Long-term Catheters: Rethinking Candidacy for Surgical Access

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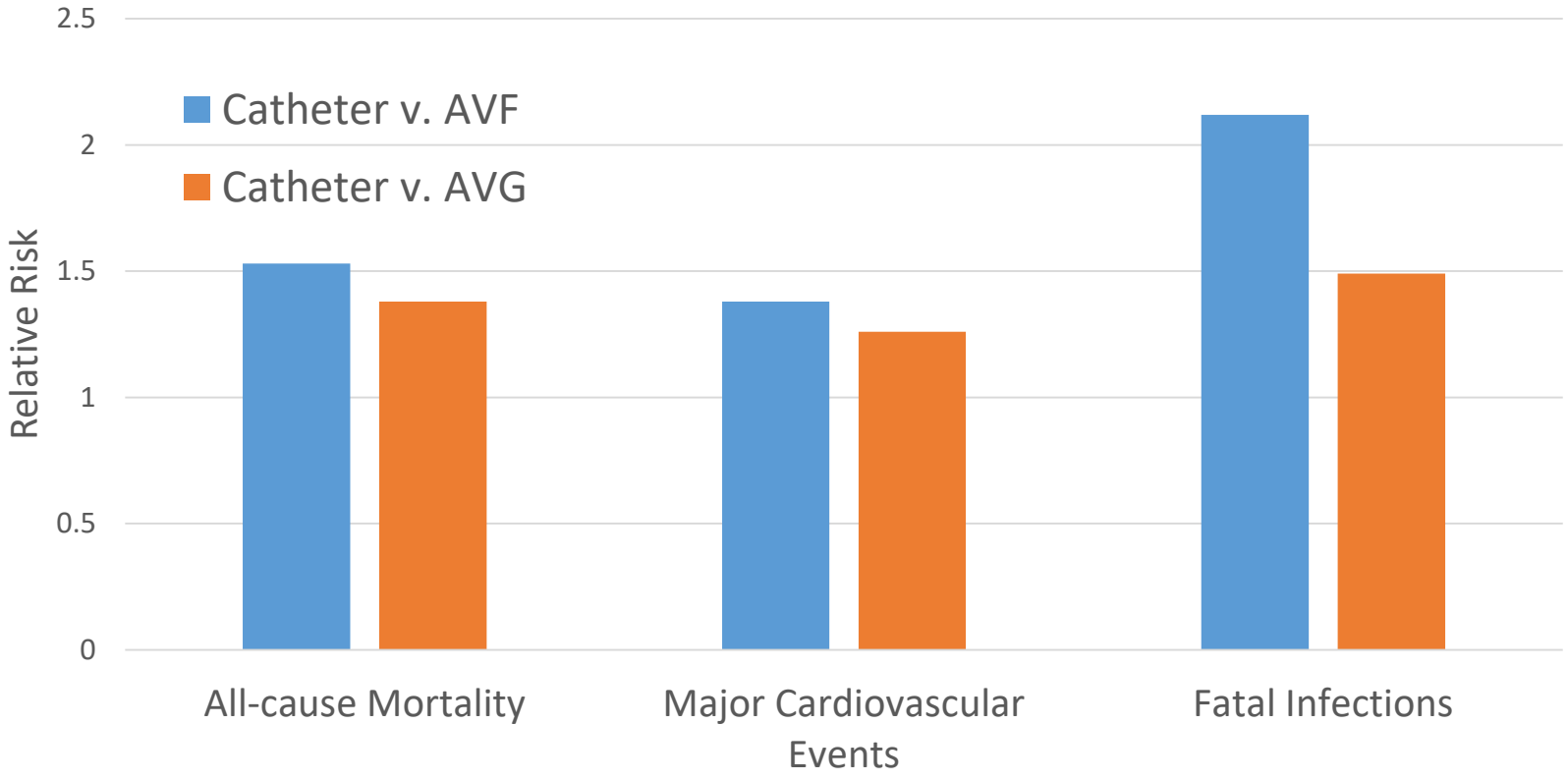
Today's Goals

- Understand the importance of reducing long term catheters (LTC)
- Describe the impact of comorbidities on creating surgical access for patients on dialysis
- Identify common barriers to reducing long-term dialysis catheters
- List best practices for reducing long-term dialysis catheter use

Increased Risk of Adverse Events Associated with LTC



Ravani et al. J Am Soc Nephrol 24: 465–473, 2013

Mechanical Complications Associated with LTC

- Thrombosis
- Fibrin Sheath
- Stenosis

} Decreased Clearance

  - Upper extremity deep vein thrombosis
  - Superior Vena Cava Syndrome
- Crack / Hole Catheter
  - Bleeding
  - Air Embolism

Public Reporting and QIP

Medicare.gov | Dialysis Facility Compare

The Official U.S. Government Site for Medicare

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General information | Survey of patients' experiences | Quality of patient care

Quality of patient care

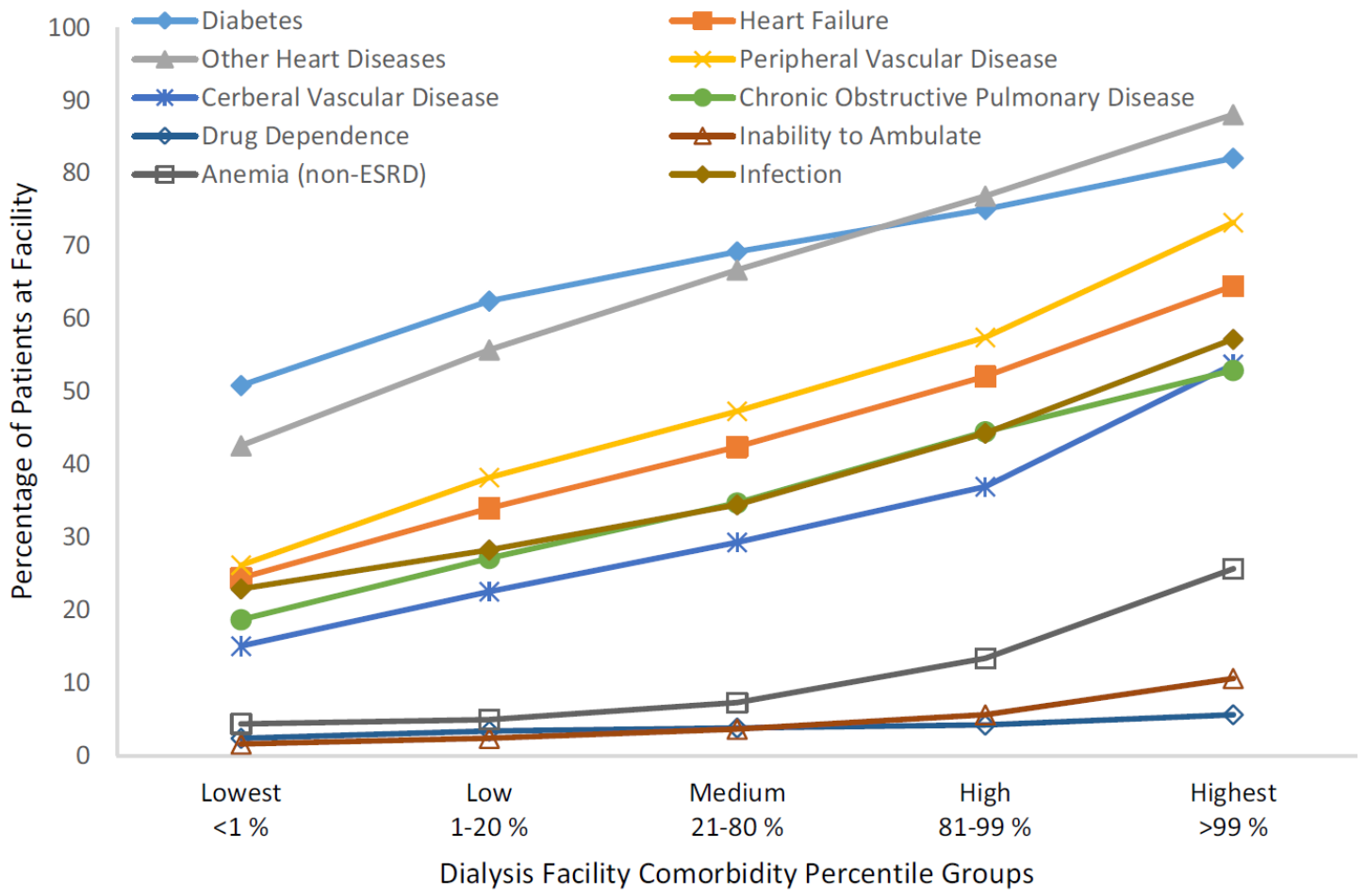
	MICHIGAN DIALYSIS SERVICES OF ANN ARBOR
Quality of patient care star rating	★★★★●

	MICHIGAN DIALYSIS SERVICES OF ANN ARBOR	MICHIGAN AVERAGE	NATIONAL AVERAGE
Adult patients who had a catheter (tube) left in a vein for at least 3 consecutive complete months, for their regular hemodialysis treatments ***Lower** percentages are better*	10%	11%	13%

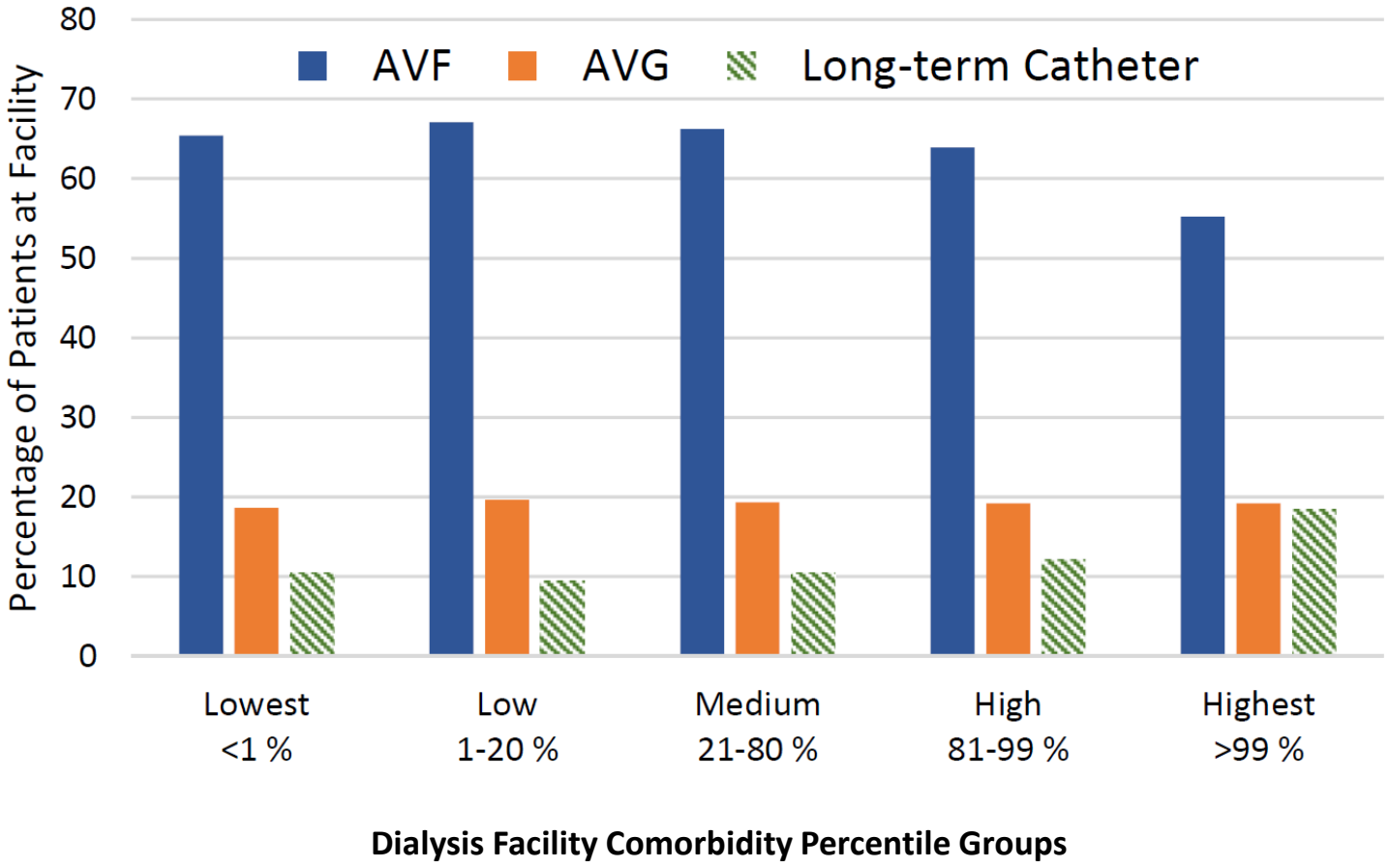
Arteriovenous Fistula (AVF) Use and Facility-level Comorbidity

- Question: Do facilities with “sicker” patients have lower AVF rates?
- Retrospective cohort study of Medicare patients on dialysis for > 1 year
- 5813 dialysis facilities; 315,919 patients; 12 months spanning 2014-2015
- Predictors: Facility-level burden of patient comorbid conditions; patient characteristics
- Outcomes: facility level use of AVF

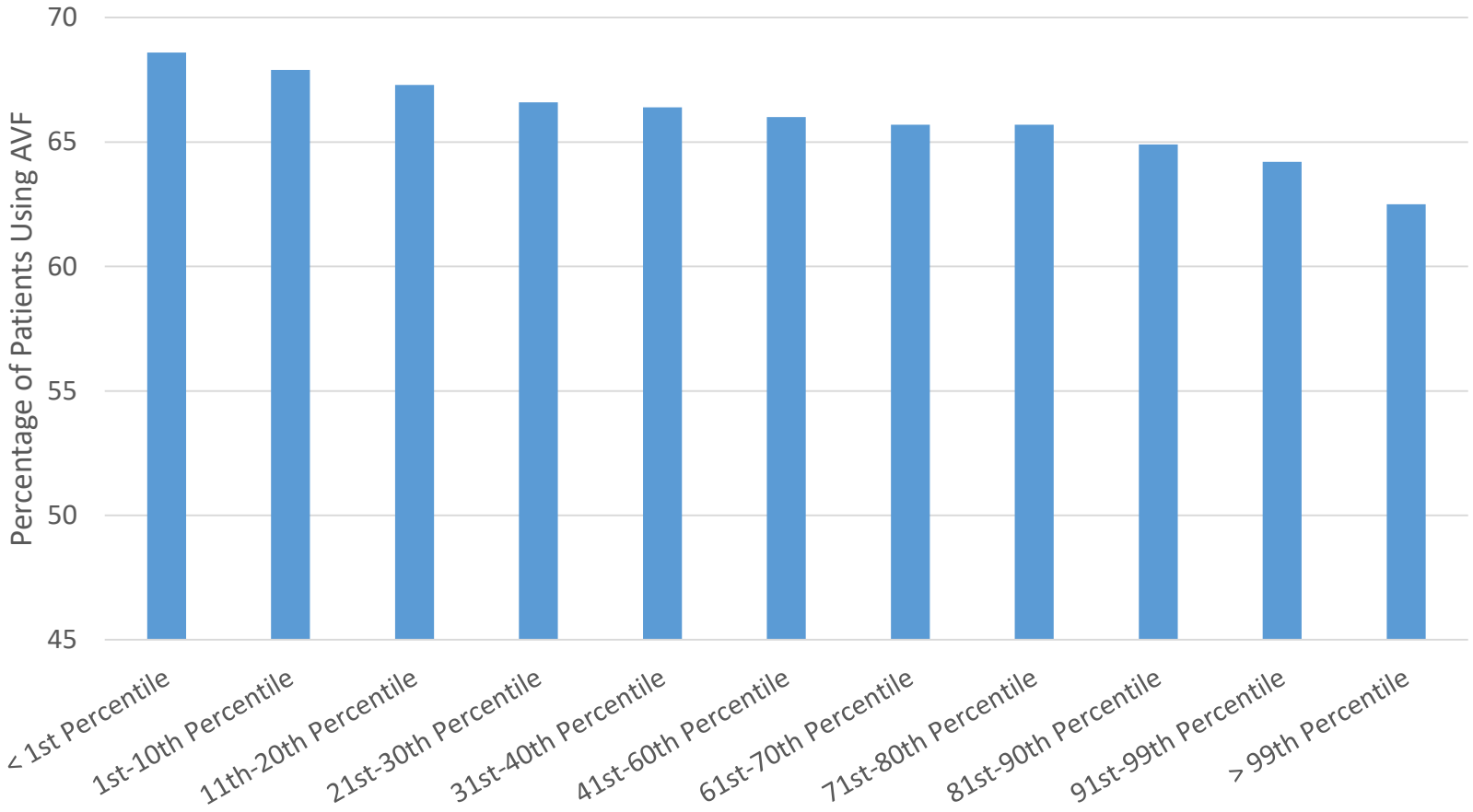
Percentage of Patient Comorbidity Across Dialysis Facilities



Vascular Access Distribution Across Dialysis Facilities



Facility Comorbidity Burden and Percentage of Patients using AVF



Take-Home Points: Facility-level Comorbidity

- Small differences in AVF use across facilities until very high or very low comorbidity rates are reached
  - For 70% of dialysis facilities in the United States variation in comorbidity levels accounts for <1% of the difference in fistula rates.

- Facility practice patterns likely account for the variation in AVF use at any given level of comorbidity

Root Causes: Long-term Catheter Use

On path to AVF/AVG, but catheter in > 90 days

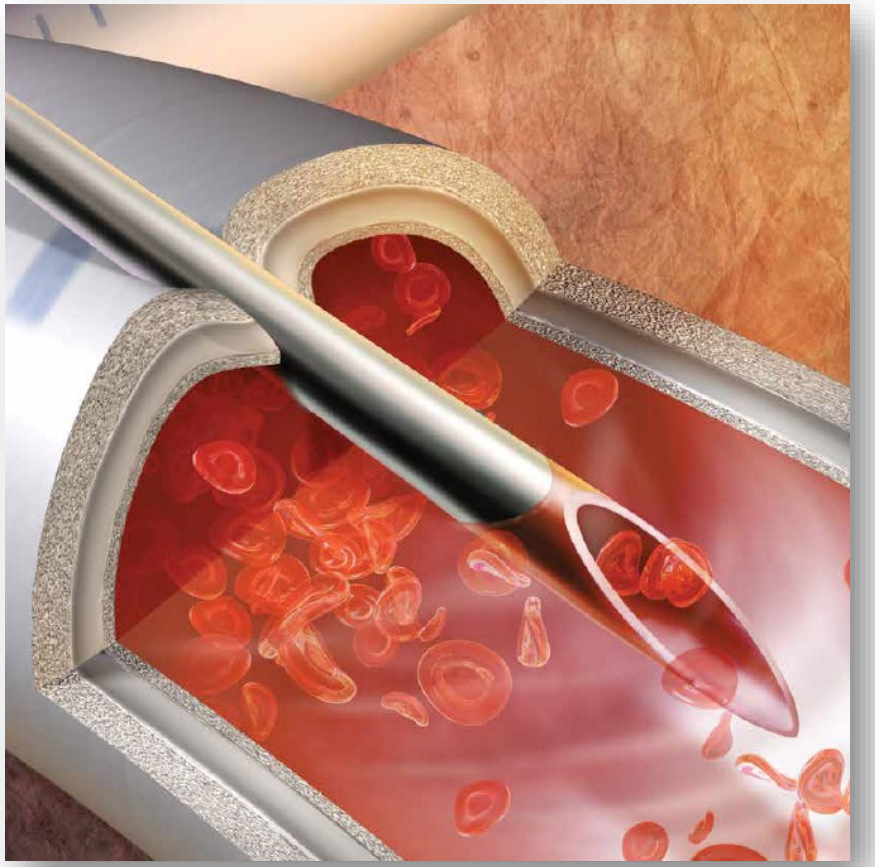
- Too many new catheters in new hemodialysis patients

Not on path to AVF/AVG

- Patient declines surgical access
- Comorbidities prevent creation of access
- Exhausted all vascular options

Don’t Put a Catheter in to Start

- Newer immediate use AVG options
  - Gore Accuseal
  - Atrium Flixene
- Consider for select patients where AVF success may be limited

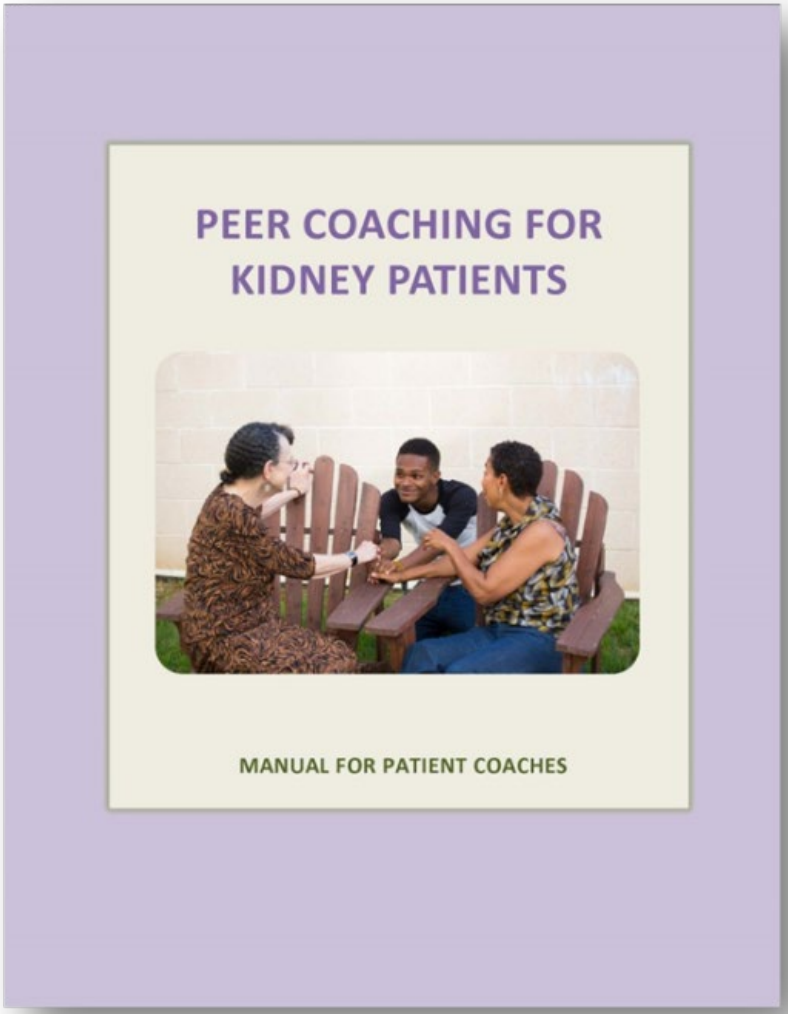


Urgent Start Peritoneal Dialysis (PD)

- Involves starting therapy < 2 weeks after PD catheter placement as an alternative to urgent HD with a catheter
  - Can be as soon as 48-72 hours after placement
- Low fill volumes (1000-1500 ml) in supine position using cycler
- Requires high degree of organization at program level

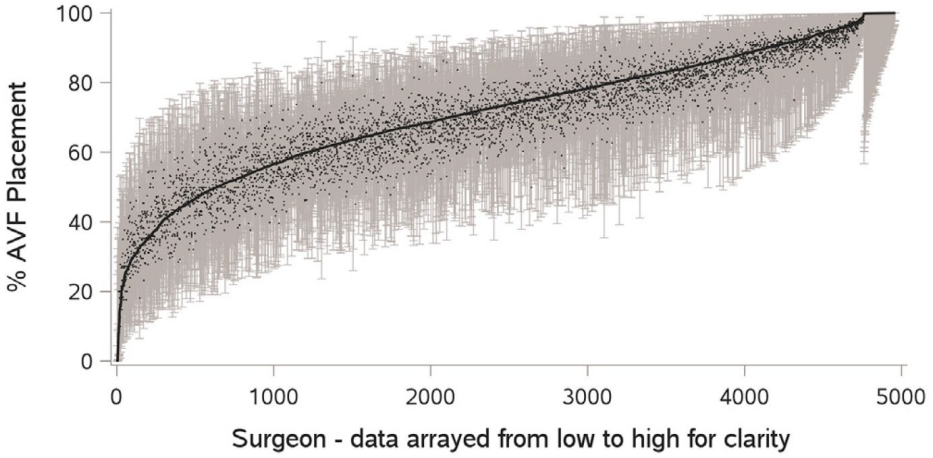
Peer Mentoring as a Strategy

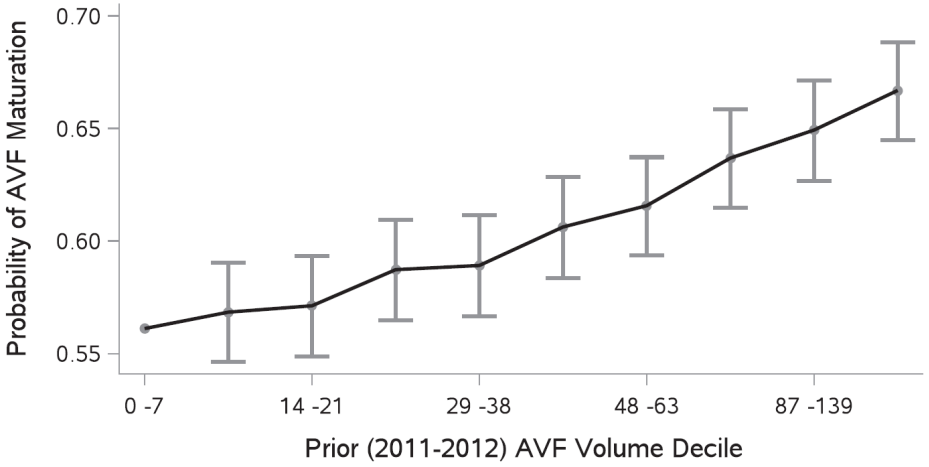
- Patient to patient communication
- Words from another patient are sometimes helpful



Surgeon Impact on Vascular Access

- Substantial variation in AVF placement by surgeon.
  - Median placement: 71%
- Greater prior volume of AVF placement assoc. with higher odds of AVF maturation
  - OR: 1.46 (highest v. low)
  - Median Maturation: 59%

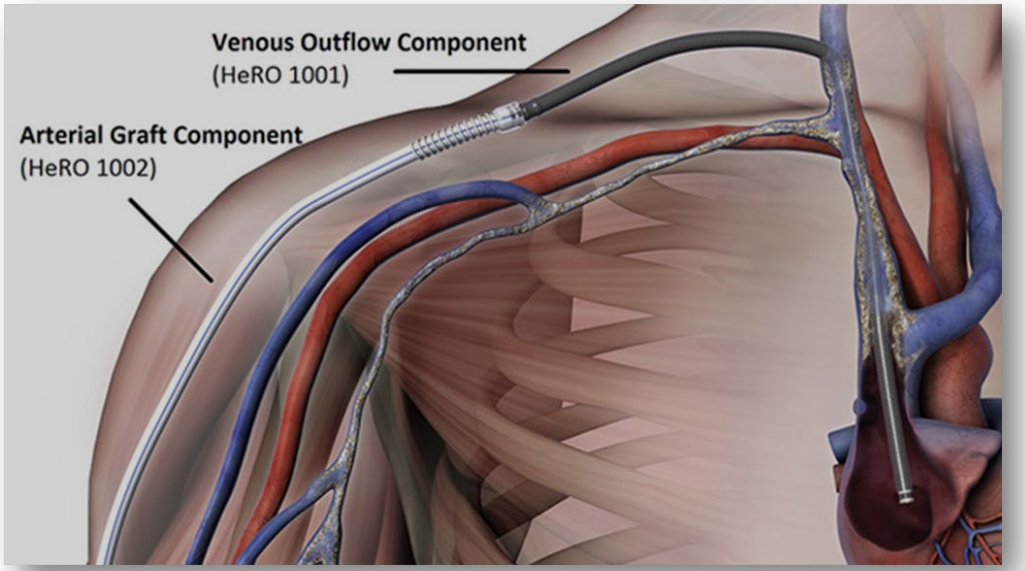


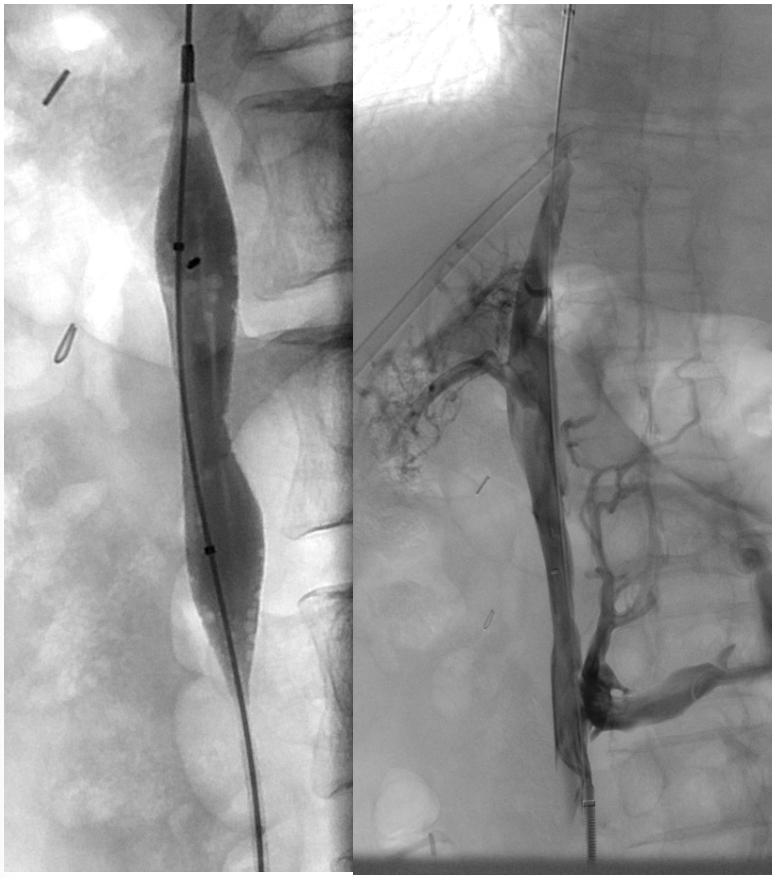


Shahinian et al Am J Kidney Dis. 75(2):158-166. 2019

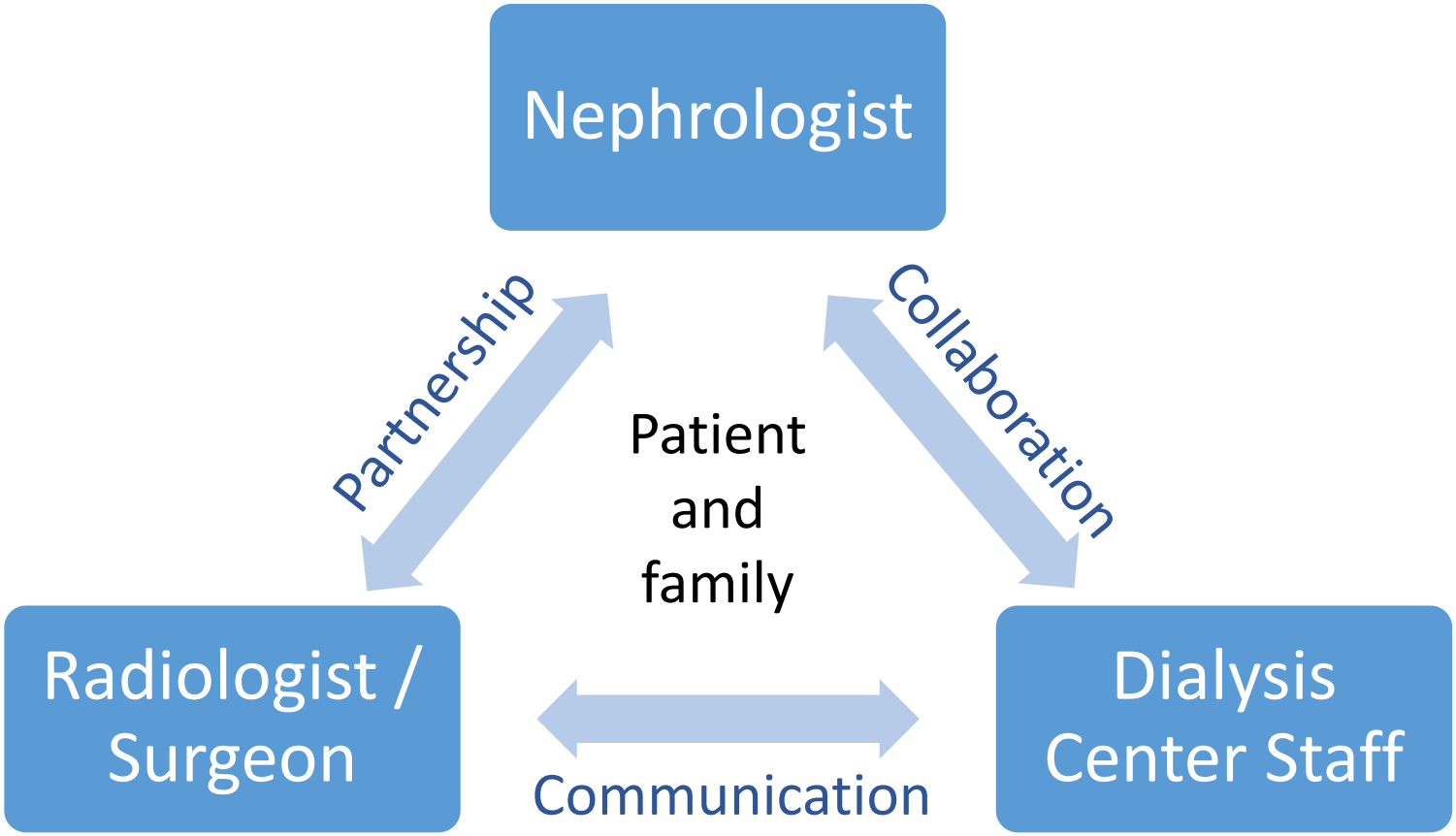
Exhausted Vascular Access?

- Consider HeRO device
- Requires coordination between IR / OR





Culture Change Takes a Team



Increasing Fistula Rates Improvement Project

Maria Regnier, RN, MSN, CNN

Sanford Health

SANFORD HEALTH TODAY

Serving 2.74 million people in 300 communities across 252,215 square miles in nine states and four countries.

- 44 medical centers
- $4.4 billion in annual revenue
- 291 clinics
- 48 senior living facilities
- 179,598 Sanford Health Plan Members
- 1,360 physicians, 921 advance practice providers and 6,348 registered nurses delivering care in more than 80 specialty areas
- 28,334 employees

17 Hemodialysis Centers
7 Home Dialysis Programs

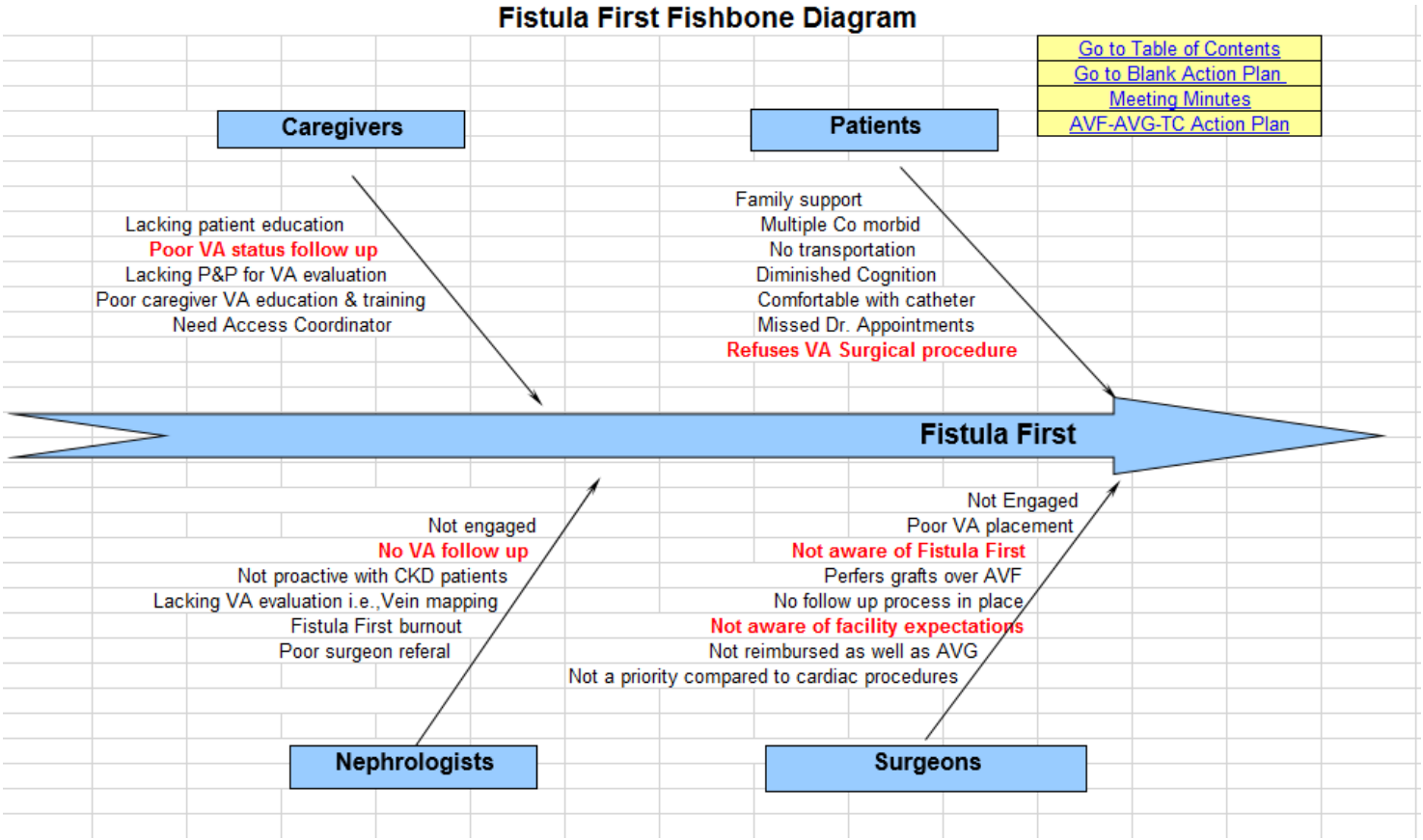
Each year, Sanford provides:

- 5.3 million outpatient and clinic visits
- 81,637 admissions
- 159,032 surgeries and procedures
- 9,465 births
- 214,236 emergency department visits

2015

	2015	2016
Percent of Patients with AVF	55	65
CMS Facility Goal	65	78
Percent of Patients with Cath >90 days	15.5	14
CMS Facility Goal	<10	<10
Catheter Related BSI per 100 Pt Months	3.078	4.02
CMS Facility Goal	<2.52	<2.52

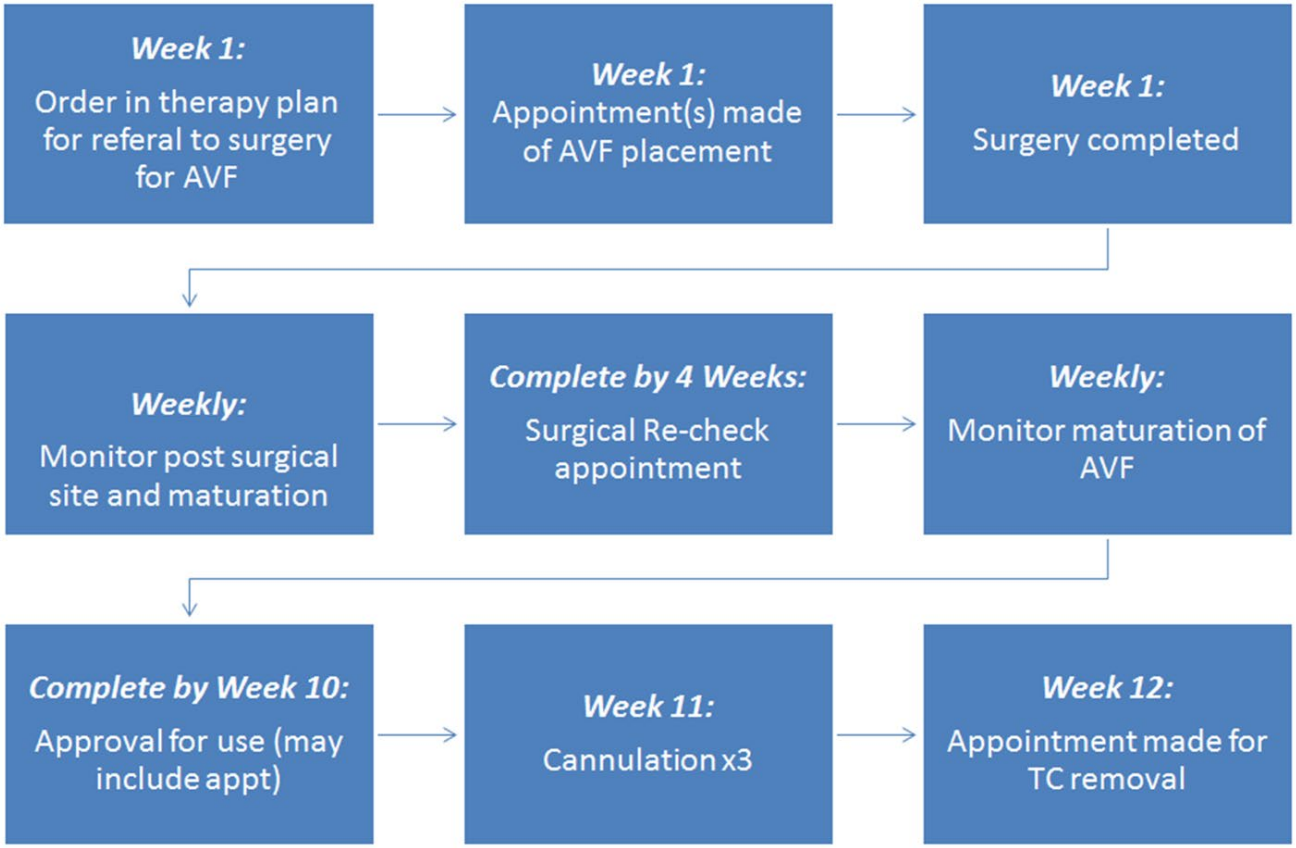
Root Cause Analysis



Met with Vascular Surgery Department

What are your expectations regarding dialysis access?

New Workflow



Three in One Appointment

+

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Tool for Dialysis Staff

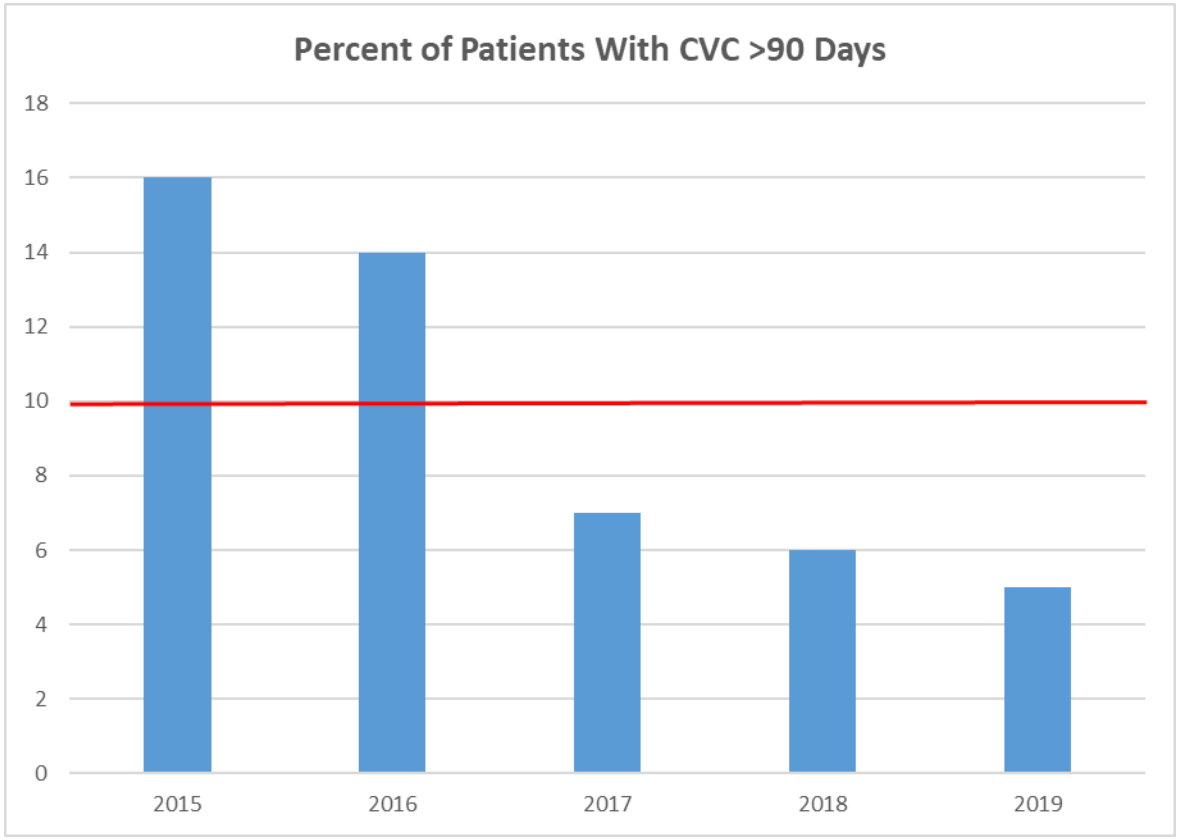
	WEEK 1					WEEK 11					WEEK 12
Patient Name	**Admit/Insertion Date**		**AVF placed by**	**Recheck Appt by**	**Recheck Appt by**	**Order to use**					TC Removed by
Patient #1	1/17/2017		1/24/2017	2/14/2017	3/28/2017	3/28/2017					**4/17/2017**
Surgeon	Referal Order in EPIC	Surg Appt Made	AVF Placed	Post Op Appt Made	Recheck Appt	Order received	Cannulate 1	Cannulate 2	Cannulate 3	Cannulate 4	Appt Made for TC out
Dr. Mistry	1/17/2017	1/18/2017	1/23/2017	1/23/2017	2/16/2017	3/27/2017	3/29/2017	3/31/2017	4/2/2017	4/5/2017	4/15/2017
# of days TC in place	0	1	6	6	30	69	71	73	75	78	88

	WEEK 1					WEEK 11					WEEK 12
Patient Name	**Admit/Insertion Date**		**AVF placed by**	**Recheck Appt by**	**Recheck Appt by**	**Order to use**					TC Removed by
Patient #2	2/1/2017		2/8/2017	3/1/2017	4/12/2017	2/17/2017					**5/2/2017**
Surgeon	Referal Order in EPIC	Surg Appt Made	AVF Placed	Post Op Appt Made	Recheck Appt	Order received	Cannulate 1	Cannulate 2	Cannulate 3	Cannulate 4	Appt Made for TC out
Dr. Reil	2/2/2017	2/2/2017	2/8/2017	2/8/2017							
# of days TC in place	1	1	7	7	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!

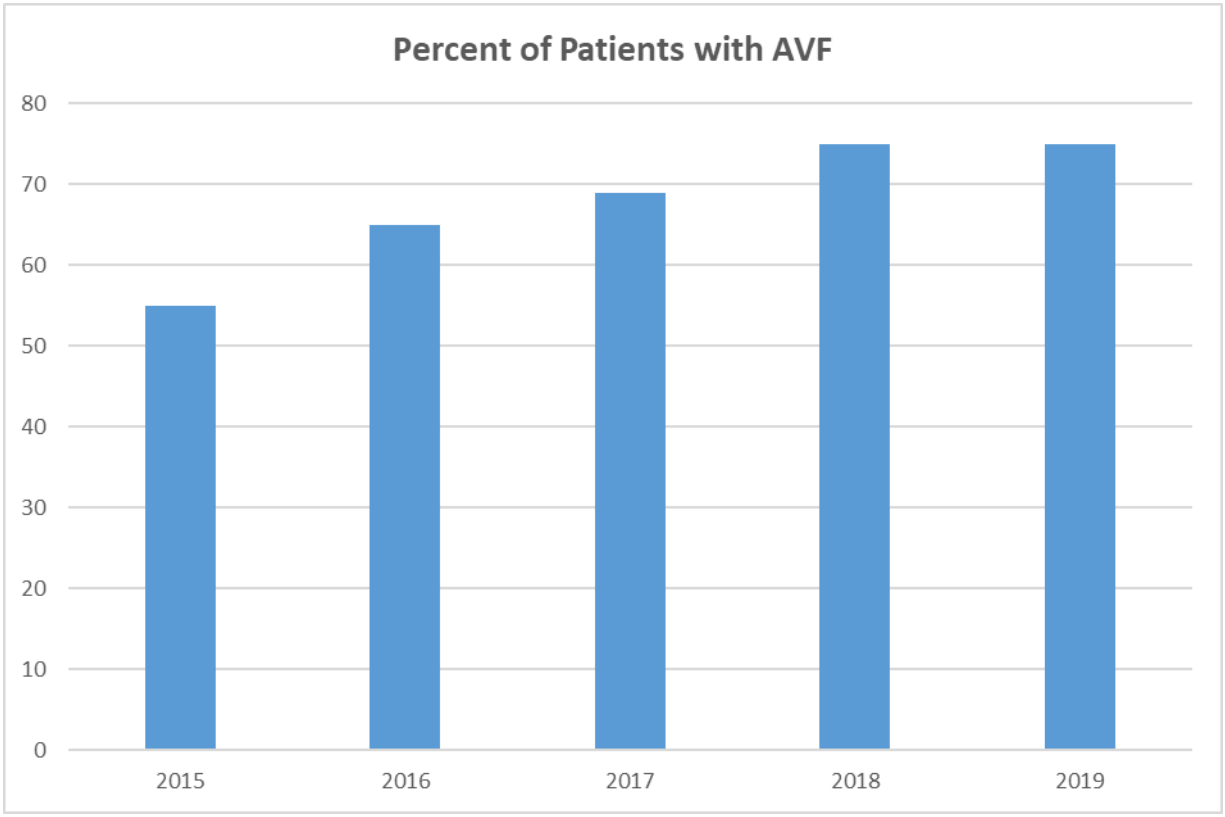
Other Components

- Weekly wildly importantly goal meeting
- Expert Cannulator Program
- Practice Policy Change: Cannulation of New Fistulas
- Vascular clinic outlier follow up
- Quarterly vascular access meeting over noon hour

Outcome: Catheter Reduction



Outcome: AVF


Percent of Patients with AVF
80
70
60
50
40
30
20
10
0
2015
2016
2017
2018
2019

Spreading the Practices

Percent of Patients with AVF				Goal: ≥65%	
		Q1	Q2	Q3	Q4
Fargo	Fargo	75%	75%	75%	75%
	Morris	80%	78%	73%	80%
	Detroit Lakes	73%	66%	66%	70%
	White Earth	71%	73%	70%	71%
	Thief River	57%	65%	65%	64%
Bemidji	Bemidji	69%	77%	77%	76%
	Red Lake	78%	84%	76%	70%
Bismarck	Jamestown	55%	57%	57%	59%
	Bismarck	71%	67%	72%	69%
	Fort Yates	84%	82%	82%	80%
Sioux Falls	Sioux Falls	57%	52%	52%	54%
	Chamberlain	61%	62%	57%	54%
	Madison	61%	17%	17%	34%
Network	Hospers	41%	52%	52%	51%
	Worthington	64%	61%	58%	51%
	Canby	67%	100%	100%	83%

Percent of Patients with Catheter >90 days					Goal: <10%
		Q1	Q2	Q3	Q4
Fargo	Fargo	4%	6%	6%	5%
	Morris	4%	7%	0%	8%
	Detroit Lakes	10%	4%	4%	8%
	White Earth	7%	0%	0%	0%
	Thief River	27%	10%	10%	17%
Bemidji	Bemidji	6%	10%	10%	6%
	Red Lake	15%	8%	16%	8%
Bismarck	Jamestown	7%	13%	13%	9%
	Bismarck	7%	6%	7%	9%
	Fort Yates	2%	7%	7%	5%
Sioux Falls	Sioux Falls	23%	21%	21%	21%
	Chamberlain	25%	13%	18%	15%
	Madison	30%	59%	59%	47%
Network	Hospers	27%	19%	19%	23%
	Worthington	11%	12%	14%	16%
	Canby	13%	0%	0%	9%

Questions & Discussion