

 <p style="text-align: center;">DIVISION OF ADULT INSTITUTIONS</p> <p style="text-align: center;">POLICY AND PROCEDURES</p>	DAI Policy #: 500.31.33	Page 1 of 5
	Original Effective Date: 05/06/15	New Effective Date: 05/06/15
	Supersedes: N/A	Dated: N/A
	Administrator's Approval: Jim Schwochert, Administrator	
	Last Reviewed, No Changes: 11/22/16	
Required Posting or Restricted:		
<input checked="" type="checkbox"/> Inmate <input checked="" type="checkbox"/> All Staff <input type="checkbox"/> Restricted		
Chapter: 500 Health Services		
Subject: Access Flow Studies		

POLICY

The Division of Adult Institutions shall ensure inmate patients receiving hemodialysis with an internal dialysis access receive routine access flow studies.

REFERENCES

2008T Machine Operator's Manual, Fresenius Medical Care
Counts, C. (Ed.), 2008 Core Curriculum for Nephrology Nursing, 5th Edition.
Gomez, N.(Ed.), 2011 Nephrology Nursing Scope and Standards of Practice, 7th Edition, ANNA

DEFINITIONS, ACRONYMS AND FORMS

AVF – Arteriovenous fistula

AVG – Arteriovenous graft

DOC-3423 – Hemodialysis Treatment

DOC-3633 – Hemodialysis Access/Blood Volume Monitoring Log

Intra-Access – Within the access

OLC – On-line clearance

On-Line Clearance – Clearance study that measures sodium ion concentration pre and post the dialyzer.

RN – Registered Nurse

PROCEDURE

I. Overview of Access Flow Studies

- A. Access studies serve a significant role in access evaluation and aide in the prevention and treatment of access complications.
- B. Intra-access flow studies shall be completed monthly at a minimum and as needed on all hemodialysis inmate patients with internal dialysis accesses (AVF, AVG or AVG hybrid).
 1. After an access intervention (i.e., fistulogram).

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2. Examples for other appropriate times for access flow studies are:
 - a. When an inmate patient verbalizes a concern with the access that may be indicative of access flow changes (e.g., feels the thrill has decreased from baseline).
 - b. Unusual prolonged bleeding after a recent treatment.
 - c. Other identified situations of concern.
- C. Other findings indicating access flow complications that may present include:
 1. Edema of access extremity.
 2. Appearance of collateral veins.
 3. Outflow vein of AVF not partially collapsed with arm elevation pre-dialysis.
 4. Post-dialysis bleeding time > 30 minutes.
 5. Difficulty with cannulation.
 6. Pain.
 7. Altered characteristics of thrill or bruit.
 8. Recent pseudo aneurysm formation in AVG or AVF.
- D. On-line access flow studies on the dialysis machine shall be the primary method utilized for measuring access flow in the dialysis center.
- E. The Crit-Line III Monitor provides an additional method of completing access flow studies. Refer to the manufacturer's operation guide for use.
- F. The target access flow for AVF is > 400ml/min, AVG > 600ml/min.
- G. Determine the initial baseline access flow by completing two consecutive Access Flow Studies. Add both results together and divide by two. Evaluate the result.
- H. With ongoing monitoring:
 1. Results less than the target value require an additional test to confirm the result.
 2. Results less than 30% of the inmate patient's baseline result (even if higher than target value) require an additional test to confirm the result.
 3. If unsure if time permits for repeat testing, consult with the Nephrology Provider.
- I. If the access flow rate is less than or equal to the blood pump rate, the access flow rate shall be calculated and reported as approximately the blood pump rate. In this case the access flow rate may be lower than indicated.
- J. During the access flow study, if the result of Access Flow #1 is lower than Access Flow # 2 after the test is completed this indicates that the access was running "Reversed" at the beginning of the treatment.
 1. This will be an inaccurate result.
 2. The result could also report a negative result which also indicates the access was reversed.

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- K. Promptly notify the Nephrology provider of abnormal access flow test results. Additional concerns to report include:
 - 1. Poor healing of cannulation sites and any thinning or break in skin covering aneurysms or pseudo aneurysms.
 - 2. Thrombosis.
 - 3. Ischemia in limb.
 - 4. Any sign of infection.
 - 5. Prolonged bleeding.
 - 6. Abnormal results of AVF or AVG monitoring.
- L. Initiate evaluation and treatment of complications as ordered. This may include referral to an access surgeon.

II. **Access Studies at the Start of Dialysis**

Initiate the steps of the on-line access flow study utilizing the Dialysis Machine as software permits.

- A. Prior to the start of the dialysis treatment, verify that OLC is enabled by visualizing that the “Enable OLC” box is checked.
- B. Enter the OLC urea distribution volume that was determined by utilizing the Watson Method of calculation on the OLC screen.
- C. Press the “Access Flow” button to move “X” to on and press “Confirm”.
- D. Explain the purpose of the Access Flow Study to the patient.
- E. Place needles for the dialysis treatment and complete initiation of the dialysis treatment procedure.
- F. Begin the treatment with a blood flow rate of 300ml/min. Do not allow the arterial pressure to exceed 240mmHg.
- G. Upon completion of the 1st OLC test the machine will alarm and the status line will indicate “Run Access Flow”. Press the “Confirm” key.
- H. Pressing the “Confirm” key will prompt staff to “Reverse the Lines”.
 - 1. Use aseptic technique to disconnect the bloodlines and reconnect reversed.
 - 2. If a reversal device (such as the Twister Tubing or Reverso) is being used, complete reversal utilizing the device.
- I. Once lines are reversed and the BFR up to 300ml/min press the “Confirm” key.
 - 1. The “UF” light will be flashing at this time.
 - 2. Status line will indicate “Access Flow Test Scheduled”.
 - 3. This will be followed by “Access Flow Test Running”.

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- 4. This step lasts approximately 10 minutes.
- J. "Access Flow Test Complete" shall then be presented with an audible alarm. Press the "Reset" key.
 - 1. This will give the message "Switch Lines Back".
 - 2. Press "Reset" and this will reset the UF.
 - 3. Switch the lines back, be sure that the connections are well secured.
 - 4. Return to the prescribed/ optimal blood flow rate.
- K. Hemotechnician staff shall update RN staff on all access flow study test results upon test completion.
- L. Document the results of Access Flow from the OLC data sub screen on the DOC-3423 – Hemodialysis Treatment and on the DOC-3633 – Hemodialysis Access/Blood Volume Monitoring Log.

III. Access Studies Initiated During the Dialysis Treatment

- A. Initiate the steps for on-line clearance access flow test.
- B. Explain the purpose of Access Flow Study to the inmate patient.
- C. Initiate the steps of the on-line access flow study utilizing the dialysis machine as software permits.
- D. Turn on the Access flow by hitting the Access flow button and confirm.
- E. Press the manual OLC Test after turning on the Access Flow to begin the test immediately.
- F. Follow instructions provided on the screen of the dialysis machine to complete the procedure.
- G. Hemotechnician staff shall update RN staff on all access flow study test results upon test completion.
- H. Document the results of Access Flow from the OLC data sub screen on the DOC-3423 – Hemodialysis Treatment and on the DOC-3633 – Hemodialysis Access/Blood Volume Monitoring Log.

Bureau of Health Services: _____ **Date Signed:** _____
James Greer, Director

_____ **Date Signed:** _____
Ryan Holzmacher, MD, Medical Director

_____ **Date Signed:** _____
Mary Muse, Nursing Director

Administrator's Approval: _____ **Date Signed:** _____
Jim Schwochert, Administrator

DIVISION OF ADULT INSTITUTIONS FACILITY IMPLEMENTATION PROCEDURES

Facility: Name		
Original Effective Date:	DAI Policy Number: 500.31.33	Page 5 of 5
New Effective Date: 00/00/00	Supersedes Number:	Dated:
Chapter: 500 Health Services		
Subject: Access Flow Studies		
Will Implement <input type="checkbox"/> As written <input type="checkbox"/> With below procedures for facility implementation		
Warden's/Center Superintendent's Approval:		

REFERENCES

DEFINITIONS, ACRONYMS, AND FORMS

FACILITY PROCEDURE

- I.
 - A.
 - 1.
 - a.
 - B.
 - C.
- II.
 - A.
 - B.
 - C.