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Document owner:

Valid from: 10.01.23

Version: 2

Organizational placement: Faculty of

Medicine

SOP for immediate action and follow-up of puncture and cut injuries in case of exposure to biological factors



The purpose of this procedure is to prevent / reduce the development of disease when an employee has been exposed to biological factors. The procedure is to ensure that employees and managers are familiar with procedures for measures and treatment in the event of stabs and cuts.

All employees are obliged to familiarize themselves with the procedure and to help when injury occurs.

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2. General Overview

2.1 This procedure applies to

- Department of Biomedicine
- Clinical Institute 1
- Clinical Institute 2
- Occupational Health Service (BHT)

2.2 Changes from last version

Sectio0n 2.5: The binder with the necessary forms has been moved to room 8445.

Links to NAV have been updated.

2.3 Abbreviations

GMM	Genetically Modified Microorganisms
BHT	Occupational Health Service
MBF	Medical Biochemistry and Pharmacology (Formerly LKB)
LKB	Clinical Biochemistry Laboratory
EMD	Emergency Medical Department (legevakten)

2.4 Definitions

"0"-test sample	Blood sample taken to determine status less than 48 hours after the incident. This is the starting reference point for further testing.
Organism	Cell, bacterium, virus, human, animal etc.
Source person	A person who has donated blood or other bodily fluid

2.5 Forms belonging to the procedure

Our department has a plastic pocket at the 8th floor containing the necessary documentation to be used following stabs and cut wounds where there is a risk of exposure to biological factors.

Primary contact: Siv Lise Bedringaas room 8445

The binder is placed on the top shelf in

the section behind the door.

The plastic pocket contains:

- Self-Declaration form
- Requisition form for MFB / EMD (legevakten)
- Patient consent form
- Injury form (NAV)

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3. Roles and responsibilities

Role	Responsibility / Task				
HSE-coordinator at the department	 Contact with BHT Ensure that all forms are always updated at the department Provide training 				
Occupational physician / Nurse	 Sign requisitions Perform / participate in risk assessment of infection Follow-up the injured person 				
Employer	Report the accident / injury to NAVFollow-up the injured person				
Injured employee	 Perform first aid Fill in self-declaration form Provide the "0" blood sample Contact the BHT and the immediate supervisor Report HSE nonconformities Complete the occupational injury form to be sent to NAV if a doctor is contacted Follow BHT's suggestions and recommendations 				
Employee	Acquire knowledge of the nature of the procedureProvide help in case of accident / injury				
Blood sample reception at the hospital (MBF) Weekdays Kl. 08.00 -15.00	Take the "0"-blood sampleSend the results to BHT				
"Legen på Høyden" Weekdays Kl. 08.00 -15.00	 Take the "0"-blood sample Send the results to BHT Conduct risk assessment Commence any treatment 				
Emergency Medical Service (Legevakten) After kl. 15.00 Weekend / Holidays On-duty physician responsible for infectious disease	 Take the "0"-blood sample Send the results to BHT Conduct risk assessment Commence any treatment Start any treatment Hospitalization in case of serious risk of infection 				

4. Preventative measures

4.1 Vaccine status and vaccination

Everyone who works with blood / blood products and/or microorganisms must check their own vaccine status.

Vaccine status can be checked here: https://helsenorge.no/vaksiner/mine-vaksiner

All who potentially can be exposed to infection should be offered vaccination. Although vaccination is a voluntary offer, in some cases the employer may order compulsory vaccination.

Employees who are not vaccinated against hepatitis B should do so by contacting BHT (see 5.2). Employees who work with other pathogens should vaccinate themselves if such a vaccine is available.

4.2 Immunosuppressive treatment

It is recommended that people under immunosuppressive therapy should not work with biological factors.

4.3 Risk assessment of own work

- The working operations must be risk-assessed.
- All workers should have the necessary knowledge of the various biological factors they can come into contact with through their work.

It is recommended that one has a comprehensive overview of information on all cell lines/microorganisms used in the laboratory.

4.4 Working alone

Work where there is a potential risk of serious infection should be avoided outside normal working hours.

If this cannot be avoided, then the employee must have discussed the situation with their immediate superior. Together they must find a satisfactory working solution, for example:

- The timing of the operation if pre-determined
- A colleague is nearby
- A mobile telephone or other way of notification must be readily available
- The manager is notified when the work is done

See also: Working alone in hazardous working environment

5. Procedure following an injury

This procedure applies in cases where an employee has a cut or puncture wound which may have been exposed to a biological factor, such as a blood product, cell line or microorganisms.



In the event of a stab or cut injury where there is no risk of exposure, perform regular first aid and contact the emergency services if the injury requires treatment by a physician.

5.1 Perform first aid

- Following stab wounds/cuts, allow wounds to bleed, but to not induce bleeding.
- Immediately flush the exposed area with plenty of water for at least 10 minutes.
- In case of spillage of infectious material, disinfect the area with for example Chlorhexidine or Pyrisept for 3-4 minutes.
- Protect the wound with a patch or bandage.
- Obtain the folder containing the self-declaration form.
- Fill out the form (may be done later, but must be completed before the onset of medical treatment)

5.2 Perform blood tests

5.2.1 Employee who is injured

The injured person must provide a "0" blood sample as soon as possible and no later than 48 hours after the incident has occurred to determine the status before any infection occurs and this serves as the starting point for further testing and follow-up.

Available blood sampling sites depends on the time of the event:

When	Site	Task/responsibility	Location
Weekdays Kl. 08.00 - 15.00	Blood sample reception at the hospital (MBF)	 Take the "0"-blood sample Send results to BHT 	2. floor HUS by the escalator
Weekdays Kl. 08.00 - 15.00	Legene på høyden (alternative) Must be contacted before 14.00.	 Take the "0"- blood sample Send results to BHT Conduct risk assessment 	Christies gate 13 (Entrance 1. floor) Tlf: 52 69 51 51

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After kl. 15.00	Emergency Medical	•	Take the "0"-	Solheimsgaten 9.
Weekend	Service (Legevakten)		blood sample	
Holiday		•	Send results to	Tlf: 55 56 87 60
			BHT	
		•	Conduct risk	
			assessment	

- Remember to bring the forms from the folder to the blood sample site / doctor (see 2.5). The requisition form is necessary to have the blood sample taken and get a consultation.
- Blood samples can be taken at Blood sample reception at the hospital (MBF) 2.floor, at Legene på høyden or at Legevakten.
- Fill out the self-declaration form (can be done later, but must be done before contact with a doctor or the BHT).

5.2.2 Source person: Patient / donor

If possible, it is an advantage to obtain a sample from the patient (the potential source of infection). Consent is obtained from the patient/ next of kin if this has not already been obtained. The patient must have a blood sample taken at Haukeland University Hospital, Blood sample reception at the hospital (MBF) second floor. The requisition form must contain the personal data of the injured individual involved and the date of injury.

5.3 Assessment of the source of infection, risk and treatment

Following exposure to blood, body fluids or other biological factors, preventative treatment should be considered when:

- The source of infection is a carrier of a human pathogenic organism against which the injured person is not vaccinated
- The source of infection is lentiviral / retroviral vectors (viruses) in connection with GMM work
- The source of infection is a laboratory animal
- The assessment indicates a high risk
- The source of infection is unknown

If the risk assessment indicates a high risk of infection, the employee / colleague should:

- > Contact BHT as soon as possible
- Report to your PI and head of department / department management

5.4 Treatment

In order to ensure the best possible assessment, it is important that the doctor receives detailed information about the source of infection. It is therefore necessary that the self-declaration form is completed, and that the vaccine status of the injured person is known.



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5.4.1 In case of a probable infection:

BHT: Contact BHT for further evaluation if the blood test is taken by the MFB.

- Business Nurse: **55 58 87 42** E-mail: Gunvor.Landro@uib.no
- For more telephone numbers, see: https://www.uib.no/hms-portalen/111462/kontakt-bedriftshelsetjenesten

The Emergency Department (Legevakten): If the "0"-blood sample is taken at the emergency department, any treatment is assessed there. Tel: 55 56 87 60

5.4.2 For known **hepatitis B** or **hepatitis C** infection:

> Contact the Emergency Department or Legene på Høyden immediately.

5.4.3 At risk for **HIV / retrovirus** exposure:

Immediately contact Haukeland University Hospital tel. 05300, and ask to speak to the oncall infections doctor.

Preventative treatment should be started within 4 hours and no later than 48 hours.

5.5 Follow-up

BHT and the department are responsible for further follow-up. The process depending on the type of exposure the employee has been subject to.



5.5.1 Follow-up from BHT

All inquiries to BHT and test answer will be sent directly to the BHT doctor who follows up cases with risk of transmission of infection. The occupational health service calls for further follow-up. It is important to attend the follow-up appointment to which you are called to attend, so that any necessary measures can be implemented.

5.5.2 Follow-up from the department

The Head of Administration assists in completing and sending a claim form to NAV and takes care of the employee in case of any sick leave or other needs in connection with the injury incurred.

5.6 Reporting

Notify as soon as possible:

- BHT 55 58 87 42 Gunvor Røssland Landro. Email: Gunvor.Landro@uib.no and bht@uib.no
 - o https://www.uib.no/hms-portalen/111462/kontakt-bedriftshelsetjenesten
- Your PI / Head of Administration / HSE-coordinator

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Fill out and submit the following form:

- The HSE nonconformity form (https://www.uib.no/en/hms-portalen)
- NAV's occupational injury form is completed together with the Head of administration if a blood sample has been taken. https://www.nav.no/report-occupational-injury#report

5.7 Flow sheet



Injury



Perform necessary first aid:

- Rinse extensively with water
- Disinfect
- Apply bandages





- Fill out self-declaration form
- Immediately contact supervisor/Head of administration
- Report HSE-nonconformity

Obtain folder with required documents



- Take «0»-blood sample
- Evaluate any risk of the injury with the responsible doctor



Receive preventative treatment if necessary



- Report HSEnonconformity if not previously completed
- Fill in the form to NAV together with the Head of administration



Follow-up at the BHT and with the Head of administration

6. Appendix

6.1 Risk of transmission of infection

6.1.1 Risk of transmission of infection by contact with body fluids¹

The risk of transmission is related to the degree of contact with blood of other body fluids. There is no risk of transmission through contact with blood on intact skin. Skin-puncture injuries are considered the most common form of transmission of infection.

There is a risk of transmission of infection by contamination of a contaminated cannula

- Hepatitis B 10 30 %
- Hepatitis C 5 5 %
- HIV approx. 0.3% In the Nordic countries, transmission of HIV has never been proven following puncture damage.

In Norway, the prevalence of Hepatitis B and C is greatest among injecting drug users. The prevalence of HIV-positive is greatest among people from Africa and Southeast Asia. There has been an increase in infection among homosexuals in recent years, while for injecting addicts there is little chance of new infection. Therefore, the chance that a patient is infected with Hepatitis B, C or HIV will be low as long as he/she does not belong to one of these risk groups.

6.1.2 Risk of transmission of infection using Retroviral / Lentiviral vectors (viruses) in connection with work on gene-modified microorganisms (GMM)

A stab wound/ cutaneous injury is the highest risk factor for transmission of infection when working with Lentiviral vectors in the laboratory. The other type of exposure hazard is from airborne aerosols via the respiratory tract, partly due to spills or too much pipetting.

Exposure can lead to one-off infections with the transmission of viral genetic material that can result in:

- Mutations
- Development of oncogenesis
- Generation of replication competent lentivirus (RKL)

¹ Norwegian Institute of Public Health: http://www.uib.no/fg/dyreavdelingen/66095/kontroll-med-smitte-patogener-og-mikrobiell-status

6.1.3 Risk of transmission of infection following working with human pathogenic bacteria and viruses

Transmission of infection by stab-wounds and cut injuries by direct exposure to bacteria and viruses is considered high. Exposure risk depends on the type of pathogen and this must be evaluated for each type.

6.1.4 Risk of transmission of infection when working with cell lines

The greatest risk of exposure when working with cell lines is the presence of pathogenic agents. Commercially available cell lines have been tested for a range of potential pathogenic viruses and bacteria. Cell lines infected with agents that can induce moderate disease are marked with a higher risk level (BSL 2). Cell line providers recommend that all cell lines, although labelled as BSL 1, be treated as potential carrier at the BSL 2 level, as they cannot test for all types of viruses and bacteria.

The closer the genetic similarity the cell line has to human cells, the higher risk of transmission of infection. This is due to the relationship of the host and the human immunological response factors. Human cell lines therefore pose the greatest risk. Other factors that also need to be considered are the concentration of cells and the number of cell lines one has been exposed to.

The risk of transmission of cells from human or other animal species is considered minimal.

6.1.5 Risk of infection when working with research animals (mice and rats)

Infectious material can be transmitted following skin damage, via the respiratory tract or by means of using aerosols for example, during cleaning cages or the animals' own activity. Infection can also be transmitted through surgery and dissection.

Possible exposure hazards:

- Development of allergy to test animals
- Zoonoses (infectious diseases that can be latent in the experimental animal. Some of these can be very dangerous for humans.)
- Injection of material meant for injection into a test animal (e.g. cancer cells, cytostatic drugs, other agents used for treatment)

6.2 Laws and regulations

The Working Environment Act § 4-5	Especially regarding chemical and biological health hazards
Internal control regulations § 5 paragraph 6	Reduce risk conditions
Regulations on the execution of work Chapter 6 § 31-3	Work environments that may cause exposure to biological factors. Registration of workers using biological factors.
Regulations on reorganizing and participation chapters. 7-11, 13	Risk assessment, training, information, planning, facilitation, work instructions, company health service, reporting obligation and protective equipment.
Workplace regulations chapters. 5 and 8	Signs, marking/labelling of possible exposure to biological factors
Contingency Protection Act § 3-2 and § 6-1	(Prior) survey of employees and students
National Insurance Act Chapter. 13	Occupational injury coverage

6.3 Links

BHT, contact info	https://www.uib.no/hms-portalen/111462/kontakt- bedriftshelsetjenesten
First aid	https://www.uib.no/hms-portalen/74267/f%C3%B8rstehjelp
HSE deviation reports	https://avvik.app.uib.no/apex/f?p=692:1
NAV occupational injury	https://www.nav.no/yrkesskade/en
form	https://www.nav.no/report-occupational-injury#report

6.4 Appendix

6.4.1 Requisition for blood sample to be taken

There are two forms, one for the injured worker and one concerning the source of infection (if relevant).

NB! When obtaining a blood sample from the source person, remember the consent form.





Samtykkeskjema for blodprøve

Samtykke til blodprøve	
	eller annen kroppsvæske til forskning, har den som har eller kutt som gir grunnlag for at det kan tas blodprøve
Jeg samtykker til at det blir tatt blodprøv blodprøven skal kun brukes til å sjekke st	re, eller at tidligere blodprøve kan brukes. Denne tatus for hepatitt B, hepatitt C og HIV.
Navn:	
Dato / underskrift <u>pasient/kildeperson</u>	Dato / underskrift <u>behandler</u>

Samtyldæskjema tilhørende SOP for oppfølging av stikk og kutt skader ved fare for eksponering av biologiske faktorer. Det medisinske fakultet, Universitetet i Bergen

Egenerklæringsskjema ved stikk og kuttskader

Navn:	Enhet:Klokke:Dato:					
Vaksinestatus: Hepatitt B 🔲 T	Tetanus Andre:					
TYPE ARBEID	BESKRIV TYPE EKSPONERING					
BLOD OG KROPPSVÆSKER	Blod Annen kroppsvæske:					
	Kjent infeksjon hos pasient:					
RETROVIRALE VEKTORER (GMM)	Vektor/- system:					
	Type geninnlegg:					
	Mutert Ikke mutert					
	Genets Opprinnelse: Humant Annet:					
	Genets funksjon:					
	Mottaker organisme:					
HUMAN PATOGENE BAKTERIER OG VIRUS	Navn:					
	Type: Bakterie					
	Sykdom:					
CELLELINJER	Navn: Human Annet:					
	Vevstype: Celletype:					
	Sykdom:					
VÆSKE FRA FORSØKSDYR						
	Mus Rotte Annet:					
	Injisert organisme: Human					
	Celletype: Sykdom:					
	Genetisk mutasjon:					
	Kjent infeksjon hos forsøksdyret:					
Egenerkkeringsskjema tilhørende 50	OP for oppfølging av stikk og kutt skader ved fare for eksponering av biologiske					
faktorer. Det medisinske fakultet. Universitet	tet i Bergen Versjon 1_ 30.04.19					

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	_	f eller da skadelig påv					Organisasjonsn	ummer
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Vei-/gatenavn			nusnr.	Postnr.	Sted		Telefonnummer	
Fant ulykken sted		Ja Nei	Hvis nei, oppgi h	ivor (me	d nøyaktig	adresse)		
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			inger (06.00-21.00)	Annet	Ulykken inntraff:	l normal arbeidstid	Under over- tidsarb	Utenfor arbeids
Lønnsform da ulykken skjedde		n/fast lønn ons/akkord	På vanlig arbeidsplass?	Ja	Nei	Inne Ute	På vei til/fra arbeidet?	Ja Nei
På vei mellom arbeidssteder?	Ja Nei		Meldt arbeids-	Ja	Nei	Hadde skadede r for å utføre arb.o		Ja Nei
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https://www.nav.no/report-occupational-injury#report

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