THE AMERICAN BOARD OF SURGERY

Evaluation and Management of a Patient with ESRD

Description of the Activity	Vascular surgeons evaluate and manage patients with end-stage renal disease for dialysis access creation and maintenance in elective and emergency care settings. Surgeons should have a comprehensive understanding of dialysis access clinical practice guidelines, preoperative evaluation, and surgical creation and maintenance of hemodialysis access, including selection criteria for various types of hemodialysis access options. Additionally, surgeons should understand perioperative management, including recognition and treatment of surgical complications, treatment of failing or thrombosed dialysis access, and surveillance strategies.
Functions	❖ Nonoperative/Preoperative ➢ Synthesize essential information from a patient's referring providers, records, history, physical examination, and initial evaluation for hemodialysis access options to develop a plan for hemodialysis access creation. ➢ Complete a cost-effective, evidence-based workup, and formulate a hemodialysis access plan with respect to the current National Kidney Foundation's Kidney Disease Outcomes Quality Initiative (KDOQI). ➢ Determine which hemodialysis access option is indicated and the timing of creation. ➢ Select a surgical approach consistent with a patient's anatomy, comorbidities, and acuity of presentation. ➢ Communicate potential dialysis access options to a patient/caregiver(s) and consultants. ➢ Obtain informed consent. Describe the indications, risks, benefits, alternatives, and potential complications of the planned operation, including nuances relevant to the patient's individual arterial and venous anatomy, stage of kidney disease, and comorbidities, and ensure patient/caregiver understanding. ➢ Synthesize an operative plan that demonstrates understanding of the operative anatomy, physiology, indications, contraindications, risks, benefits, alternatives, and potential complications of: ▪ Arteriovenous graft (AVG) placement ▪ Autogenous arteriovenous fistula (AVF) creation ▪ Tunneled dialysis catheter placement ➢ Identify special populations in whom operative dialysis access planning may require additional consideration ❖ Intraoperative ➢ Work with the anesthesia team to identify and coordinate an optimal anesthesia plan (local, block, general). ➢ Perform the procedures required to create hemodialysis access. ▪ AVG placement ▪ Autogenous AVF creation ▪ Tunneled dialysis catheter placement ➢ Integrate new information discovered intraoperatively that requires modification of the surgical plan or technique, such as: ▪ Aberrant anatomy (high brachial bifurcation) ▪ Inadequate venous conduit ➢ Work with anesthesia staff, nursing staff, and other perioperative health care professionals to create and maintain an intraoperative environment that promotes patient-centered care.

The vascular surgery EPAs may be further refined based on pilot data and final review by several ABS Council Committees; final versions including any edits stemming from those processes will be available in fall 2024.

THE AMERICAN BOARD OF SURGERY

Evaluation and Management of a Patient with ESRD

	❖ Postoperative ➢ Initiate and oversee postoperative care, including monitoring for early complications (hematoma, ischemic steal, ischemic monomelic neuropathy) and determining follow-up imaging and care. ➢ Communicate with the patient/caregiver(s) and members of the health care team to ensure understanding of postprocedure instructions and the ability of the patient to carry out the resultant plan within the context of their life (eg, transportation, living situation, initiation or continuation of dialysis). ➢ Recognize, evaluate, and manage early and late complications following hemodialysis access creation. ➢ Identify a follow-up plan, an assessment for maturation and readiness for access, and indications for reintervention.
Scope	❖ In scope ➢ Brachiobasilic, brachiocephalic, and radiocephalic AVF ➢ Endovascular AVF creation ➢ Fistulogram and endovascular intervention ➢ Hero graft ➢ Management of steal ➢ Tunneled dialysis catheter placement ➢ Upper extremity AVG ❖ Out of scope ➢ Pediatric hemodialysis access ➢ Peritoneal dialysis ❖ Special Population ➢ Obese patients ➢ Older adult patients ➢ Patients with: ▪ Arterial inflow stenosis or occlusion ▪ Central venous occlusion ▪ High-output cardiac failure ▪ Lower extremity AVF/AVG

The vascular surgery EPAs may be further refined based on pilot data and final review by several ABS Council Committees; final versions including any edits stemming from those processes will be available in fall 2024.

THE AMERICAN BOARD OF SURGERY

Evaluation & Management of a Patient with ESRD

Level	Preoperative/Nonoperative	Intraoperative	Postoperative
1 **Limited Participation** Demonstrates understanding of information and has very basic skills **Framework:** What a learner directly out of medical school should know The attending can show and tell.	• Elicits a history and performs a relevant vascular exam (radial/ulnar pulses, Allen test, chest wall varicosities, prior access) • Identifies the necessary vascular lab imaging for standard dialysis access planning (vein mapping) • Identifies the need for open intervention vs medical management • Identifies socioeconomic determinants of health and disparities in the ESRD patient population • Identifies multiple points of access in a patient with ESRD (hospital, skilled nursing facility, other medical specialties, dialysis unit) and different payer types • Uses current guidelines to guide patient care	• Describes different anesthetic approaches for a dialysis access patient • Demonstrates basic surgical skills, including vein mapping and recognition of arterial and venous anatomy	• Demonstrates knowledge of care coordination with dialysis centers and nephrologists for timing of access • Demonstrates basic understanding of their role in and communication with the dialysis care team
2 **Direct Supervision** Demonstrates understanding of the steps of the operation but requires direction through principles and does not know the nuances of a basic case	• Orders imaging studies (duplex) and interprets findings (vein diameter) to determine options for dialysis access creation • Uses imaging to support operative planning of dialysis access • Synthesizes clinical data to choose an appropriate open surgical procedure (autogenous AVF, AVG)	• Recognizes the rationale for the selected anesthetic approach • Demonstrates respect for tissues (gentle handling of vessels) and developing skill in instrument handling (using a Castroviejo needle driver) • Performs parts of an anastomosis with frequent prompting and assistance	• Coordinates multidisciplinary care of a patient in a routine clinical situation with nephrologists and dialysis centers • Clearly communicates information to the health care team

The vascular surgery EPAs may be further refined based on pilot data and final review by several ABS Council Committees; final versions including any edits stemming from those processes will be available in fall 2024.

THE AMERICAN BOARD OF SURGERY

Evaluation & Management of a Patient with ESRD

Level	Preoperative/Nonoperative	Intraoperative	Postoperative
Framework: The learner can use the tools but may not know exactly what, where, or how to do it. The attending gives active help throughout the case to maintain forward progression.	• Identifies a patient in a population or community that is at risk for inequities in care for ESRD • Describes components of the health care system that are used by ESRD patients (dialysis center, nephrology) and how they are interrelated and impact patient care • Elicits patient preferences regarding renal replacement therapy and takes them into account when providing evidence-based care		
3 **Indirect Supervision** Can do a basic operation but will not recognize abnormalities and does not understand the nuances of an advanced case **Framework:** The learner can perform the operation in straightforward circumstances.	• Interprets a patient's physical exam, US results, and risk factors to formulate a plan for appropriate dialysis access (fistula vs graft, location, peritoneal dialysis) • Identifies a patient who requires a change in access plan due to factors found during workup or intraoperatively • Develops a specific open surgical plan (fistula creation and maintenance, failure to mature, thrombosis) and identifies alternative surgical options • Uses local resources to provide a patient in need of dialysis access with care • Engages a patient/caregiver(s) in shared decision-making based on the	• Synthesizes patient data to choose an appropriate anesthetic plan • Demonstrates efficient instrument handling and safe exposure, dissection, and control of vessels • Performs a complete anastomosis with minimal prompting and passive assistance	• Coordinates multidisciplinary care for an ESRD patient with complex needs and barriers to access using the correct members of the interprofessional team; performs safe hand-offs • Adapts communication to the needs of different members of the health care team and communicates concerns

The vascular surgery EPAs may be further refined based on pilot data and final review by several ABS Council Committees; final versions including any edits stemming from those processes will be available in fall 2024.

THE AMERICAN BOARD OF SURGERY

Evaluation & Management of a Patient with ESRD

Level	Preoperative/Nonoperative	Intraoperative	Postoperative
The attending gives passive help. This help may be given while scrubbed for more complex cases or during a check-in for more routine cases.	patient's access to care and payment model • Independently identifies and applies evidence-based care for a complex patient with ESRD		
4 **<u>Practice Ready</u>** Can manage more complex patient presentations and operations and take care of most cases **<u>Framework</u>:** The learner can treat all straightforward ESRD cases and has a strong understanding of surgical options and techniques for less common scenarios. The attending is available at the request	• Synthesizes patient data and imaging to create a plan for HD access in a patient with complex findings, medical issues, or difficult redo surgery situation • Uses imaging findings to formulate a complex access plan • Adapts an open surgical management plan for a changing clinical situation (eg, vein too small, no thrill upon completion) • Identifies a patient at risk for a poor outcome and adapts the treatment plan to address disparities • Advocates for patient-care needs and offers an indicated intervention with consideration of a patient's payment model • Critically appraises guidelines and evidence to provide individualized access care to a complex patient	• Prepares a specialized anesthetic plan for the procedure • Proficiently handles instruments and equipment, uses assistants, and guides the conduct of the operation; makes independent intraop decisions; anticipates when assistance is needed	• Coordinates recommendations from different members of the health care team to optimize patient care and facilitates feedback in a complex situation • Leads the coordination of patient-centered care among different disciplines and specialties, including nephrology and dialysis access centers

The vascular surgery EPAs may be further refined based on pilot data and final review by several ABS Council Committees; final versions including any edits stemming from those processes will be available in fall 2024.

THE AMERICAN BOARD OF SURGERY

Evaluation & Management of a Patient with ESRD

Level	Preoperative/Nonoperative	Intraoperative	Postoperative
of the learner but is not routinely needed for common presentations, though input may be needed for more complex presentations.			

The vascular surgery EPAs may be further refined based on pilot data and final review by several ABS Council Committees; final versions including any edits stemming from those processes will be available in fall 2024.