

# WHAT IS THE OPTIMAL TIME FOR ACCESS PLACEMENT IN PATIENTS WITH CHRONIC KIDNEY DISEASE


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Nothing to Disclose for this Presentation

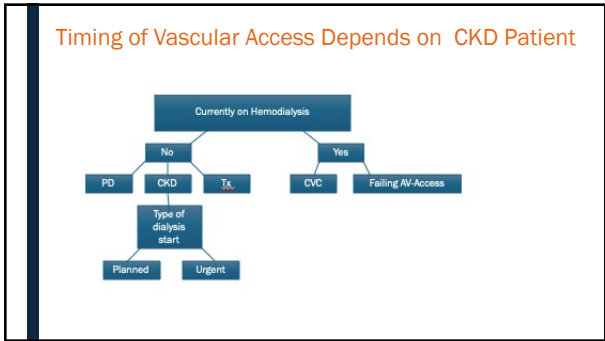
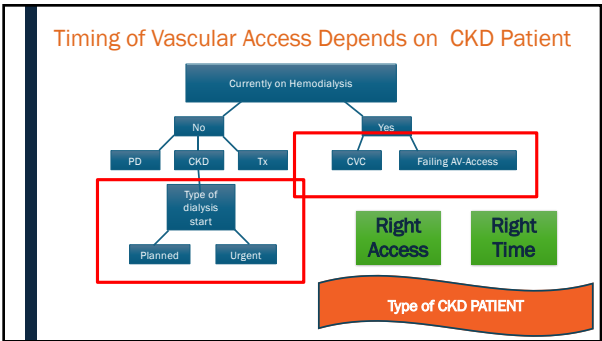
## Objectives

- Clarify the question
- Share what Guidelines say
- Evidence to support
- Can we do better?



vs





### Timing of Vascular Access Depends on CKD Patient

**Guideline 6. Timing, Preparation, and Planning for Creation/Insertion of Dialysis Access**

*Nondialysis CKD Patients*

6.6. KDOQI considers it reasonable that in nondialysis CKD patients with progressive decline in kidney function, referral for dialysis access assessment and subsequent creation should occur when eGFR is 15-20 mL/min/1.73 m<sup>2</sup>. Earlier referral should occur in patients with unstable and/or rapid rates of eGFR decline (eg, >10 mL/min/year). (Expert Opinion)

Note: Nondialysis CKD patients include patients who have a failing transplant.

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    graph TD
      A[Not on Hemodialysis] --> B[PD]
      A --> C[CKD]
      A --> D[Tx]
      C --> E[Type of dialysis start]
      E --> E1[Planned]
      E --> E2[Urgent]
  
```

### What's the Evidence?

**AJKD**  
Original Investigation  
**Timing of Arteriovenous Fistula Creation in Patients With CKD: A Decision Analysis**  
Steven M. Shachter, PhD<sup>1</sup>, M. Pooja Shankar, MS<sup>2</sup>, and Nadia Zakarevic, MD PhD<sup>3</sup>

**Special variables considered:**

- Patient specific GFR
- Avg rate GFR decline
- GFR dialysis started
- Patient survival – non-dialysis
  - on dialysis
  - with CVC or AV access
- Max no. of AVF attempts before HD
- Max no. AVF attempts total
- Probability pt will allow > 1 attempt
- Time from creation to usable access or to abandonment
- Probability of AVF FTM +/- CVC
- Probability of functional failure +/- HD
- Time between GFR measurements

Figure 1. An example of a Markov Chain transition model. One representative patient is shown. The patient starts in a state that is not on dialysis. The time they are in a state is a random variable that may vary.

### Conclusion of this study

Results for the overall cohort suggest that **AVF referral about 12 months before hemodialysis therapy is anticipated is appropriate**; this supports KDOQI vascular access guidelines published in 2000.<sup>13,14</sup> An **eGFR threshold for referral of 15-20 mL/min/1.73 m<sup>2</sup>**, as suggested by the Canadian Society of Nephrology guidelines, also was appropriate overall.<sup>16</sup> However,

**BUT... what about from creation time to use on dialysis?**

### Optimal Timing: Creation to Use

**What we Don't Want**

- Unnecessary procedures
- Failure of AV access
- Need for another access
- Death

**What we Want**

- Maturation
- Usability for dialysis

**Modifiers**

- Age, sex
- Comorbidities; effect of intercurrent illness
- Rate of decline in kidney function
- Delay in kidney failure progression due to AV access creation
- Type and timing of care

### Help from the Literature

> J Am Soc Nephrol. 2015 Feb;26(2):448-56. doi: 10.1681/ASN.2013070140. Epub 2014 Aug 28.

**Arteriovenous fistula placement in the elderly: when is the optimal time?**

Tammy Hod<sup>1</sup>, Bharu K Panbanda<sup>2</sup>, Yael Vin<sup>3</sup>, Robert S Brown<sup>4</sup>, Alexander S Goldfarb-Rumyantsev<sup>5</sup>

- N=17, 511 (USRDS)
- Age = 67- over 90 years old
- Success of AVF created determined in relation to time of creation before HD
  - 1-3 mos
  - 3-6 mos
  - 6-9 mos
- Average number of procedures determined within categories

### Nephrologist is not a mystic

> Clin J Am Soc Nephrol. 2016 Oct 7;11(10):1802-1808. doi: 10.2215/CJN.00700116. Epub 2016 Sep 14.

**Predictors of Initiation for Predialysis Arteriovenous Fistula**

Allan Al-Balal<sup>1</sup>, Timmy Lee<sup>1,2</sup>, Carlton J Young<sup>3</sup>, Jill Barker-Finkel<sup>4</sup>, Michael Allison<sup>5</sup>

**Conclusions:** The likelihood of initiating hemodialysis within 2 years of predialysis arteriovenous fistula surgery is associated with **eGFR at access surgery**, **diabetes**, **GFR trajectory**, and magnitude of **proteinuria**. The combined use of all four variables improves the ability to predict future hemodialysis compared with the use of eGFR alone.

TK Jemcov and WV Biesen, J Vasc Access, 2017

### Kidney Failure Risk Equation

STAGES CAUSES STATS ABOUT THE EQUATION RISK CALCULATOR @ VERO

## THE KIDNEY FAILURE RISK EQUATION

Find out your real risk of kidney failure

[RISK CALCULATOR](#)



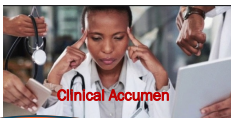
### Summary

- ✓ Clarify the question
- ✓ Share what Guidelines say
- ✓ Evidence to support
- Can we do better?

**Not sure...**

*But do we need to figure this out?*

**YES!**



Type of CKD PATIENT

