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| **HCT Spun Hematocrit of Whole Blood** | | | | | | | | |
| **Purpose** | This procedure provides instructions for HCT SPUN HEMATOCRIT OF WHOLE BLOOD. | | | | | | | |
| **Principle** | This test provides the physician with the proportion of RBCs in whole blood expressed as a percent. | | | | | | | |
| **Clinical Significance** | This test is useful for evaluating anemia, blood loss, hemolytic anemia, polycythemia, and state of hydration. | | | | | | | |
| **Policy Statements** | * This procedure applies to all laboratory technologists performing hematology testing, the section supervisor, and section pathologist. | | | | | | | |
| **Materials** | **Equipment** | | | **Reagents** | | | **Supplies** | |
|  | * lEC MB Microhematocrit centrifuge (MIN), Clay Adams Autocrit II (STP). | | | * HemataCHEK Hematocrit Reference Controls. Tri- level control.   Cardinal Health:  Low – cat.# C1801-7  Normal – cat.# C1801-2  High – cat.# C1801-8   * 1. Store at 2 – 8°C   2. Stable until date on label, unopened.   3. Stable 31 days, opened.   4. Allow control to come to room temperature and mix well before using.   5. Clean the threads of vial and cap with an absorbent material prior to storage.   6. Return to refrigerator as soon as possible after use | | | * Microhematocrit capillary tubes:  1. Plastic-coated 2. non-heparinized 3. 75 mm x 1.5 mm  * Clay * Critocap reader card * Printout from Sysmex XN 3000 or Hematology Miscellaneous worksheet. | |
| **Sample** | 1. Collect blood from a clean venipuncture; avoid foaming. 2. Whole blood anticoagulated with K3EDTA or K2EDTA 3. Minimum volume: 0.6 mL 4. Maximum volume: 3.0 mL 5. Invert and mix well. 6. Transport to lab at room temperature. 7. Check sample for clots with applicator stick. 8. Specimen stability: 9. 4 hours when stored at room temperature 10. 24 hours when stored at 2 – 8°C 11. In case of a delay in sample transport: 12. Notify supervisor or pathologist 13. If approval is given to run test, append ".DELA" (transport delayed) to the result 14. Specimen rejection: Notify unit or physician of unacceptable specimens and cancel test with appropriate comment if any of the following occur: 15. Clotted specimen 16. Insufficiently filled tube or overfilled tube 17. Grossly hemolyzed specimens should be rejected unless a new specimen cannot be drawn without causing the patient trauma or a non-hemolyzed sample is unobtainable (post-op heart, etc.) 18. If a hemolyzed sample is tested, add the comment "-HP” (hemolysis present may affect results) or "-GRH" (gross hemolysis may interfere with testing) to the result 19. Specimens diluted with IV fluid | | | | | | | |
| **Quality Control** | 1. Three levels of assayed control material, HemataCHEK Reference Controls. 2. The mean and acceptable limits are indicated on the package insert for Micro – Hematocrit Centrifuges. 3. Controls are run with each batch of spun hematocrits. 4. Patient results cannot be reported unless control values are within expected tolerance limits; mean given on the package insert .. 5. If values do not fall within the expected range, new controls and reagents should be tested. 6. If QC is still out of range, notify the supervisor. | | | | | | | |
| **Procedure** | Follow the activities in the table below to perform HCT SPUN HEMATOCRIT OF WHOLE BLOOD. | | | | | | | |
|  | **Step** | **Action** | | | | | | **Related Document** |
|  | 1 | Fill two capillary tubes three-fourths full with EDTA blood, from a thoroughly mixed sample (2ml tube invert a minimum of five times, microtainer invert a minimum of 10 times). | | | | | |  |
|  | 2 | Seal the end of each tube with clay to the blue line. | | | | | |  |
|  | 3 | Open cover of centrifuge. | | | | | |  |
|  | 4 | Unlock the head cover by rotating the knob counter-clockwise. | | | | | |  |
|  | 5 | Remove head cover. | | | | | |  |
|  | 6 | Place the filled hematocrit tubes in slots across from each other with the sealed end near the outer edge. | | | | | |  |
|  | 7 | Replace the head cover. | | | | | |  |
|  | 8 | Lock the head cover securely by turning the head cover knob clockwise. | | | | | |  |
|  | 9 | Close the top cover. | | | | | |  |
|  | 10 | Lock the latch. | | | | | |  |
|  | 11 | Rotate the timer knob until it passes 5 minutes, then turn back to three minutes. | | | | | |  |
|  | 12 | When the centrifuge has stopped, release the latch; open the top cover; unlock the head cover and read immediately. | | | | | |  |
|  | 13 | To obtain hematocrit results using the Critocap Micro-hematocrit tube reader:   1. Place clay-red cell interface on the "0" mark. 2. Move tube until top of plasma layer intersects"100" mark. 3. On the scale, read where the plasma/RBC layer adjoin each other. This is the hematocrit. 4. Report results to the nearest 0.5%. | | | | | |  |
|  | 14 | To obtain hematocrit results using the International Micro-capillary Reader:   1. Set the reader first with the clay-red cell interface at 0%. 2. Shift the ruled scale to 100%. 3. Read down to the % spiral line that intersects with the RBC-WBC interface. 4. This % is the hematocrit. | | | | | |  |
|  | 15 | Additional Notes:   1. The spun hematocrit can be used to check the automated instrument results. 2. The spun hematocrit should be approximately three times the patient's hemoglobin 3. Incomplete sealing of the capillary tubes will give falsely low results due to loss of a small amount of RBCs and plasma forced from the tube during centrifugation. 4. If the buffy coat is included in the RBCs when reading the result, the hematocrit will be falsely elevated. 5. The microhematocrit centrifuge should never be forced to stop by applying pressure to the metal cover plate. This will cause the RBC layer to sling forward, falsely elevating the HCT. | | | | | |  |
| **Reference Intervals** | [Table AF – Spun Hematocrit Reference Ranges](http://khan.childrensmn.org/Manuals/Lab/SOP/Heme/Res/200706.pdf) | | | | | | | |
| **Result Reporting** | In Mysis: Function: MEM <CR> Worksheet: <CR>  Test-1: HCT <CR>  Test-2: <CR>  CAP Method: (M)odify <CR>  Method: MCEN  Workload data for CTLS: <CR>  # Done: 3 <CR>  Accept (A): A <CR>  Workload data for - <CR>  Accn. No.: Enter ###### <CR>  HCT: Enter results (to one decimal place)  Append comment “-SPUN” <CR>  Accept (A), Modify (M), or Reject (R): A <CR> | | | | | | | |
| **References** | 1. Harmening, D.M.: Clinical Hematology and Fundamentals of Hemaostasis, 2nd edition, FA Davis Co., Philadelphia, 1992. 2. IEC MB Microhematocrit Instruction Manual, 1988. | | | | | | | |
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| **Historical Record** | **Version** | | **Written/Revised by:** | | **Effective Date:** | **Summary of Revisions** | | |
| 1 | | Julie Schulte  Mary Ellen Eckhoff | | 05/1988  1995 | Initial Version | | |
| 2 | | Laura Rachford | | 06/2003 |  | | |
| 3 | | Al Quigley | | 06/01/11 | Reformatted, renamed (formerly Heme.H.15) | | |
| 4 | | Al Quigley | | 05/08/17 | New Assayed control, HemataCHEK Reference Controls. | | |