# Programme Overview

In May 2013, a low-cost Blood Establishment Computer Software (BECS); hereafter referred to as Blood Safety Information System (BSIS) was spun-off to Jembi Health Systems NPC (Jembi) from the Computing for Good (C4G) course at the Georgia Institute of Technology in Atlanta, GA. Faculty and students from C4G had led the research-and-development phase of V2V, the initial version of BSIS, since 2007. During the R&D phase, Georgia Tech consulted frequently with end-users in a number of African countries, including Zambia, Cameroon and Namibia. Additional technical assistance was provided to Georgia Tech by BECS experts from South Africa. The decision to spin-off V2V (now BSIS) was made by CDC, in conjunction with Georgia Tech, when it became clear that V2V was approaching a level of technical sophistication that could allow it to undergo final development in a simulated field environment, and, eventually, pass an external validation phase and be implemented in working blood services.

The Blood Safety Strengthening Programme (BSSP) is the programme built around the development of the BSIS software to a production level and the implementation of the BSIS software in national blood services in countries in Africa. The programme looks at the implementation of the BSIS software as more than the simple deployment of the system at site, taking a whole system approach that acknowledges 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 aim is to implement an effective and sustainable eHealth system that facilitates the achievement of improved blood safety and availability in countries in Africa. As such in this proposal BSSP is presented not only as a BSIS software intervention, but also as part of a larger programme strategy to improve quality management in low resource blood services in Africa.

## Overarching Programme Aim

As a programme focused on the improvement of blood safety through improved quality of blood component management in low resource settings the overall aim of the programme sits at health patient level – **improved health for blood transfusion patients**. We acknowledge that this overarching aim is influence by multiple factors of which the improved accessibility of, and management of, safe blood components is but one. In this way this project forms one part of a broader CDC initiative to improve blood safety in Africa and collaboration will be key to implementing and measuring the success of the programme in terms of achieving it’s desired aim and outcomes. The desired outcomes and outputs of the programme are outlined below:

## Programme Outcomes

1. Safe blood components are more accessible
2. Increase in appropriate clinical use of safe blood components
3. Ability to effectively track blood donations through the screening, testing and processing process
4. High quality, standardized labelling of blood components at National Blood Services
5. Increased number of Voluntary Non Remunerated Donors (VNRBD) donating blood regularly

## Programme Outputs

1. Functioning validated BSIS software deployed at National Blood Services
2. Local staff using the BSIS system in day-to-day activities
3. Local staff with the capacity to provide first level support for the BSIS
4. Functioning Support Centre for BSIS implementations
5. Sustainable National Blood Services support package for BSIS

# Programme Implementation

## PHASE 1: Preparation for Implementation

### Pre country visit

#### Country desk research

The programme team will draft a country overview for each country that is interested in adopting the BSIS. The purpose of this research is to given the programmes and technical team basic information about each country that will assist them as they go about engaging with countries National Blood Services (NBS). The country profiles will include:

Development of country profile that includes:

* + Country Demographics
    - Population
    - Basic economics
  + Country Map
  + Country Health Data
    - Disease demographics
    - Human resources for health
  + Health system structure
  + ICT4Health Assessment
  + Blood Safety Policies

The timeframe for research and the drafting of the country profile is 2 weeks

#### Familiarization with BSIS tool and Blood Safety Strengthening Programme

All NBS interested in being part of the BSSP and adopting BSIS need to be familiar with the programme and the system. Familiarity with the system can be gained in a number of ways including:

* Engaging with web content and promotional materials
* Direct correspondence with the BSSP team
* Attendance of a BSSP and BSIS system demonstration which can be run at international events

The motivation for this familiarization with the system and programme is that as a team we do not want to put large amounts of time and effort into working though later steps of the implementation without agreement with the National Blood Services that they are committed to adopting the system in a manner that meets good practice / standards based on internationally accepted guidelines such as those of the WHO.

The timeframe for this familiarization process will differ by country depending on their existing Quality Assurance System, level of engagement and commitment to the process.

#### Self-administered NBS BECS readiness assessment

Each NBS who is interested in moving forward with the adoption of the BSIS will be required to complete a BECS readiness assessment to establish if they are ready to implement a BECS. The BECS readiness assessment will be designed to be self-administered and the NBS can either complete it independently or with the support of their Blood Safety Technical Assistance partner. The findings of the assessment will be used as benchmark when the BSSP team undertakes its initial country visit to assess the level or readiness for adopting the BSIS and work with the NBS to establish measures of success and implementation timelines. Effectively therefore, the assessment initiates the Monitoring and Evaluation (M&E).

The standard timeframe for completing this BECS self-assessment will be 2 to 4 weeks.

### Initial country visits

The purpose of the initial country visits is to establish solid relationships between the partners, give the BSSP team an indepth understanding of the nature of the blood service in the target country and assess the readiness of the NBS to adopt the BSIS. The desired outcomes and outputs of the initial country visits are detailed below.

#### Outcomes

* Good working relationship between Jembi, the National Blood Service (NBS) and the Blood Safety Technical Assistance point person/s.
* Good understanding of the NBS structure/network and its health information systems requirements
* Clear understanding of the local workflow and roles of user groups in donations clinics, including mobile clinics, testing laboratory, components processing laboratory, blood bank and donor recruitment/communications.
* Clear understanding of the process between the NBS and other facilities to which blood is supplied
* Confirmation of BSIS user requirements and identified areas where there are gaps or differences
* Clear understanding of the gaps between the local SOPs and BSSP generic SOPs and the work required to bring them in to line.
* Clear understanding of the existing local infrastructure and information architectures, and identified upgrade requirements for implementing the system.
* Clear understanding of the level of computer literacy amongst the different user groups
* Clear understanding of the level of technical IT skills available to provide local support and day to day administration of the system
* Draft country implementation plan with commitment to timelines and responsibilities from all parties
* Agreement on an M&E plan to measure the effects of the implementation of the BSIS on the NBS and blood safety.
* Agreement on acceptance criteria based on requirements
* Clear understanding and agreement on the validation and installation strategy to be followed, including a risk assessment and risk mitigation plans
* Clear understanding of the existing data and agreed strategy on how to migrate the data
* Clear understanding of the automated equipment which will need to interface with BSIS and identified support staff/ organisations responsible for this equipment
* Clear understanding of support needs
* Presentation/demonstration of BSIS software

#### Outputs

* Meeting minutes for each meeting held during the visit
* Local workflow documentation
* Documented user requirements and configuration priorities
* Computer literacy assessment
* IT support skills assessment
* Site infrastructure, hardware and software assessment

In order to achieve the above outcomes and outputs we recommend that the BSSP team travelling to countries undertake the following pre-, during- and post-visit activities in order to gain the most out of their time.

#### Pre travel preparations

Before undertaking any travel the BSSP visit team should:

* Review the results of the country’s NBS self-administered BECS readiness assessment
* Initiate contract with the CDC Technical Assistance point person/organisation working with the NBS in the country to be visited
* Prepare a detailed visit schedule with NBS and Technical Assistance point person. This includes working with the NBS to get all meetings scheduled and information and documentation provided in advance of the visit to enable the team to be well prepared and have a clear understanding of the activities to be undertaken and the expected outputs and outcomes of the visit.

#### Recommended In-country Activities

During the initial country visit it is recommended that the BSSP visiting team undertake the following activities that are designed to facilitate them achieving the desired outcomes of the visit.

* Introductory meeting with the NBS team and the Blood Safety Technical Assistance point person/s
* Introductory meeting with appropriate contact person (identified by NBS) in the MoH to ensure that the MoH is aware of Jembi and the proposed project
* Site visit to NBS centre and remote centre (at least one if there are any) to observe, discuss and document the workflow at donation clinics etc.
* Discussion with NBS team and Blood Safety Technical Assistance point person to demonstrate prototype version of BSIS to gain initial end-user feedback
* Discussion with NBS team and Blood Safety Technical Assistance point person to confirm the BSIS user requirements and define areas where there are gaps or differences
* Discussion with NBS team and Blood Safety Technical Assistance point person around the availability of IT support skills within the NBS
* Discussion with NBS team and Blood Safety Technical Assistance point person to identify existing systems and understand the requirements for retaining and/or migrating legacy data and to define and agree the process of transitioning from existing computer or manual systems
* Discussion with NBS team and Blood Safety Technical Assistance point person to identify existing laboratory equipment and requirements for interfacing with equipment
* Review of local and generic SOPs with NBS team and Blood Safety Technical Assistance point person
* Site infrastructure and hardware, software and available IT support services assessment
* Administer computer literacy assessment with different user groups
* Draft joint implementation plan with NBS team and Blood Safety Technical Assistance point person using a pre-defined template

The recommended timeframe for the initial country visit is one week.

#### Recommended Team

The recommended BSSP team to undertake the initial country visit should be comprised of:

|  |  |
| --- | --- |
| Role | Responsibilities |
| Jembi Programme team member | Ensure the establishment of good working relationships with all parties; lead discussions about the NBS structure/network and its health information systems requirements;  ensuring all meetings are minuted; administer computer literacy assessment; lead M&E discussions; draft implementation plan. |
| Jembi Technical team member | Lead of the technical assessments; contribute to the review of the technical requirements; contribute to discussions about the NBS structure/network and its health information systems requirements; contribute to the implementation planning |
| Blood Safety Technical Assistant (Expert) | Provide Blood Safety technical expertise during all discussions; lead discussions about SOPs and review if functional requirements |

### Post country visit

Following the initial country visit there are a number of activities that should take place to build on the outcomes and outputs of the country visits. It is recommended that the BSSP team:

* Work with NBS, Technical Assistance partners and CDC to establish a infrastructure and hardware improvements plan (if required)
* Work with NBS and Technical Assistance partners to amend local SOPs to bring them in line with the BSSP requirements.
* If amendments to the software are required, these changes should be analysed and prioritized and added to a revised technical development plan (this included data migration)
* Finalise implementation plan
* Development of a country level monitoring and evaluation (M&E) plan that can be approved by the NBS / MoH for each country.

## PHASE 2: Configuration and local validation

### Configuration visit

### Local validation period

## PHASE 3: Implementation

### Implementation preparation

There are a number of activities that need to occur between the initial country visit and the implementation visit if the NBS is to be fully ready to implement BSIS. These activities include:

* NBS, Technical Assistance partners and CDC to procure and install all additional hardware and infrastructure required for the implementation of the BSIS and commit to an agreed timeline in which to do so. All partners, including the implementation partner, will be responsible for working together to ensure that the required hardware and infrastructure are in place before the implementation visit.
* NBS needs to implement revised SOPs
* Establish local support desk access processes that will provide users in country with access to first line support for system use.
* Customisation of the training materials to meet the needs of the country
* Validation for infrastructure improvements by technical assistance partners to ensure that all equipment is working prior to implementation.
* Carry out first phase of the country M&E plan (baseline data collection). This can be carried out by NBS and Technical Assistance partners and will be based on data already collected on the NBS for other purposes.

### Implementation visit

The focus of the implementation visit is to deploy the BSIS software at site, training staff on system use and ensure that the system is up and running. The key outcomes and outputs of the implementation visit are listed below.

#### Outcomes

* All levels of NBS staff following SOPs and using the BSIS
* NBS system administrative / IT support staff able to provide first level support on a day to day basis and effectively interacting with the Jembi support desk for issues that they cannot resolve
* BSIS system facilitating quality blood safety management processes
* Configuration report signed off by NBS and Technical Assistance
* Implementation signed off

#### Outputs

* All levels of NBS staff trained on the use of the BSIS
* NBS system administrative / IT support staff trained on how to provide first level support and how and when to interact with the Jembi support desk
* BSIS software up and running at the implementation site(s)

In order to achieve the above outcomes and outputs we recommend that the BSSP team travelling to countries undertake the following pre-, during- and post-visit activities in order to gain the most out of their time.

#### Pre travel preparations

* Ensure BSIS configurations meet country requirements
* Work with NBS to schedule training sessions
* Print country specific training materials
* Establish a roles and responsibilities matrix for Administrators and IT support personnel in country

#### Recommended In country activities

* Pre implementation meeting with the NBS team and the Blood Safety Technical Assistance point person/s
* Deployment of BSIS software at each site and the setting up and testing of a remote access system
* The process for the deployment of software may vary according to each implementation depending on factors such as:
  + Import of legacy data
  + Extent of system configuration
  + The need for test runs or parallel runs depending on the best way to transition from an existing computer system or manual paper-based system. This will have been discussed and agreed during the pre-implementation visits and included within the implementation plan.
* IT skills training for staff with insufficient IT skills to use the system
* Training for the Administrator (or identified IT support person if there is no team in place) of how to provide first level support to the system. Training on the workflow to be followed and the general system use as well as training on how to train and how to provide elbow support. First level support includes how to investigate and resolve basic hardware issues, how to respond to general queries using tools such as the documentation, FAQs and checklists, how to re-set passwords etc. In addition the team will be trained on how to report errors, submit change requests and the correct process to escalate issues.
* Training for technical staff on system first line support, including simulator testing of issues on a broken instance. Participants in this training should be evaluated and received certificates to identify them as trained BSIS first line support personnel.
* Training for users (donor management, donor clinic and laboratory and management staff) on the workflow to be followed and system use as well as how to report errors, submit change requests and the issues escalation process.
* Elbow support for users and first line support staff
* Active monitoring of the BSIS software at site for the immediate period following deployment.

The recommended timeframe for the implementation is 4 weeks staggered with training staff spending 2 weeks at site and technical staff spending 3-4 weeks at site.

#### Recommended Team

The BSSP team undertaking the implementation visit should be comprised of:

|  |  |
| --- | --- |
| Role | Responsibilities |
| Jembi Technical team member | Deploy, configure and test BSIS; support training of technical support staff |
| Trainer(s) | Train end users and technical support staff |
| In-country Blood Safety Technical Assistant (Expert) | Provide Blood Safety technical expertise and ensure that the BSIS configurations meet the country requirements |

### Post implementation support

The post implementation support will be given both by the local support team and the Jembi support team. Division of labour between in country and remote support teams is detailed below.

#### In country support

* First line system and IT support provided by in-country system administrators and NBS IT staff (where present)
* First line support have clear guidelines to follow when addressing common errors and FAQs
* First line support have clear guidelines of when and how to contact Jembi second line support desk

#### Remote support

* Jembi Support team will undertake weekly support calls with in-country system administrators and IT staff. Weekly calls will be reduced to fortnightly and then monthly calls as the staff become more familiar with the system.
* Jembi support team will provide second and third level support to the system addressing issues exculpated by the first line support team in country.
* Where necessary (if countries are struggling to support the system) the Jembi support team will return to country to provide follow up elbow support for system administrators, IT staff and end users.

#### Support team

The BSSP support team providing remote support should be comprised of:

|  |  |
| --- | --- |
| Role | Responsibilities |
| BSIS product manager | Owns the BSIS software and manages the support team |
| Jembi Support desk lead | First point of contact for the in-country support team. Manages all help desk queries and day-to-day workload of the support developers. |
| Jembi support developers | Work with the support desk lead to ensure that the BSIS software is functioning – bug fixing, testing, updates |
| Trainer (for initial period only) | Provides support to the help desk lead with the weekly in-country support team calls |

### Implementation schedule

## PHASE 3: Ongoing support and maintenance

#### Sustainability planning

* Based on the generic sustainability plan developed by the BSSP team the team will work with the NBS, MoH, Technical Assistance partners and CDC to establish a sustainability plan aimed at transitioning the system from a Jembi/CDC supported system to a Jembi/NBS supported system.

#### Provision of BSIS support and maintenance

* This service will be provided by the Jembi Support desk which will:

1. Provide a single, central point of contact between Jembi’s technical team and clients (National Blood Services designated staff) and to facilitate clear and timely communication between them.
2. Log and document reported problems (system down, errors, software bugs) and liaise with the technical team to facilitate the restoration of normal operational service with minimal business impact on the NBS within agreed service levels and according to priorities.
3. Log changes or new features requested by the NBS and to document, analyse and prioritize these according to Jembi’s change management process and communicate with NBS around these
4. Communicate with the NBS system administrators and liaise with Jembi technical team when releases are deployed to the production environment
5. Provide and maintain a knowledge base for BSIS on a support wiki
6. To provide input, feedback and support to the training and capacity development team on the BSSP project
7. To provide reporting information to the BSSP project team and Jembi’s technical and management team

## PHASE 4: Transition to Service Level Agreement

Transition to a Service Level Agreement (SLA) between the NBS and Jembi for the ongoing support and maintenance of the BSIS markers the transition of the programme from a donor-funded exercise to a sustainable country owned initiative. To ensure a smooth transition there are a number of criteria that need to be met before the final SLA between the parties can be signed. These include:

* A sustainability plan, including a financial sustainability plan, needs to be agreed between all parties
* Acceptance of the successful implementation of the system needs to be signed off by the NBS, donor and MoH
* Local support staff able to provide effective first line support for the system

# Programme Monitoring and Evaluation

## M&E Approach

The BSSP will use a combination model for planning, monitoring and evaluation, bringing together key aspects of the Logic Model and Outcomes Mapping to create a stronger, more realistic approach to evaluating our work. This combined approach gives both structure and flexibility to the process of designing and implementing M&E plans by ‘integrating both result-orientated focus and process-orientated learning pathways’. [[1]](#footnote-1) The planning, monitoring and evaluation model will identify and assess Boundary partners, create a logic framework for programme outcomes, outputs and indicators and set progress markers for measuring influence and impact. These components of the planning, monitoring and evaluation process are explained in more detail below.

#### Boundary Partners

The first step of the planning, monitoring and evaluation process will be a stakeholder analysis where we identify Boundary Partners - individuals, groups and organisations with whom the BSSP directly interacts and with whom the programme anticipates opportunities for influence. In addition to identifying these partners we will identify their role in the BSSP and sphere of influence. Where possible all effort will be made to try an include boundary partners in all phases of the programme.

#### Logic Framework

The creation of a logical framework begins with the establishment of a clear and concise vision of the long-term impact of the programme. This statement will answer the question of the overall “why” of the project/programme, the desired long-term results.

The next step is to identify clear outcomes for the project in term of changes in behaviour and practice of beneficiaries that will result from the outputs of the BSSP. Also with these outcomes identify the core assumptions that underpin the causal relationbetween the project outcomes and outputs and mitigations strategies to minimize the likelihood of these having a negative impact on the project.

Each outcome will be connected to one or more output or deliverables - tangible results (products, services, facilities) of programme activities. Achievement of these outputs should be easily measurable and will be measured according to progress markers throughout the course of the programme. The aim, outcomes and outputs should be accompanied by 1-3 SMART Indicators that can be used to demonstrate the achievement of these outputs and outcomes. SMART indicators are:

* Specific: Is the desired outcome clearly specified?
* Measurable: Can the achievement of the objective be quantified and measured?
* Appropriate: Is the objective appropriately related to the program’s goal?
* Realistic: Can the objective realistically be achieved with the available resources?
* Time-bound: In what time period will the objective be achieved?[[2]](#footnote-2)

#### Progress Markers

The final step in the planning, monitoring and evaluation planning process is to identify graded progress markers; expect to see, like to see, love to see, should be defined for each outcome. Using these markers will be used to measure BSSP progress towards influencing outcome on an ongoing basis.

## Data Collection Methodology

1. Ambrose, K. and Roduner, D., A conceptual fusion of the logical framework approach and outcome mapping. OM ideas, Paper 1, May 2009 [↑](#footnote-ref-1)
2. Frankel, N and Gage, A, M&E Fundamentals A Self-Guided Minicourse, MEASURE Evaluation, Jan 2007 [↑](#footnote-ref-2)