**Executive Summary**
The Royal Infirmary of Edinburgh (RIE), Western General Hospital (WGH) and Royal Hospital for Sick Children (RHSC) are the only NHS Lothian sites to have satellite blood fridges. This document sets forth the operational policy only for all relevant clinical issues relating to the satellite blood fridges on these above sites. The Blood Safety and Quality Regulations 2005 (BSCH) state that there must be guidelines, standard operating procedures, policies and training programmes in place to support safe blood banking and clinical transfusion practice. Managerial and technical issues relating to the satellite fridges are excluded and can be found in site specific Hospital Transfusion Laboratory procedures.

**Keywords**
Satellite Fridges. Blood Transfusion Safety, Safe storage of red cells, blood transfusion, blood storage facilities, blood collection

**Target Audience**
All staff who collect blood from a satellite blood fridge or transfusion laboratory. This extends to any clinical staff involved in the practice of safe blood transfusion, in particular, all NHS Lothian staff that have completed Learnbloodtransfusion Module 1 training and have been formally competency assessed. This applies to RIE and RHSC Clinical Staff and WGH Clinical/Portering Staff.

**Associated Guidance**

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## Version Control

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1. Introduction

1.1 Aim of the Policy
This operational policy aims to address all relevant clinical issues relating to the satellite blood fridges on the Royal Infirmary of Edinburgh (RIE), Western General Hospital (WGH) and Royal Hospital for Sick Children (RHSC) sites. These are the only sites within NHS Lothian that have satellite blood fridges.

The Blood Safety and Quality Regulations 2005 state:

- There must be full traceability of all aspects of the transfusion process, from donor to recipient vein, maintained and available for 30 years, and
- There must be guidelines, standard operating procedures, policies and training programmes in place to support safe blood banking and clinical transfusion practice.

Failure to comply with the Regulations is a criminal offence.

WGH satellite fridges are owned by the NHS Lothian University Hospitals Services, all other fridges are owned by the South East Blood Transfusion Service (SEBTS). This policy is consistent with the NHS Lothian Blood Transfusion Policy and Procedures 2016, the British Committee for Standards in Haematology Transfusion Guidelines and the European Blood Directive EU2002/98. Managerial and technical issues relating to the satellite fridges are detailed separately in the Maintenance and Monitoring of Satellite Blood Fridges Standard Operating Procedure (RIE) and Temperature Monitoring and Maintenance of Blood Storage Facilities Standard Operating Procedure (WGH). For further information and access to the SOP, contact your local Hospital Transfusion Laboratory (HTL).

2. Who does this policy apply to?

2.1 Scope
This Policy relates to the use of satellite fridges for the safe storage of red cells. NO other blood product or component must be stored in the satellite blood fridges unless authorised by the local Hospital Transfusion Laboratory (HTL). The policy is applicable to all staff that collects blood from a satellite blood fridge or transfusion laboratory:

- RIE and RHSC Clinical Staff
- WGH Clinical/ Portering Staff

It also extends to any clinical staff involved in the practice of safe blood transfusion, in particular, all NHS Lothian staff that have completed Learnbloodtransfusion Module 1 training and have been formally competency assessed. Only staff members who have completed the necessary training (relevant sections of Learnbloodtransfusion Module 1 training, available at www.learnbloodtransfusion.org.uk or via learnpro) can collect blood from the laboratory. It is a legal requirement for any member of staff who collects blood from a laboratory or a satellite blood fridge to be formally competency assessed. Please contact local competency assessor/s or transfusion practitioner for advice.
3. Definitions

3.1 Satellite Blood Fridges
Satellite blood fridges are fridges dedicated to the safe storage of red cells in designated clinical areas out with NHS Lothian Blood Banks. Satellite Fridges across NHS Lothian are situated in the following sites and locations/departments:

**Royal Infirmary of Edinburgh (RIE)**
- Main Theatre Recovery
- Obstetric Theatre
- Emergency Department (ED)

**Western General Hospital (WGH)**
- Ward 1
- Main Theatres

**Royal Hospital for Sick Children (RHSC)**
- Stairwell cupboard between ground and first floor (back stairs)

3.2 Designated Responsible Individual (DRI)
An identified individual (or deputy) for the clinical area where the fridge is situated will be identified as the DRI and will be responsible for ensuring that the clinical use of the satellite fridge is in accordance with this Policy. The identified DRI at RHSC will be nominated by the Clinical Nurse Manager. He/she is responsible for ensuring that all members of staff using the fridge have read this Policy, and have received the appropriate training in transfusion and related topics to ensure compliance with the Policy is achievable.

The DRI for the clinical area served by the fridge is responsible for implementing an active audit programme to assess compliance with the Policy.

4. Emergency O Negative Blood

<table>
<thead>
<tr>
<th>Location</th>
<th>No of Units Held</th>
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<tr>
<td>RIE Emergency Dept</td>
<td>4</td>
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<tr>
<td>RIE Obstetrics Theatre</td>
<td>2</td>
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<tr>
<td>RHSC Stairwell Fridge</td>
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All O Negative Units are stored within HTL at the WGH site
All O Negative Units are stored within HTL at the SJH site

Unused units will be replaced every 7-14 days by HTL staff (RIE) or SEBTS drivers (RHSC).

The DRI (or deputy) is responsible for ensuring that all members of staff within the clinical area served by these three fridges are aware that they contain emergency O negative units, and the procedure to follow when they are used.

When an emergency O negative unit is used, details of the unit(s) removed must be recorded in the In/Out register. If the unit is not transfused and is returned unused, details of its return must be record in the In/Out register.
When a unit is transfused:

i) The minimum identification data set of the patient receiving the blood must be completed on the compatibility tag accompanying the unit, and this tag returned to the RIE HTL. **It is crucial that this tag is fully completed and returned so that the fate of the unit can be traced;**

ii) RIE HTL (ext 27501/27502) must be notified as soon as possible by telephone, so that the emergency O negative stock can be replaced within 15 minutes of this notification. Delivery time will have to be taken into account for RHSC. **Failure to notify RIE Blood Bank that the ‘emergency O negative’ stock has been depleted could seriously compromise patient care.**

### Emergency O Negative Units

If units held in the Emergency Department (ED) or Obstetric Theatre fridges are used: units for restocking will be delivered by porter/laboratory assistant to the relevant clinical area (Obstetric Theatre, ED). On arrival, the blood will be handed over to a member of staff.

If units held in ED or Obstetric Theatre fridges are unused: the O negative units will be replaced every 7-14 days by RIE HTL staff that will be responsible for loading the units into the fridge.

There is an Avatherm box stored within a blood fridge in the Medic One room in the Emergency Department with 2 units of Emergency O Negative. If the box is removed from the fridge to go out with the Medic One team, RIE Blood Bank staff will be informed by the ED staff and a fresh box will be made up and placed in the blood fridge by the laboratory staff.

### 5. Duties and Responsibilities

#### 5.1 Technical/Managerial Responsibility

The relevant local hospital transfusion laboratory (HTL) is responsible for all managerial and technical aspects of the fridges. During the working day technical/managerial responsibility for the fridge on the RHSC site has been delegated by the RIE HTL to the RHSC Theatre Co-ordinator on bleep 9260. In the event that the Theatre Coordinator is called away for clinical duties, he/she will contact the Clinical Lead for theatre to ensure someone attends to the alarm. Out of hours the Clinical Coordinator on duty at RHSC will take responsibility.

- RIE/RHSC fridges are managed according to a standardised laboratory procedure (SOP No 05 450 013 EDI) which is held in RIE HTL. The local Hospital Transfusion Laboratory (HTL) for the RIE and RHSC blood fridges is the RIE Blood Bank (ext 27501/27502).

- WGH fridge is managed according to SOP HTL-W-51. The local HTL for the WGH blood fridges is the WGH Blood Bank (ext 31912).

#### 5.2 Local Monitoring of Satellite Fridges

**RIE**

There is no requirement for local recording of the fridge temperature as the fridge temperatures are continually recorded electronically via the TREND system which is located in RIE Blood Bank and managed by SEBTS. TREND fridge temperature monitoring records are signed off by senior SEBTS staff, and stored by SEBTS. In addition, the RIE Blood Bank staff will check the fridge thermometers daily and remove the Comark Dataloggers weekly for downloading by the blood bank supervisor.
WGH
In main theatre, there is no requirement for local recording of the fridge temperature as the fridge temperatures are continually recorded electronically via the Comark system which is located in WGH Blood Bank and managed by the laboratory team.

In ward 1, the DRI (or deputy) is required to perform daily temperature readings of the LED display, paper temperature chart and minimum/maximum thermometer. They must also reset the min/max thermometer. The temperatures must be recorded on the temperature recording chart and the WGH Blood Bank staff must be informed immediately if any temperature is out with the normal range (2°C - 6°C). Copies of the daily temperature recording chart can be obtained from the WGH Blood Bank (ext 31912). There are plans for the ward 1 blood fridge to be monitored remotely using the Comark system (see above information for main theatre). Local recording of the fridge temperature must continue until this change occurs.

The WGH Blood Bank staff will perform monthly temperature chart changes for Ward 1 and Main Theatre. Daily alarm tests will be performed by the DRI (or deputy) in both locations.

RHSC
A daily temperature reading must be recorded from the LED temperature display on the satellite fridge. The task will be undertaken by the RHSC Equipment Coordinator (or deputy) Monday to Friday and by the BTS drivers on Saturday and Sunday.

If the fridge is in ‘defrost’ mode when the recording is due, this must be recorded on the daily temperature recording sheet and a later recording made once the defrost cycle has completed. If the reading is out with the normal range (2°C - 6°C), follow instructions (even if alarm not sounding) given in Section 10 – ‘Power Failure/Breakdown Procedure’, or Section 11, – ‘Response to Alarm’.

Record any action taken on the daily temperature recording sheet.

Completed daily temperature recording sheets should be returned to Blood Bank, RIE.

An example of a daily temperature recording sheet is given in Appendix 1.

6. Transport of Blood from Local HTL and Receipt in Clinical Area

Only staff members who have completed the necessary training (relevant sections of Learnbloodtransfusion Module 1 training, available at www.learnbloodtransfusion.org.uk or via learnpro) can collect blood from the laboratory. It is a legal requirement for any member of staff who collects blood from a laboratory or a satellite blood fridge to be formally competency assessed. Please contact local competency assessor/s or transfusion practitioner for advice.

RIE
Blood will be delivered by porter to the clinical area as requested by the individual placing the blood order. On arrival, the blood will be handed over to a member of staff and delivery slip signed by member of staff receiving the delivery. The signed delivery slip will be held by the porters.

WGH
Blood will be delivered by porter or a member of the clinical staff to the clinical area as requested by the individual placing the blood order, using blood collection slip. On arrival, the blood will be handed over to a member of staff. Member of staff must check the issued time on transit bag to ensure transit time has not exceeded 30mins. If it has, blood cannot be placed in fridge and HTL should be contacted.
**RHSC**

Blood will be delivered to RHSC by an SEBTS driver or, if none available, by taxi driver.

- **Delivery by SEBTS Driver**
  If the delivery is by an SEBTS driver, it will be delivered directly to the clinical area that the blood is labelled for if the blood is required immediately, the transit bag will be handed over to a member of staff. If the blood is not required immediately, the driver will load the blood into the fridge, and will record details of all units placed in the fridge in the In/Out register.
  If the blood is marked ‘Theatres’, the driver will load the blood into the fridge and will record details of all units placed in the fridge in the In/Out register.

- **Delivery by Taxi Driver**
  If the blood is delivered by taxi driver, it will be signed for on the taxi company’s delivery slip by the individual at Main Reception taking receipt of the delivery. This individual will then contact a staff member from the clinical area the blood is labelled for.

- **Out with normal working hours**
  The person delivering the blood will be met by the Clinical Coordinator at the main entrance door, after ringing the entry bell. The Clinical Coordinator will take receipt of the blood component and will sign for the delivery on the taxi company’s delivery slip. The Clinical Coordinator will be responsible for delivering the blood to the relevant clinical area. If not required immediately they will be responsible for loading the blood into the satellite fridge and entering the details in the In/Out register.

7. **Loading of Fridge by Clinical Staff**

Only staff members who have completed the necessary training (relevant sections of Learnbloodtransfusion Module 1 training, available at [www.learnbloodtransfusion.org.uk](http://www.learnbloodtransfusion.org.uk) or via learnpro) can load blood into the satellite fridge.

**RIE**

Blood will be placed in the fridge immediately on receipt by the individual taking the delivery. Details of all units placed in the fridge **must** be recorded in the In/Out register using the 24 hour clock.

**WGH**

Unless blood is required immediately in theatre, it will be placed in the fridge immediately on receipt by the individual taking the delivery. Details of all units placed in the fridge **must** be recorded in the In/Out register using the 24 hour clock. The time of issue (written on the transit bag at time of collection) must be checked to ensure the transit time has not exceeded 30 minutes. If it has, the blood cannot be placed in the fridge and the Blood Bank should be contacted.

**RHSC**

If the blood arrives by SEBTS driver and is required immediately, the driver will deliver the blood to the clinical area the blood is labelled for. If the blood is not required immediately, the SEBTS driver will place the units in the fridge and complete the In/Out register for all units placed in the fridge. If the blood is marked ‘Theatres’, the driver will load the blood into the fridge and will record details of all units placed in the fridge in the In/Out register using the 24-hour clock.
If the blood arrives by taxi, the individual taking receipt of the delivery at Main Reception will contact a staff member from the clinical area the blood is labelled for. The staff member will transfer the blood to the stairwell fridge. Details of all units placed in the fridge must be recorded in the In/Out register using the 24 hour clock.

8. Removal of Blood from Fridge for Clinical Use

Only staff members who have completed the necessary training (relevant sections of Learnbloodtransfusion Module 1 training, available at www.learnbloodtransfusion.org.uk or via learnpro) can remove blood from the satellite fridge. It is a legal requirement for any member of staff who collects blood from a laboratory or a satellite blood fridge to be formally competency assessed. Please contact local competency assessor/s or transfusion practitioner for advice.

RIE
When blood is removed from the fridge for clinical use, the date and time of removal must be documented against the relevant unit number in the In/Out register, in the column provided. Only one unit should be removed at a time, unless there is a life-threatening haemorrhage occurring, and only blood for one patient should be removed at any one time. The patient’s documented minimum identification data set that is taken to the fridge must be checked against the unit to ensure the correct unit is being removed. If the unit is removed from the fridge but not used, it must be returned to the fridge as soon as possible, and details of its return recorded in the In/Out register.

However:

- if a unit is removed from the fridge for transfusion and is out of the fridge for more than 30 minutes before the transfusion starts, the unit can still be given to the patient as long as the time from the unit being removed from the fridge to the end of the transfusion is no more than 4 hours. For example, if a unit is removed at 10.00am and the transfusion does not start until 10.50am, the transfusion must be finished by 2.00pm, or the unit taken down at 2.00pm if the transfusion isn’t finished;

- If a unit is removed from the fridge for transfusion and is out of the fridge for more than 30 minutes and then the transfusion is cancelled, it must not be returned to the fridge. It must be marked ‘Out of fridge for more than 30 minutes – do not transfuse’ and then returned to the RIE HTL for disposal;

- if, from the details on the In/Out register, it is realised that a unit has been returned to fridge in error after it had been out for more than 30 minutes in total, it must not be used, it must be marked ‘Out of fridge for more than 30 minutes – do not transfuse’ and then returned to the RIE HTL for disposal.

WGH
When blood is removed from the fridge for clinical use, the date and time of removal must be documented against the relevant unit number in the In/Out register, in the column provided. Only one unit should be removed at a time, unless there is a life-threatening haemorrhage occurring, and only blood for one patient should be removed at any one time. The patient’s documented minimum identification data set that is taken to the fridge must be checked against
the unit to ensure the correct unit is being removed. If the unit is removed from the fridge but not used, it should be returned to the fridge as soon as possible, and details of its return recorded in the In/Out register.

However:

- if a unit is removed from the fridge for transfusion and is out of the fridge for more than 30 minutes before the transfusion starts, the unit can still be given to the patient so long as the time from the unit being removed from the fridge to the end of the transfusion is no more than 4 hours. For example, if a unit is removed at 10.00am and the transfusion does not start until 10.50am, the transfusion must be finished by 2.00pm, or the unit taken down at 2.00pm if the transfusion isn’t finished;

- if a unit is removed from the fridge for transfusion and is out of the fridge for more than 30 minutes and then the transfusion is cancelled, the unit must not be returned to the fridge. It must be marked ‘Out of fridge for more than 30 minutes – do not transfuse’ and then returned to the WGH HTL for disposal.

- if, from the details on the In/Out register, it is realised that a unit has been returned to fridge in error after it had been out for more than 30 minutes in total, it must not be used, it must be marked ‘Out of fridge for more than 30 minutes – do not transfuse’ and then returned to the WGH HTL for disposal.

RHSC
When blood is removed from the fridge for clinical use, the date and time of removal must be documented against the relevant unit number in the In/Out register, in the column provided. Only one unit should be removed at a time, unless there is a life-threatening haemorrhage occurring, and only blood for one patient should be removed at any one time. The patient’s documented minimum identification data set that is taken to the fridge must be checked against the unit to ensure the correct unit is being removed. If the unit is removed from the fridge but not used, it should be returned to the fridge as soon as possible, and details of its return recorded in the In/Out register.

However:

- if a unit is removed from the fridge for transfusion and is out of the fridge for more than 30 minutes before the transfusion starts, the unit can still be given to the patient so long as the time from the unit being removed from the fridge to the end of the transfusion is no more than 4 hours. For example, if a unit is removed at 10.00am and the transfusion does not start until 10.50am, the transfusion must be finished by 2.00pm, or the unit taken down at 2.00pm if the transfusion isn’t finished;

- if a unit is removed from the fridge for transfusion and is out of the fridge for more than 30 minutes and then the transfusion is cancelled, it must be returned to the fridge and marked ‘Out of fridge for more than 30 minutes – do not transfuse’ from where it will be returned to the RIE HTL for disposal or contact RIE HTL to arrange uplift of unit from clinical area;

- if, from the details on the In/Out register, it is realised that a unit has been returned to fridge in error after it had been out for more than 30 minutes in total, it must not be
used, it must be marked ‘Out of fridge for more than 30 minutes – do not transfuse’ and then returned to the RIE HTL for disposal.

9. **Return of Unused Blood to the Hospital transfusion Laboratory**

**RIE**
All unused units in the fridges will be removed by the RIE HTL staff 24 hours after delivery, except the Emergency O Negative units, which will be removed and replaced by the RIE HTL staff every 7-14 days. When blood is removed from the fridge for return to the HTL, the time and date must be documented against the relevant unit number in the In/Out register, in the column provided.

**WGH**
Ward 1: all unused units will be returned to the WGH HTL at the end of each working day. The DRI (or deputy) will arrange for return of unused units to the WGH HTL. When blood is removed from fridge for return to the HTL, the time and date must be documented against the relevant unit number in the In/Out register, in the column provided. Units returned to the HTL should be accompanied with a note of the time/s they were signed into and out of the fridge.

Main Theatres: all unused units for each patient will be returned to the WGH HTL when the patient leaves Recovery. The DRI (or deputy) will be responsible for ensuring the fridge is empty at the end of each working day, and for arranging return of unused units to the HTL. When blood is removed from fridge for return to the HTL, the time and date must be documented against the relevant unit number in the In/Out register, in the column provided. Units returned to the HTL should be accompanied with a note of the time/s they were signed into and out of the fridge.

**RHSC**
All unused units will be removed by the SEBTS driver 24 hours after date of intended use, except for the Emergency O negative units, which will be removed and replaced by the SEBTS driver every 7-14 days. When blood is removed from fridge for return to the HTL, the time and date must be documented against the relevant unit number in the In/Out register, in the column provided.

9.1 **In/Out Register**
The DRI (or deputy) is responsible for ensuring there is 100% compliance with use of the In/Out register, for facilitating regular audit of compliance, and for putting corrective actions in place if compliance is found to be less than 100%. Details of all units loaded into the fridge, removed for clinical use, returned unused, and removed for return to the local HTL must be recorded in the In/Out register using the 24 hour clock. If a written error in the register requires correction, the error should have a single line drawn through it, initialled and the correct information written along side. Any blood found in the satellite blood fridge and not documented in the fridge register must be removed and returned to the HTL for discard. RIE and RHSC completed In/Out registers must be returned to the RIE transfusion practitioner at the end of every month for data analysis and long-term storage. WGH completed In/Out registers must be returned to the WGH HTL. Additional In/Out registers for RIE and RHSC sites can be obtained from the transfusion...
practitioner on ext 27531. Additional In/Out registers for WGH site can be obtained from the WGH blood bank on ext 31912. The In/Out register is given in Appendix 2.

9.2 Retention Time

The retention time for all Division satellite blood fridges is 24 hours, except for:

- Emergency O Negative units in RIE ED and Obstetric Theatre fridges and RHSC fridge – these will be replaced every 7-14 days by the RIE HTL staff;
- RHSC - all units will be removed 24 hours after intended date of use;
- unused units from Ward 1 and Main Theatres, WGH – these will be returned at the end of each working day, if not before.

In accordance with the BCSH (British Committee for Standards in Haematology) pre-transfusion compatibility guidelines, a transfusion sample is only valid for 72 hours from the time the patient is bled, if the patient has either been transfused or pregnant within the last 3 months. In order to avoid the risk of red cells that have been issued to satellite fridges inadvertently being transfused beyond the 72 hour period for individuals in this group, a label will be attached to the overwrap bag of all red cells issued to satellite fridges at RIE and RHSC indicating the date and time by which that particular unit must be transfused in order not to surpass the 72 hour period.

If a unit cannot be safely and completely transfused within that time frame, then it should not be used. A new crossmatch sample should be sent to blood bank so a fresh unit of red cells can be issued. Transfusing blood to a patient, who has been transfused or pregnant within the last 3 months, more than 72 hours following sampling may expose that patient to the risk of a haemolytic transfusion reaction due to new antibodies that may have developed as a result of the recent transfusion/pregnancy – such reactions can be life-threatening.

10. Power Failure/Breakdown Procedure

All staff in the clinical area served by the satellite fridge must be aware of the procedure to follow in the event of a fridge power failure or breakdown. An explicit account of the procedure to follow in each event must be clearly displayed on the outside of each fridge (as per Appendix 3). The DRI (or deputy) must document fully the relevant details of each power failure or breakdown, and the corrective action taken, on the Datix incident reporting system. For RIE / RHSC a hard copy of the report must be forwarded to the local HTL (via the RHSC Haematology Laboratory for RHSC fridge).

In the event of a failure of the RHSC blood fridge emergency O Negative cover will continue to be provided, stored in a cool box placed in the RHSC stairwell fridge. For further information refer to appendix 3.
10.1 If there is a power failure affecting the fridge

- If the power failure was scheduled (‘Black Start’), the downtime will have been no more than a few minutes. Check the fridge is working and is within safe temperature limits. If so, no action is required.
- In the event of a prolonged unscheduled power failure, contact the local HTL immediately and speak to the supervisor (RIE and RHSC fridges - ext 27501/27502, WGH fridges – ext 31912).

For WGH and RIE fridges
Ask whether blood stock needs to be returned to the HTL. If blood has to be returned, do so immediately. The local HTL will advise on the best way of returning the units.

For RHSC fridge
Ask whether the fridge needs to be temporarily taken out of operation. If it does, arrangements will be made to transfer the blood to the RIE HTL. Place a prominent notice on the fridge telling users that the fridge is not in use, and that blood is available from the RIE HTL (ext 27501/27502).

- Remember to complete the In/Out register for all units returned to the HTL.
- **If in doubt, contact the local HTL for advice.**
- Once the power has been reinstated and the fridge temperature is within specification, required units can be returned to the fridge. Contact the local HTL who will arrange transfer of the required units back to the fridges.
- The In/Out register must be completed for all units returned to the fridge.

10.2 If there is an obvious fault such as smoke or noise coming from the fridge

1. Switch off the fridge if safe to do so.
2. If risk of fire, follow the local Fire Policy and evacuate the area if necessary.
3. Contact the local HTL immediately and speak to the supervisor (RIE and RHSC fridges - ext 27501/27502, WGH fridges – ext 31912).

For RIE and WGH fridges
Ask whether blood stock needs to be returned to the HTL. If blood has to be returned, do so immediately. The local HTL will advise on the best way of returning the units. Place a prominent notice on the fridge telling users that the fridge is not in use, and that blood is available from the local HTL (RIE fridges - ext 27501/27502, WGH fridges – ext 31912)

For RHSC fridge
Ask whether the fridge needs to be temporarily taken out of operation. If it does, arrangements will be made to transport the blood to the RIE HTL. Place a prominent notice on the fridge telling users that the fridge is not in use, and that blood is available from the RIE HTL (ext 27501/27502).

- Remember to complete the In/Out register for all units returned to the HTL.
- For all satellite fridges contact the relevant local HTL who will contact the fridge maintenance/servicing contractors.
- Once the fault has been repaired and the fridge temperature is within specification, required units can be returned to the fridge. Contact the local HTL who will arrange transfer of the required units back to the fridge.
- The In/Out register must be completed for all units returned to the fridge.
10.3 Response to Alarm
All staff in the clinical area served by the satellite fridge must be aware of the procedure to follow in the event of a fridge alarm sounding. An explicit account of the procedure to follow must be clearly displayed on the outside of each fridge (as per Appendix 3). The DRI (or deputy) must document fully the relevant details of each alarm sounding, and the corrective action taken, on the Datix Incident Reporting System. For RIE / RHSC a hard copy of the report must be forwarded to the local HTL (via the Haematology Laboratory for RHSC fridge).

RIE and WGH fridges
If the alarm is sounding but there is no obvious fault:

1. Mute the audible alarm if possible; do not switch fridge or alarm off.
2. Check the door is closed, and for any obvious fault.
3. Check the temperature display. If this shows a temperature of lower than 2°C or higher than 6°C, the stored blood may have to be returned to the HTL.
4. Contact the local HTL immediately and speak to the supervisor (RIE fridges - ext 27501/27502, WGH fridges – ext 31912). Tell them when the alarm was first heard, the fridge temperature and the length of time it has been at this temperature (visible from chart recorder). They will then advise whether or not the blood needs to be returned to the HTL.
5. If blood has to be returned, do so immediately. The local HTL will advise on the best way of returning the units.
6. Remember to complete the In/Out register for all units returned to the HTL.
7. If in doubt, contact the local HTL for advice.
8. If there is no obvious cause for the alarm sounding (i.e. the door was not open), the local HTL will contact the fridge maintenance/servicing contractors and arrange for the fridge to be assessed.
9. Once the fault has been rectified and the fridge temperature is within specification, required units can be returned to the fridge. Contact the local HTL who will arrange transfer of the required units back to the fridge.
10. Remember to put the audible alarm back on once the fault has been rectified.
11. The In/Out register must be completed for all units returned to the fridge.

RHSC
The fridge is fitted with an alarm system which monitors the temperature. When the alarm is activated, it will automatically telephone dial the Lauriston Building central telephone exchange. The Theatre Coordinator (during the working day) or Senior Nurse on duty (out of hours) and the RIE HTL will then be contacted by the Lauriston Building telephone exchange. The Theatre Coordinator or Senior Nurse on duty (Clinical Co-ordinator) will then:

1. Mute the audible alarm; do not switch the fridge or alarm off.
2. Check the door is closed, and for any obvious faults;
3. Check the temperature display. If this shows a temperature lower than 2°C or higher than 6°C, the stored blood may need to be returned to the HTL.
4. Contact the RIE Blood Bank Supervisor immediately (ext 27501/27502), telling them when the alarm was first activated. They will then advise whether or not the fridge needs to be taken out of operation.
5. If it does, appropriate arrangements will be made to transport the blood to the RIE HTL.
6. Details of the units transferred out of the fridge must be recorded on the In/Out register.
7. Place a prominent notice on the fridge telling users that the fridge is not in use, and blood is available from the RIE HTL (ext 27501/27502).
8. Contact the RIE HTL supervisor (ext 27501/27502) who will contact the maintenance/servicing contractor. Alert the Senior Nurse on duty.
9. Once the fault has been repaired and the fridge temperature is within specification, blood can be transferred back into the fridge from the RIE HTL. The RIE HTL will advise when the transfer can take place.
10. Remember to put the audible alarm back on once the fault has been rectified.
11. Details of the transfer of units from RIE HTL back into the fridge must be recorded on the In/Out register.

11. Cleaning of Fridges

Defrost operation - all blood Fridges have an automatic defrost function.

RIE and RHSC Fridges

A cleaning log (Appendix 4) should be kept by the DRI (or deputy). This should detail the cleaning that has taken place (i.e. exterior, interior, and blood spillages), the date and time of the cleaning, the name of the individual who carried out the cleaning, and their signature/initi als.

- **Exterior Cleaning**
  
  This should be carried out monthly, or when indicated by the appearance of the exterior, whichever is sooner. The exterior of the cabinet is stainless steel and if cared for correctly will keep its ‘as new’ finish for many years. Cleaning should be carried out with a soft cloth and hot water with a neutral general purpose detergent. Always wipe the cabinet in the same direction as the grain in the stainless steel. Whilst stainless steel is a very strong and robust material, the satin smooth finish can be spoilt by wiping against the grain. Never use abrasive materials or cleaners, or chemical cleaners. They can damage the surface and cause corrosion. Once washed, rinse and dry thoroughly.

- **Interior cleaning**
  
  This should be carried out monthly, or when indicated by the appearance of the interior, whichever is sooner. The interior should be cleaned with a soft cloth and hot water with a neutral general purpose detergent. Once washed, rinse and dry thoroughly. Clean the door seals and check their integrity. Report any damage to a Senior BMS in the local HTL.

- **Defrost operation**
  
  All blood Fridges have an automatic defrost function.

WGH Fridges

The WGH HTL staff will clean the Fridges monthly (see SOP HTL-W-78 Cleaning of Blood Component, Reagent and Sample Storage Facilities). A cleaning log for each fridge will be kept locally (at the fridge). In the event of a spillage, clinical staff must clean the spillage straight away (as below) and record this activity in the cleaning log. An example of the cleaning log can be found in SOP HTL-W-78 Cleaning of Blood Component, Reagent and Sample Storage Facilities. Copies of the cleaning log can be obtained from the WGH Blood Bank (ext 31912).
11.1 Blood spillages - all sites

All spillages must be attended to immediately. A disposable apron, gloves (and eye protection, if necessary) must always be worn.

For large wet blood spillages

- Treat with an approved disinfectant containing granules of sodium hypochlorite with a concentration of 10,000 ppm. Alternatively, if granules are not available, place paper towels / incontinence pads over the wet spill and disinfect using an approved disinfectant using a solution of sodium hypochlorite with a concentration of 10,000 ppm.
- Remove spillage and discard into a clinical waste bag.
- Clean spillage area with general purpose detergent. Dispose of waste into a clinical waste bag.
- Rinse and dry thoroughly.
- Remove protective clothing and dispose of in a clinical waste bag.
- Wash and dry hands thoroughly.

For large dried blood spillages

- Treat with an approved disinfectant containing a solution of sodium hypochlorite with a concentration of 10,000 ppm (for RHSC only: neat Milton 1% hypochlorite solution should be used)
- Pour enough of the solution over the spillage to saturate the paper towels. Solution contact time should be allowed according to manufacturer's guidance. Still wearing PPE, pick up the paper towels and place in an orange clinical waste bag.
- Clean spillage area with general purpose detergent. Dispose of waste into a clinical waste bag.
- Rinse and dry thoroughly.
- Remove protective clothing and dispose of in a clinical waste bag.
- Wash and dry hands thoroughly.

For small blood spillages

- Using paper towels (incontinence pad if necessary) remove spillage and discard into an orange clinical waste bag.
- Clean spillage area with general purpose detergent. Dispose of waste into a clinical waste bag.
- Rinse and dry thoroughly.
- Remove protective clothing and dispose of in a clinical waste bag.
- Wash and dry hands thoroughly
12. References to support this Policy

13. Policy Review

This policy will be reviewed in three years as per NHS Lothian Clinical Policy Documentation and Information Group approval/update process. The responsibility for revision and renewal of this policy rests with the Executive Lead identified on the covering page. Review or updating of this policy before the identified renewal date may arise due to

- Issues identified which indicate significant and ongoing risk to people or the organisation.
- Other local directives which require immediate action or new requirements.
- There is a change to existing national policies or guidelines which must be reflected in local policy.
## Daily Temperature Recording Sheet

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Temperature °C</th>
<th>Signature</th>
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Appendix 2:

In/Out Register - Statutory Traceability Record of Transit of Human Blood

Blood Fridge Location _______________________

<table>
<thead>
<tr>
<th>Unit Number/ Patient Surname</th>
<th>Unit placed in Fridge</th>
<th>Unit taken for patient</th>
<th>Unit returned to fridge</th>
<th>Unit returned to BT Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
<td>Time</td>
<td>Sign/PRINT</td>
<td>Date</td>
<td>Time</td>
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When completed, please return to Transfusion Practitioner (RIE and RHSC sites) or the Blood Bank (WGH site)
Appendix 3:
Troubleshooting Guide

RIE Satellite Blood Fridges for the Storage of Red Cells Only

This document is intended as a troubleshooting guide. For full guidance on fridge use, refer to the NHS Lothian Satellite Blood Fridges Operational Policy.

➢ IF THE ALARM IS SOUNDING BUT THERE IS NO OBVIOUS FAULT

1. Mute audible alarm if possible: do not switch off fridge or alarm.
2. Check the door is closed, and for any obvious fault.
3. Check the temperature display. If this shows a temperature lower than 2°C or higher than 6°C, the stored blood may have to be returned to the hospital transfusion laboratory (HTL).
4. Then contact the HTL Supervisor (ext 27501/27502). Tell them when the alarm was first heard, the fridge temperature and how long it has been at this temperature. They will advise whether or not the blood needs to be returned.
5. If the blood needs to be returned, do so immediately using an appropriate transport box (HTL will advise). Remember to complete the In/Out register for all units returned.
6. Once fault has been rectified, put audible alarm back on.

➢ IF THERE IS AN OBVIOUS FAULT SUCH AS SMOKE OR NOISE COMING FROM THE FRIDGE

1. Switch off the fridge if safe to do so.
   If risk of fire, follow Fire Policy and evacuate area if necessary.
2. Then contact HTL Supervisor (ext 27501/27502) who will contact the fridge maintenance/servicing contractors. Ask whether blood stock needs to be returned.
3. If it does, do so immediately using an appropriate transport box (HTL will advise). Remember to complete the In/Out register for all units returned.

➢ IF THERE IS A POWER FAILURE AFFECTING THE FRIDGE

1. If the power failure was scheduled (‘Black Start’), check fridge is working and is operating within safe temperature limits. If so, no action is required.
2. In the event of a prolonged unscheduled power failure, contact HTL Supervisor immediately (ext 27501/27502). The supervisor will contact the fridge maintenance/servicing contractors. Ask whether blood stock needs to be returned.
3. If the blood needs to be returned, do so immediately using an appropriate transport box (HTL will advise). Remember to complete the In/Out register for all units returned.
Appendix 3:
Troubleshooting Guide
RHSC Satellite Blood Fridges for the Storage of Red Cells Only

This document is intended as a troubleshooting guide. For full guidance on fridge use, refer to the NHS Lothian Satellite Blood Fridge Operational Policy.

The fridge is fitted with an alarm system which monitors the temperature. When the alarm is activated, it will automatically telephone dial the Lauriston Building central telephone exchange. The RHSC Theatre Coordinator (during the working day) or Senior Nurse on Duty (out of hours) will then be contacted by the Lauriston Building telephone exchange.

In the event of a prolonged failure of the RHSC blood fridge Emergency O Negative cover will continue to be provided and stored in a cool box placed in the RHSC stairwell fridge. When the BTS supervisor is informed of the fridge failure they will contact the RHSC clinical co-ordinator. The RIE blood bank will make arrangements to return the blood contained in the fridge back to the blood bank. Emergency O Negative blood will be sent to the RHSC in a cool box with an SNBTS form EDIRCAF110, which will be attached to the box (this is the in/out register for all units within the box).

RIE blood bank should be contacted as soon as possible after the first unit of blood is removed from this box; all units contained within must be transfused within 4 hours of the box being opened.

**IF THE ALARM IS SOUNDING BUT THERE IS NO OBVIOUS FAULT**
1. Mute audible alarm; do **not** switch fridge or alarm off.
2. Check the door is closed and for any obvious fault.
3. Check the temperature display. If this shows a temperature lower than 2 °C or higher than 6 °C, the stored blood may have to be returned to the hospital transfusion laboratory (HTL).
4. If the alarm is heard, the temperature and how long it has been at this temperature. They will advise whether or not the fridge needs to be temporarily taken out of operation.
5. If it does, appropriate arrangements will be made to transport the blood to the RIE HTL. Remember to complete the In/Out register for all units transferred.
6. Place a prominent notice on the fridge telling users that the fridge is not in use, and that blood is available from the RIE HTL (ext 27501/27502).
7. **Once fault has been rectified, put audible alarm back on.**

**IF THERE IS AN OBVIOUS FAULT SUCH AS SMOKE OR NOISE COMING FROM THE FRIDGE**
1. Switch off the fridge if safe to do so.
2. If risk of fire, follow Fire Policy and evacuate area if necessary.
3. Then contact the HTL Supervisor (ext 27501/27502) who will contact the fridge maintenance/servicing contractors. Ask whether the fridge needs to be temporarily taken out of operation.
4. If it does, arrangements will be made to transport the blood to the RIE HTL. Remember to complete the In/Out register for all units transferred.
5. Place a prominent notice on the fridge telling users that the fridge is not in use, and that blood is available from the RIE HTL (ext 27501/27502).
6. Inform the Senior Nurse in charge.

**IF THERE IS A POWER FAILURE AFFECTING THE FRIDGE**
1. If the power failure was scheduled (‘Black Start’), check fridge is working and is operating within safe temperature limits. If so, no action is required.
2. In the event of a prolonged unscheduled power failure, contact the HTL Supervisor immediately (ext 27501/27502). The supervisor will contact the fridge maintenance servicing/contractors. Ask whether the fridge needs to be temporarily taken out of operation.
3. If it does, arrangements will be made to transfer blood to RIE HTL. Remember to complete the In/Out register for all units removed.
4. Place a prominent notice on the fridge telling users that the fridge is not in use and that blood is available from RIE HTL and inform the Senior Nurse in Charge.
Appendix 3:
Troubleshooting Guide
WGH Satellite Blood Fridges for the Storage of Red Cells Only
This document is intended as a troubleshooting guide. For full guidance on fridge use, refer to the LUHS Satellite Blood Fridge Operational Policy.

- **IF THE ALARM IS SOUNDING BUT THERE IS NO OBVIOUS FAULT**

  1. Mute audible alarm; do not switch off fridge or alarm.
  2. Check the door is closed, and for any obvious fault.
  3. Check the temperature display. If this shows a temperature lower than 2°C or higher than 6°C, the stored blood may have to be returned to the hospital transfusion laboratory (HTL).
  4. Then contact the HTL supervisor (ext 31912). Tell them when the alarm was first heard, the fridge temperature and how long it has been at this temperature. They will advise whether or not the blood needs to be returned.
  5. If the blood needs to be returned, do so immediately. The HTL will advise on the best way of returning the units. Remember to complete the In/Out register for all units returned.
  6. Once fault has been rectified, put audible alarm back on.

- **IF THERE IS AN OBVIOUS FAULT SUCH AS SMOKE OR NOISE COMING FROM THE FRIDGE**

  1. Switch off the fridge if safe to do so.
  2. If risk of fire, follow Fire Policy and evacuate area if necessary.
  3. Then contact the HTL supervisor (ext 31912). Ask whether blood stock needs to be returned.
  4. If the blood needs to be returned, do so immediately. The HTL will advise on the best way of returning the units. Remember to complete the In/Out register for all units returned.
  5. Inform the HTL who will contact the fridge maintenance/servicing contractors.

- **IF THERE IS A POWER FAILURE AFFECTING THE FRIDGE**

  1. If the power failure was scheduled (‘Black Start’), check fridge is working and is operating within safe temperature limits. If so, no action is required.
  2. In the event of a prolonged unscheduled power failure, contact the HTL supervisor immediately (ext 31912). The supervisor will contact the fridge maintenance/servicing contractors. Ask whether blood stock needs to be returned.
  3. If the blood needs to be returned, do so immediately. The HTL will advise on the best way of returning the units. Remember to complete the In/Out register for all units returned.
Appendix 4:
Satellite Fridge Cleaning Log

### Cleaning Record for Satellite Blood Storage Fridge

<table>
<thead>
<tr>
<th>Full Date And Time</th>
<th>Fridge cleaned by (Sign/PRINT) (As per Satellite Blood Fridge Operational Policy)</th>
<th>Exterior cleaned?</th>
<th>Interior cleaned?</th>
<th>Blood Spillage?</th>
<th>Integrity of Door Seals Checked</th>
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<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>YES</td>
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</table>

Please return completed cleaning logs to the RIE Blood Bank
Appendix 5:  
**Satellite Blood Fridge Alarm Record (Audible Alarm/Air Probe)**

<table>
<thead>
<tr>
<th>Date/Time</th>
<th>Problem (Provide a brief description) If alerted to alarm via switchboard please record time</th>
<th>Fridge Temp Recording</th>
<th>Corrective Action Taken (This must include contacting the BTS Labs to inform them of any problem on Ext 27501/2)</th>
<th>Recorded by (Print Name)</th>
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