#### Monitoring Transfusion Service Device Temperatures

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| Purpose | The purpose of this policy is to provide instructions on how temperatures of storage devices and equipment are checked to ensure that optimum temperatures for accuracy of results and safe storage of blood components and reagents are maintained. |

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| Policy | * Temperatures of blood component refrigerators, freezers, platelet incubators and plasma thawers are taken and recorded daily, once on the Day shift and a second time on the PM shift. The first set is to meet regulatory requirements. The second set is used as a back up to maintain regulatory compliance, in cases where the first was omitted.
* Temperatures of the heat blocks, Immucor Incubator P2 and RT storage area for Capture strips are taken and recorded daily on the Day shift.
* Component Inventory is visually inspected during AM checks and appropriate water levels of plasma thawers are checked according to schedule on log.
* It is the responsibility of the person taking temperatures, to report any device that does not meet the criteria listed for the device on the Temperature Log to the Transfusion Service CLS for corrective action.
* Transfusion Service CLS is responsible for taking prompt corrective action to rectify situation or remove device from service.
* Corrective action is documented on the reverse side of the Temperature Log.
* If acceptable temperatures are exceeded on the reagent refrigerator, stored reagents, controls, calibrators, etc. must be checked to confirm accuracy or quality of material by performing appropriate QC run before use. Document and retain records.
* The continuous monitoring charts on blood component storage devices are changed each Monday on Day shift.
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| Procedure: | Thermometers will be placed into containers containing fluid that closely resembles the viscosity and smallest volume of the components stored in the device. |

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| Step | Action |
| 1. | Complete date & time at top of column |
| 2. | Locate the internal thermometer in the storage device. |
| 3. | Remove from device and take reading of upper and lower thermometer, as applicable. |
|  |  | **If:** |  **Then:** |  |
|  |  | Liquid thermometer | * Estimate reading to the nearest 0.5C
* Record value in appropriate space on *Temperature Log*
 |  |
|  |  | Digital Thermometer | * Record digital readout in appropriate space on the *Temperature Log*
 |  |
|  |  |
| 4. | Does the device have a continuous monitoring chart? |
|  |  | **If:** | **Then:** |  |
|  |  | No  | Skip to step 7 |  |
|  |  | Yes | Proceed to Next step |  |
|  |  |
| 5. | Estimate the chart temperature to the nearest 0.5C and record on the appropriate space on the *Temperature Log* |
| 6. | Check the alignment of the chart to see if the correct day and approximate time is reflected. *If view is obstructed, open the chart cover to determine if alignment with day and approximate time is correct.* |
|  |  | **If:** | **Then:** |  |
|  |  | Yes  | * Proceed to next step
 |  |
|  |  | No | * Disengage chart pen
* Loosen chart lock nut
* Realign to correct day and time
* Retighten lock nut
* Reactivate chart pen.
* Make notation of corrective action on log or chart
* Proceed to next step.
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| 7. | Compare the documented values for the storage device to the acceptable range stated on the *Temperature Log* form. Are values within range? |
|  |  | **If:** | **Then:** |  |
|  |  | Yes | * Proceed to next step
 |  |
|  |  | No | * Report problem to Transfusion Service CLS for corrective action
* Document notification on back of *Temperature Log* form.
* Proceed to next step
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|  |  |  |  |  |
| 8. | Perform visual check including expiration date on components stored in device, if indicated. Are any components expired or do any fail visual inspection?

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| **If:** | **Then:** |
| All pass visual inspection and none are expired | * Answer Yes or OK to “Blood or Platelet Product Inspection?”
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| Any product is expired, visual inspection of product fails or is suspect | * Answer No to “Blood or Platelet Product Inspection?”
* Move product to Quarantine shelf
* Report problem to Transfusion Service for corrective action
* Document notification on back of *Temperature Log*.
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| 9. | Read the temperature for the devices below.

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| **If:** | **Then:** |
| Heat block | * Read thermometer temperature
* Record the reading in the appropriate space on the log
* Move thermometer to next position in heat block
 |
| RT storage area | * Read thermometer temperature
* Record the reading in the appropriate space on the log
 |

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| 10. | Compare the documented values for the device to the acceptable range stated on the *Temperature Log* form. Are values within range? |
|  |  | **If:** | **Then:** |  |
|  |  | Yes | * Complete date, time and recorder initials in the appropriate spaces on form
 |  |
|  |  | No | * Report problem to Transfusion Service CLS for corrective action
* Document notification on back of *Temperature Log* form.
* Complete date, time and recorder initials in the appropriate spaces on the form
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| 11. | Deliver completed form the BB CLS for review |
| 12. | BB CLS will review temperatures for accuracy and completeness.

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| **If:** | **Then:** |
| All temperatures are recorded and within specified limits | * Record date/initials in appropriate reviewer space on form
* File form in the Temperature section of Daily binder
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| Some temperatures are missing | * Notify SLA of need to complete task
* Repeat review upon completion
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| All temperatures are recorded but corrective action is needed | * Perform corrective action, See section below for instructions.
* Record date/initials in appropriate reviewer space on form
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| Corrective Action |  |
| Step | Action |
| 1. | Blood Component and reagent Storage devices |
|  |  | **If:** | **Then:** |  |
|  |  | All readings are within device range but chart is not within 2C of Top thermometer temperature | * If temperature is changing, make notation of discrepancy and recheck in 2-4 hours.
* If temperature has been stable, readjust chart pen on chart to more accurately reflect temperature reading.
* Note corrective action on back of *Temperature Log* form.
 |  |
|  |  | Top internal thermometer is within range but one or more of other temperatures are out of specified range | * Make sure that the temperature probe is immersed in the fluid.
* Check fluid level of the temperature vial. Adjust as needed. Retake temperature
* Move products into alternative storage if neither of these steps brings temperature into required range.
* See *Refrigerator, Freezer, Platelet Incubator Failure Procedure* for instructions.
* Remove device from use and initiate service request
 |  |
|  |  | Top internal thermometer is outside of specified range | * Quarantine blood products or reagents contained in device.
* Products CANNOT be issued for patient use without authorization of Pathologist.
* Reagents, calibrators or QC contained in device must be checked to confirm accuracy or quality of material by performing appropriate QC run before use.
* Notify TS Coordinator or Lab Administrative Director for instructions.
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| 2. | RT storage area is out of range?

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| **If:** | **Then:** |
| Use another thermometer for appropriate temperature range | * Recheck temperature
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| Still out of range | * Turn off under counter light if on
* Adjust thermostat in Transfusion Service
* Recheck temperature after fluid has had time to equilibrate
 |
| Unable to correct problem | * Move RT reagents to location in the laboratory that is on acceptable range
* Report problem to Transfusion Service Coordinator
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| 3. | Heat block is out of range |
|  |  | **If:** | **Then** |  |
|  |  | Check to see that volume in temperature vial reflects amount that would normally be tested. | * Adjust volume as needed
* Recheck temperature after fluid has had time to equilibrate
 |  |
|  |  | Still out of range | * Move thermometer to another well to determine if the problem is with individual well or whole block.
 |  |
|  |  | Problem is only with one well | * Do not use that well. Block off with tape.
 |  |
|  |  | Problem is with entire device | * Adjust temperature, if equipped with adjustment
* Recheck temperature
 |  |
|  |  | Unable to correct problem | * Remove device from service
* Initiate repair work order
* Complete “Out of Service Tag” and attach to device
* Make notation in Communication log
* Use alternate equipment as available
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| 4. | Plasma Thawer is out of Temperature |
|  |  | **If:** | **Then:** |  |
|  |  | Temperature is less than 34C  | * Do not use to thaw products
* Retake temperature later in shift
* If problem persists, Complete “Out of Service Tag” and attach to device
* Make notation in Communication log
* Use alternate equipment as available
 |  |
|  |  | Temperature is greater than 37.5C | * Plasma thawer cannot be used to thaw products
* Complete “Out of Service Tag” and attach to device
* Make notation in Communication log
* Use alternate equipment as available
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| Procedure: Changing Charts | Continuous monitoring charts are routinely changed on Mondays on AM shift |

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| Step | Action |
| 1. | Locate blank charts and Equipment chart stamper in storage drawer. |
| 2. | Select the appropriate chart from list below for each storage device. |
|  |  | **If** | **Then:** |  |
|  |  | Helmer Refrigerator(s) | Helmer chart 220366 (range -5C to 20C) |  |
|  |  | Jewett Freezer | Thermo Fisher 313210H01(range -100C to 38C) |  |
|  |  | Helmer Freezer | Helmer chart 220419(range -50C to 0C) |  |
|  |  | Platelet Incubator | United Electric Controls 6282-161 (range -5C to 50C) |  |
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| 3. | Stamp the back side of chart with the “Equipment” chart stamper. |

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| 4. | Use the list below to complete the “Equipment” line. |
|  |  | **If:** | **Then:** |  |
|  |  | RBC stock refrigerator | Helmer Double door |  |
|  |  | Reagent refrigerator | Helmer Single door #1 |  |
|  |  | Autologous refrigerator | Helmer Single door #2 |  |
|  |  | Jewett Freezer | Jewett freezer |  |
|  |  | Helmer Freezer | Helmer Freezer |  |
|  |  | Platelet Incubator | Platelet Incubator |  |
|  |  |
| 5. | Fill in the “On by” date, time and your initials. |
| 6. | Disengage the chart pen from the storage device. |
| 7. | Remove the old chart. |
| 8. | Complete the “Off by” line on the back of the old chart with date, time and initials. |
| 9. | Put the new chart on the device, lining up the day and approximate time. |
| 10.. | Re-engage the chart pen. |
| 11. | Reset chart device chart alarm, if applicable. |
| 12. | File the completed charts in the chart supply drawer. |

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| Attachment | Daily Temperature Log |