Project Owner/Steering Committee Leader:	Linda Sleire
Project Manager:	Torunn Apelseth
Approved Date:	19.06.2025

Project Name: Nordic Blood Preparedness Project

1 Why start the project?

Early balanced blood transfusion improve survival in patients with severe bleeding and is recommended in civilian and military guidelines. Bleeding is the most frequent reason for preventable deaths in war, but severe bleeding is also seen in peacetime non-trauma related situations as for patients with gastrointestinal or post-partum bleeding.
The Nordic Health Preparedness agreement provides the basis for cooperation between the Nordic countries in crises and disasters, however there is no Nordic plan for blood preparedness. The challenges we face are many; large sparsely populated areas, small hospitals with limited inventory of blood, long distances and delayed patient transport. The reduced access to blood and prolonged evacuation times, may lead to loss of lives.

Starting in 2021, a Blood Preparedness pilot project was performed in Northern Norway led by the Northern Norway Health Authority in collaboration with the Norwegian Center for Blood Preparedness. The project tested different options for blood supply. The project found that:

- there is a need for blood preparedness systems in all levels of health care services to reduce deaths from bleeding in areas with long patient transport times.
- emergency collection of whole blood was identified as a valuable management strategy in situations where banked blood was unavailable.
- there is a need for a Nordic collaboration and cross-country interoperability.

Emergency collection and transfusion of whole blood is used for treatment of injured soldiers in war and military operations. It was also the start of the civilian blood services, first implemented by the Red Cross in London by Percy Land Oliver in 1921, and from there it spread to the rest of the world including the Nordic Countries. A structured system for emergency collection of whole blood consists of a system for recruitment and maintenance of an emergency donor pool with systematic selection based on interviews and testing as for ordinary blood donors. It also includes a structured set of standard operational procedures (SOPs) describing when and how to use the system, training of personnel and revision of the system. Emergency collection and transfusion of whole blood is performed at the site of need, which may be at a hospital or outside hospital as for rural primary health services. It is also used in oil industry and in some cruise liners which operate far from health facilities. The concept is also called “walking blood banks” or “fresh whole blood”.

To follow up the finding from the Northern Norway Blood Preparedness pilot, we aim to develop, implement and evaluate a cross-country interoperable blood preparedness system that includes emergency collection and transfusion of whole blood in rural hospitals and municipalities in the Barents region. The project will be performed in

collaboration with health authorities, hospitals, prehospital services, primary health care services and blood services in the Northern areas of Norway, Sweden, and Finland.

2 Project goals

2.1 Aim

The aim of the project is to develop and pilot a cross-border blood preparedness program which ensures blood supply on all health care levels and access to treatment for bleeding patients in the Barents region. The project will facilitate co-operation and interoperability in the Nordic countries and build a platform for future collaborations which will improve the quality of our health services. The project is not designed as a scientific research project.

2.2 Benefits

Benefit	Description
Improved Survival Rates	By enabling emergency whole blood collection and transfusion, the project can reduce preventable deaths from bleeding in trauma and crisis situations in rural areas of the Barents region where blood from ordinary Blood banks is not available or insufficient.
Strengthened Rural Healthcare	Enhances the capacity of primary health services in remote areas to respond effectively to emergencies and provide treatment to patient with life-threatening bleeding.
Cross-Border Collaboration	Establishes a unified Nordic System for blood preparedness, enabling cooperation and interoperability between Norway, Sweden and Finland.
Increased Health System Resiliance	Builds a robust infrastructure that can handle sudden surges in blood demand, including war and disasters.
Strengthen health care staff competence in blood preparedness	By training and implementation of new procedures/routines will the project enhance competence and confidence for medical staff in emergency care situations.

2.3 Necessary changes

The three most important changes that the collaborators in the project must implement to achieve the overall goal and benefits:

- Early balanced blood transfusion for patients with severe bleeding must be implemented in hospitals, prehospital services and municipalities. Procedures, routines, equipment, training and authorization including a program for emergency collection of whole blood for emergency use must be implemented.
- An emergency donor pool must be established in the participating sites.
- Establish cross-border interoperability and enable transport of blood products, exchange of personnel and interoperability with regard of emergency blood donors within the Barents region.

2.4 Deliverables – What should the project specifically develop or execute during the project period?

The project's deliverables are sorted after the projects different phases as listed in the table below:

Timeline and project phases		
Phase	**Aim of phases**	**Description**
Phase 1a: (Jan 2025- May 2025)	Planning	- Consolidate the project group and establish a detailed milestone plan covering phases 1-3. - Obtain background documents (e.g. Blood Preparedness pilot Finnmark, military courses, civil emergency plans, regulatory documents). - Establish working groups. - Consultation with national regulatory bodies. - Establish agreements with regard of information security. - Project planning meeting (project group). - Meeting with hospitals and primary health services.
Phase 1b: (June 2025- Dec 2025)	Preparation	- Establish Standard Operating Procedures (SOPs). - Establish generic templates for procedures and routines. - Develop training courses and instruction materials. - Customize national SOPs and prepare for implementation on a national level. - Solve potential regulatory issues.
Phase 2 (Jan 2026 - April 2027)	Implementation	- Implementation of routines and procedures in pilot sites in rural hospitals and primary health care (one per category per nation).

		- Training and exercises. - Maintenance of emergency donor pool with interviews and testing. - Follow up of program.
Phase 3: (May 2027-December 2027)	Evaluation	Evaluate according to predefined outcomes.

Fixed deliverables to be presented to the steering committee:
- Risk assessment
- Project plan incl milestones and timeline

2.5 Scope and dependencies

Key scope limitations and dependencies are:

- Differences in regulatory requirements for blood services in different countries may hamper collaboration and prevent interoperability
- Lack of personnel resources at pilot sites makes it difficult to recruit emergency blood donors and implement new procedures
- Cost of testing of blood donors can make it difficult to obtain enough emergency blood donors
- The project is dependent on approval and authorization from national Health Authorities to be able to establish an interoperable cross-border blood preparedness program.

3 Project organization

3.1 Project owner and steering committee

Role	Name/Representative from the following units
Project owner	
Steering committee leader	**Linda Sleire, Bergen Hospital Trust**
Members of the steering committee	**Jonny Brodersen, Northern Norway Regional Health Authority** **Pia Näsvall, Health and Medical Care Department, Region Norrbotten** **Jyri J. Taskila, Lapland Wellbeing Services County** **Jarkko Ihalainen, Finnish Red Cross Blood Service** **Sofia Frändberg, Swedish Blood Alliance**

3.2 Project manager, project group and any reference group

Role	Name/Representative from the following units	Necessary competence and resource needs (Percentage)
Project leader	Torunn Apelseth	**Director, Nokblod**
Members of the project group (included any local groups)	Hanne Braathen	**Specialist Biomedical Scientist, Nokblod**
	Miriam Karoline Storebø Heggøy	**Specialist Biomedical Scientist, Nokblod**
	Bent-Ove Jamtli	**Northern Norway Regional Health Authority (Norway)**
	Mirjana Arsenovic	**Senior consultant blood services (Norway)**
	Conny Graumann	**Biomedical Scientist and coordinator walking blood bank (Norway)**
	Åsa Hellström	**Biomedical Scientist and coordinator mother blood bank (Norway)**
	Geir Strandenes	**Anestesiologist, Nokblod**
	Jouni Lauronen	**Finnish Red Cross Blood Services (Finland)**
	Tommi Karlsson	**Chief contingency planner, Finnish Red Cross Blood Services (Finland)**
	Anu Maksimow	**Director, Lapland Wellbeing Service (Finland)**
	Matias Wesin	**Incident Medical Commander, Lapland Wellbeing Service (Finland)**
	Kristiina Larikka	**Chief nurse, Lapland Central Hospital (Finland)**
	Jonna Kuusijärvi	**Doctor, Sodankylä Primary Health Care Services (Finland)**
	Kati Mure	**Nurse, Sodankylä Primary Health Care Services (Finland)**
	Henrik Brännholm	**Chief Medical Officer (and preparedness), Region Norrbotten (Sweden)**
	Magnus Nordström	**Medical director of blood banks, Region Norrbotten (Sweden)**
	Karin Jones	**Head of laboratories, Region Norrbotten (Sweden)**
	Therese Nystad	**Intensive care nurse, Region Norrbotten (Sweden)**
	Agneta Wikman	**Senior consultant, Swedish Blood Alliance (SweBA)**
Controller	**Linn Nerland**	**Controller, Helse Bergen, Norway**

4 Milestones

An overview of the project's milestones is summarized in the table below. For detailed Project plan. See attachment.

No	Milestone	Completion date
M1	Phase 1 – Planning	**May 2025**
M 1.1	Consolidate the project organization	
M 1.2	Specify aims	
M 1.3	Set predefines outcomes	
M 1.4	Establish work pacages and working groups	
M 1.5	Establish an overall milestone plan and timeline covering phases 1-3	
M 1.6	Project planning meeting	
M 1.7	Meeting with hospitals and primary health services	
M 1.8	Obtain background document e.g. Blood Preparedness Pilot Finnmark, military courses, civil emergency plans, regulatory documents	
M 1.9	Discuss need for agreements regarding information security	
M2	Phase 2 – Preparation	**December 2025**
M2.1	Establish a detailed milestone plan and timeline covering phases 1-3	
M2.2	Establish standard operating procedures (SOPs)	
M2.3	Develop training courses and intruction material	
M2.4	Customize national SOPs and prepare for implementation on a national level	
M2.5	Identify any potential regulatory issues	
M3	Phase 3 – Implementation	**April 2027**
M 3.1	Implementation of routines and procedures in pilot sites in rural hospital and primary health care (one category per nation)	
M 3.2	Training and exercises	
M 3.3	Maintenance of emergency donor pool with interviews and testing	
M4	Phase 4 - Evaluation	**December 2027**
M 4.1	Evaluation	