

Update on Access Cannulation: Is There Anything New on the Horizon

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Disclosure

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Standard Metal Needles Gauges: 17, 16, 15, 14

Length: 3/5" short needle, 1" needle or 1 1/4" needle

NATIONAL KIDNEY FOUNDATION

Cannulation Methods

https://www.kidney.org/professionals/guidelines/guidelines_commentaries/vascular-access

Needle Gauge for Blood Flow Rates

Smaller needle gauge requires lower blood flow rates (BFRs)

General needle gauge guidelines and maximum BFR with the pre-pump arterial pressure (AP) 5-200 to -250 mm Hg

- 17-gauge needle = 200-250 BFR
- 16-gauge needle = 250-350 BFR
- 15-gauge needle = 350-450 BFR
- 14-gauge needle = > 450 BFR

Must monitor pre-pump AP to prevent excessive negative pressure from the blood pump drawing on the vascular access. Pre-pump AP should be 5-250 mm Hg for all needle gauges and BFRs

* Follow your unit-specific nursing policy and procedure for specific needle gauge and maximum BFR.


Cannulation Skills and Recommendations

Cannulator & Skill Set	Recommendations KDOQI 2019 VA Guidelines
Skilled cannulators with established high rates of success should perform initial cannulations	11.6
Have structured training and supervision of dialysis technicians and nurses before and during initial cannulation attempts and have regular training updates to maintain cannulation competency	11.7
Support & educate eligible patients on self-cannulation of their AV fistula or AV graft	11.8 (also CMS Conditions of Coverage V-tag 456)

Practical Applications for Cannulation

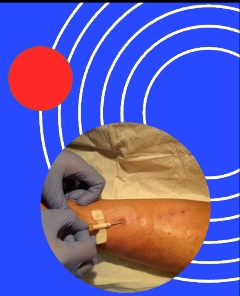
Nephrologist Order Required for Cannulation

Should include	Description
Cannulation Method	Rope Ladder unless special circumstances to utilize buttonhole cannulation (include the justification for the buttonhole method so if the justification changes in the future the cannulation method is reassessed). Consider adding no Area Puncture to the order.
Needle Type	Plastic cannula, sharp needle, dull buttonhole needle
Needle Length	3/5" short needle, 1" needle or 1 1/2" needle
Needle Angle	If vessel depth is measured with a cannulation map, the angle of entry can be calculated. Can also include needle insertion direction (arterial/venous/longitudinal or retrograde) as indicated
Needle Gauge	17, 16, 15, 14 gauge (may limit a maximum needle gauge)
Blood Flow Rate to Correspond to the Needle Gauge	No recommendations listed in the 2019 Guidelines
May cannulate & Needle Advancement	See "Matching needle gauge to the prescribed bloodflow rate (BFR)" Initial Cannulation Protocol/Algorithm (typically facility or provider specific) No recommendations listed in the 2019 Guidelines
Any procedure adaptations for self-cannulation	Modifications to the taping procedure, needle insert and needle removal procedure



ClinicalTrials.gov

AV needle studies



Argyle™ + Fistula Cannulas with Anti-Reflux Valve



<https://www.medtronic.com/covidien/en-za/products/dialysis-access/chronic-vascular/argyle-fistula-cannula.html#>

Argyle Fistula Cannula Pre-market, Prospective, Single Arm, Non-randomized, Interventional Study Conditions

Outcome Measure	Measure Description
Successful Hemodialysis Sessions	% of successful hemodialysis sessions using the Argyle™
Cannulation Locations with securement details	Characterize cannulation locations and details on the securement of the cannulas after taping during the hemodialysis session
Access-related complications requiring procedural intervention	Quantify # of subjects who had a procedure to correct access-related complications
Compare prescribed blood flow rates	Compare prescribed blood flow rates with plastic fistula cannula to average blood flow achieved

Argyle Fistula Cannula

Outcome Measure	Measure Description
Dialysis adequacy	Compare dialysis adequacy
Cannulator Satisfaction Questionnaire	Assess inserter satisfaction (survey)
Subject Satisfaction Questionnaire	Subject satisfaction survey to assess insertion pain
Impact of delay between training and use of device	Statistical significance of the covariate "time between training and cannulation attempt" will be reported.

ClinicalTrials.gov

Recruitment Status	Estimated Primary Completion Date	Estimated Study Completion Date
Active, not recruiting	2024-12-15	2024-12-15

Hemotek V Needle

<https://www.hemotekmedical.com/for-clinicians/>

ClinicalTrials.gov

Completed

Confirmatory Study to Assess the V Needle in End-Stage Renal Disease Patients During In-Clinic Hemodialysis (Clinic-SAVER)

ClinicalTrials.gov ID: NCT05493423

Sponsor: Hemotek Medical Inc

Information provided by: Hemotek Medical Inc (Responsible Party)

Last Update Posted: 2024-01-10

No Results yet posted

V Needle AV Fistula Set

Outcome Measure	Measure Description
% successful hemodialysis sessions with the Hemotek device.	Successful or Unsuccessful between control and V needle
Machine blood side alarms during hemodialysis therapy sessions, including false alarms.	The hemodialysis machine alarm rate will be monitored per session
Achieved blood flow rate during hemodialysis therapy sessions	Variations of the blood flow rate- within 75% of the prescribed blood flow rate.
Clinician's ability to cannulate fistula for each hemodialysis session	The clinician will self-report if the fistula was successfully cannulated session

Still Waiting for FDA Cleared Device!

Barriers to Adoption

- Higher cost than standard needles
- Staff training for different cannulation technique

VASA Cannulation Project

VASA is working with the 2019 KDOQI Implantation team to create an updated universal cannulation training

Nurses & Techs from North & South America on the volunteer committee
More volunteers are welcome

1st project on proper cannulation site rotation

Thank you!

VASA

SAVE THE DATE

2025 PRACTICUM

May 16-17, 2025
Washington University
St. Louis, Missouri