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|  | Principle | |
|  | Thermometers are calibrated to prevent inaccurate indication of temperature. | |
|  | Scope and Related Policies | |
|  | 2.1 | All thermometers used in refrigerators that store blood products shall be checked as per manufacturers’ instructions or against a certified calibrated thermometer at least annually. This check shall be documented.9.1 |
|  | 2.2 | A label should be placed on equipment indicating calibration performed and when next calibration due.9.1 |
|  | Specimens – N/A | |
|  | Materials | |
|  | **Equipment:** Liquid-in-glass thermometer  Water container    **Supplies:** National Institute of Standards and Technology (NIST)  certified thermometer(s) or thermometer with NIST-traceable  calibration certificate  Crushed ice  Functional Calibration of Thermometers Form (QCA.008F) | |
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|  | | Quality Control | | | | |
|  | | 5.1 | Records of calibration should be retained for the life of the thermometer. | | | |
|  | | 5.2 | Multiple thermometers may be calibrated at one time. | | | |
|  | | 5.3 | Thermometers no longer reading within 1° C of the calibrated thermometer should be discarded or used in a non-critical monitoring environment. If used for non-critical monitoring, a label should be applied to the thermometer indicating it does not meet transfusion service standards. | | | |
|  | | 5.4 | Thermometers with splits or breaks in the liquid should not be used for testing or blood product equipment monitoring because they give inaccurate readings. | | | |
|  | | 5.5 | Use thermometers that do not contain mercury whenever possible. When purchasing thermometers, buy liquid in glass or digital thermometers. If a mercury thermometer is broken, promptly clean the spill using a mercury spill kit or a specially designed mercury vacuum. Never use a vacuum pump or a regular vacuum cleaner. | | | |
|  | | Procedure | | | | |
| * 1. Group similar thermometers to be calibrated and tested (i.e. mercury vs alcohol). | | | | | | |
| * 1. If testing newly purchased thermometers, place a piece of tape around the top of each thermometer with an identification number. | | | | | | |
| * 1. Inspect each thermometer for splits in the liquid part of the column. If splits are present, do not calibrate until the split is united. If this cannot be done, discard the thermometer or use for non-critical temperature monitoring until replacement is available. | | | | | | |
| Fill a container with water (water should be at a temperature close to which the thermometer will monitor). | | | | | | If calibrating for 37°C, place the NIST thermometer and thermometers to be tested at the same depth in a 37°C waterbath. |
| * + 1. If calibrating for 1-6°C, place the NIST thermometer and thermometers to be tested at the same depth in a container filled with water and crushed ice.   Make sure that the tips are in the liquid and not in the upper ice. |
| * 1. Stir constantly in a random motion until the thermometer indicates the desired temperature. | | | | | | |
| * 1. Allow the thermometers to equilibrate for 5 minutes. | | | | | | |
| * 1. Observe and record the temperature of each thermometer on QCA.008F. | | | | | | |
| * 1. Determine if each thermometer is recording accurately: | | | | | * + 1. A thermometer is acceptable if the temperature reading on a thermometer(s) agrees with the NIST thermometer within 1°C. | |
| * + 1. If the difference between the thermometer reading and the NIST thermometer reading is greater than 1°C: | |
| * Return the thermometer to the supplier, if newly purchased or * Use for non-critical work. See Quality Control 5.3 or * Discard the thermometer   Record action taken on QCA.008F | |
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|  | Reporting | | | | | |
|  | 7.1 | | Record the following on form QCA.008F:   * Thermometer identification number(s) * Temperature reading of thermometer being checked * Temperature reading of NIST thermometer * Whether the thermometer is acceptable for use and if not, what action was taken * Date of testing * Signature or initials of the person performing the calibration | | | |
|  | 7.2 | | Form QCA.008F must be reviewed by a supervisor and the review documented. | | | |
|  | Procedural Notes – N/A | | | | | |
|  | References | | | | | |
|  | 9.1 | | | Standards for Hospital Transfusion Services Version 3 – February 2011. Canadian Society for Transfusion Medicine, 3.1.4, 3.1.5 | | |
|  | 9.2 | | | IQMH Requirements and Guidance Information, December 2013, Version 6; IV | | |

# Revision History

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| **Revision Date** | **Summary of Revision** |
| September 1, 2015 | * Revised name of manual * Revised sections 2.0 and 6.0 * Updated list of references to include most recent editions |