



Dialysis Indications

AEIOU · Urgent indication now, or optimize and watch?

NO RUSH WITHOUT AEIOU
trials are clear

THE URGENT INDICATIONS *AEIOU — any one of these means start now*

Letter	Indication	Threshold in practice
A	Acidosis	Severe metabolic acidosis refractory to medical therapy — typically pH < 7.1–7.15 despite bicarbonate, especially with oliguria.
E	Electrolytes	Hyperkalemia refractory to treatment , or recurring rapidly. K ⁺ > 6.5 with ECG changes that will not settle is the classic trigger.
I	Ingestions	Dialysable toxins — salicylates, lithium, methanol, ethylene glycol, metformin (severe lactic acidosis), theophylline, valproate.
O	Overload	Pulmonary edema unresponsive to diuretics , especially with oliguria and hypoxemia. Volume you cannot remove pharmacologically.
U	Uremia	Symptomatic uremia — encephalopathy, seizures, pericarditis, bleeding from platelet dysfunction. Not a urea number alone.

TREAT THE REVERSIBLE PROBLEM FIRST

Before calling it refractory, confirm you have actually maximized therapy: **calcium, insulin-dextrose, and a binder for hyperkalemia**; a genuine **high-dose loop diuretic** attempt for overload; **bicarbonate** for acidosis; and relief of any **obstruction**. Many "dialysis-needing" patients simply had incomplete medical management.

TIMING IN AKI WITHOUT AN URGENT INDICATION *the evidence says wait, but do not wait forever*

- No survival benefit from starting early.** AKIKI and the large multicenter **STARRT-AKI** trial found no mortality difference between an accelerated start and a strategy of structured deferral in critically ill patients **without urgent indications**.
- Deferring avoids dialysis altogether in a meaningful number.** A substantial proportion of patients in the delayed arms recovered renal function and **never needed RRT** — sparing them line risk, anticoagulation, and hemodynamic insult.
- But excessive delay causes harm.** AKIKI-2 showed that a **more** delayed strategy was associated with worse outcomes. Watchful waiting is active monitoring, not neglect.
- So the practical rule:** if there is **no AEIOU indication**, optimize medically and reassess frequently. Start when an indication appears or when recovery clearly is not coming — not on a creatinine threshold.

CHOOSING A MODALITY *hemodynamics decide*

Modality	Best for	Trade-off
Intermittent HD	Hemodynamically stable ; need rapid clearance (hyperkalemia, toxins)	Fastest correction, but large fluid and solute shifts cause hypotension and risk disequilibrium.
CRRT	Shock or vasopressor-dependent ; raised intracranial pressure; severe volume overload	Gentler hemodynamics and precise fluid control, but needs continuous anticoagulation , immobilizes the patient, and clears drugs unpredictably.
SLED / prolonged intermittent	Intermediate stability; ICU without full CRRT capacity	A hybrid — slower than HD, less resource-intensive than CRRT.
Peritoneal dialysis	Chronic, and selected acute settings	No vascular access or anticoagulation needed, but slower clearance and unsuitable after abdominal surgery.

COMPLICATIONS TO ANTICIPATE *the first session is the riskiest*

DURING & AFTER

Intradialytic hypotension — the commonest. **Dialysis disequilibrium syndrome**: headache, nausea, confusion, or seizure from rapid urea clearance causing cerebral edema, so **limit clearance in the first session** when urea is very high. Also arrhythmia, hypokalemia and hypophosphatemia after clearance, and **air embolism**.

ACCESS

Temporary non-tunneled catheter for urgent needs, tunneled if longer. **Preserve the non-dominant arm veins** in anyone who may need a fistula — no PICCs or routine cannulation there. **Catheter-related bacteremia** is the major long-term hazard.

STARTING CHRONIC DIALYSIS *a different decision from AKI*

WHAT TRIGGERS IT

Driven by **symptoms and complications**, not a number: uremic symptoms, **declining nutrition**, refractory volume overload, hyperkalemia or acidosis that will no longer respond to drugs. Typically arises somewhere around **eGFR 5–10**, but **an asymptomatic patient at eGFR 8 does not automatically need to start**.

WHY EARLY REFERRAL CHANGES THE STORY

A planned start means a **matured fistula, an informed modality choice, vaccination, and transplant assessment**. A crash start means a temporary catheter, higher infection and mortality risk, and no real choice. **Conservative care** remains appropriate for some frail patients, in whom dialysis may add burden without adding meaningful time.

PEARLS & PITFALLS

- Put numbers on AEIOU rather than treating it as a mnemonic:** potassium above about 6.5 or refractory with ECG changes; pH below 7.1 not responding to medical therapy; uremic pericarditis, encephalopathy or bleeding, which are absolute rather than numeric; and volume overload refractory to adequate diuretic doses. **It is the refractoriness, not the number alone, that decides.**
- There is no creatinine or urea number that mandates dialysis.** Dialyze the patient and the indication, not the laboratory value.
- Uremia means symptoms** — pericardial rub, encephalopathy, bleeding. A high urea in a well patient is not an indication.
- Exclude obstruction with a bladder scan or ultrasound** before escalating. Post-renal AKI is reversible and easily missed.
- Limit clearance in the first session** for severe uremia to avoid disequilibrium syndrome.
- Protect the veins** of any patient who might need a fistula. A PICC can cost them an access site for life.
- Not all overdoses are dialysable** — highly protein-bound or large-volume-of-distribution drugs are not. Check before promising benefit.

