

Improving Transitions of Care for Inpatients with an eGFR < 20ml/min

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Background

- Chronic kidney disease (CKD) has an incidence of 16.8% among adults in the United States.¹ CKD is an independent risk factor for death from cardiovascular disease.²
- Studies have demonstrated that a lack of dialysis education, CKD care, compliance with office visits and the lack of insurance are factors associated with the initiation of HD with a catheter vs. an AVF/AVG.³
- In this study we conducted an analysis of 22 inpatients with an eGFR<20 that revealed there was a greater prevalence of patients without permanent AV access for HD initiation when compared to national data. These findings demonstrated the need for improved transitions of care and timely creation of AV access for this patient population, thus we sought to improve this. This is the first inpatient initiative that our group is aware with the aim of improving timely AV access and transitions of care for an inpatient population (Figure 1).

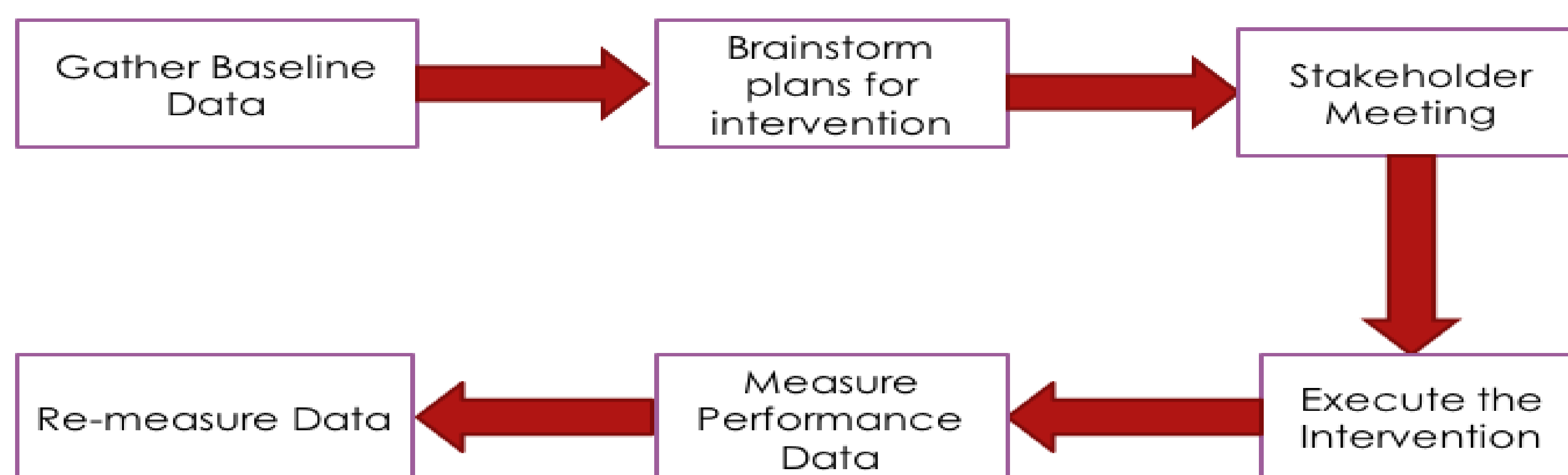


Figure 1. Plan, Do, Study, Act Methodology (PDSA)

Methods

- The project was conducted over a three month period (October 23, 2017-January 23, 2018) on five general medicine teaching services and the transplant nephrology service. The residents were given laminated cards which provided instructions on how to order venous mapping, limb alert nursing instructions and consult nephrology and vascular surgery. The vascular team established care and scheduled outpatient appointments for permanent HD access at a later date. The nephrology fellows scheduled follow up appointments and conducted post-discharge physician phone calls to improve patient compliance.
- Baseline data was collected from two groups of patients: patients seen by the renal consult service with an eGFR less than 20 m/min who were discharged without initiation of HD as well as patients readmitted with an eGFR less than 20 mL/min from April 2017 to June 2017. This data was then compared to the data collected during the study period.

Results

- The study population had a greater rate of AVF/AVG present at 62% compared to the baseline data at 23%. (Table 1 and Figure 2). The transitions of care metrics successfully improved patient compliance and did not significantly alter the length of stay (figure 2-6).

Renal Transitions of Care Category	Baseline Data (%) N= 22	Study Population (%) N=27
AVF/AVG Present	23%	62%
AVF/AVG Absent	77%	38%
Average Length of Stay	8.31 days	8.4 days

Table 1. Primary Outcome: Vascular Access Rate

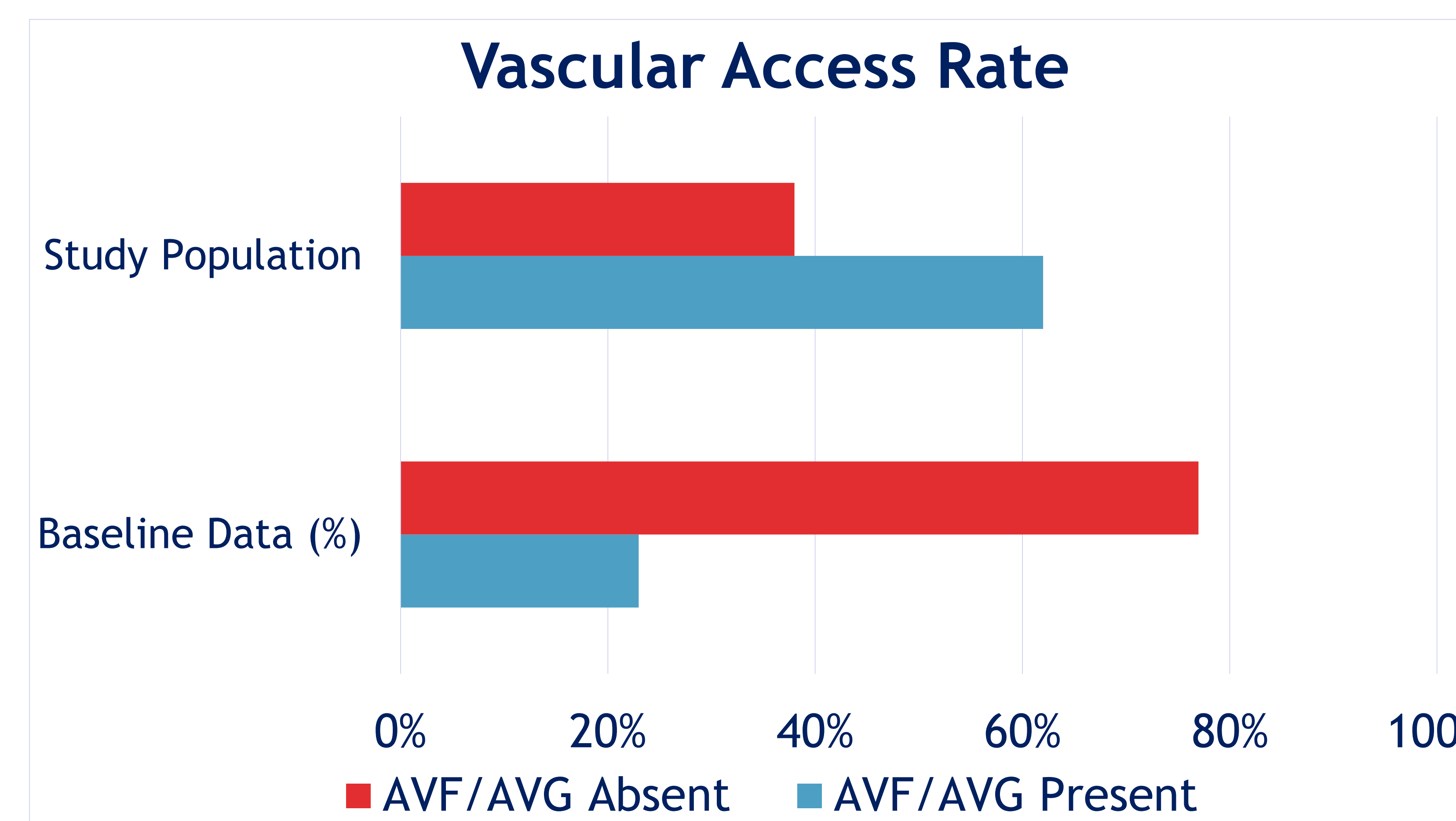


Figure 2. Primary Outcome: Vascular Access Rate

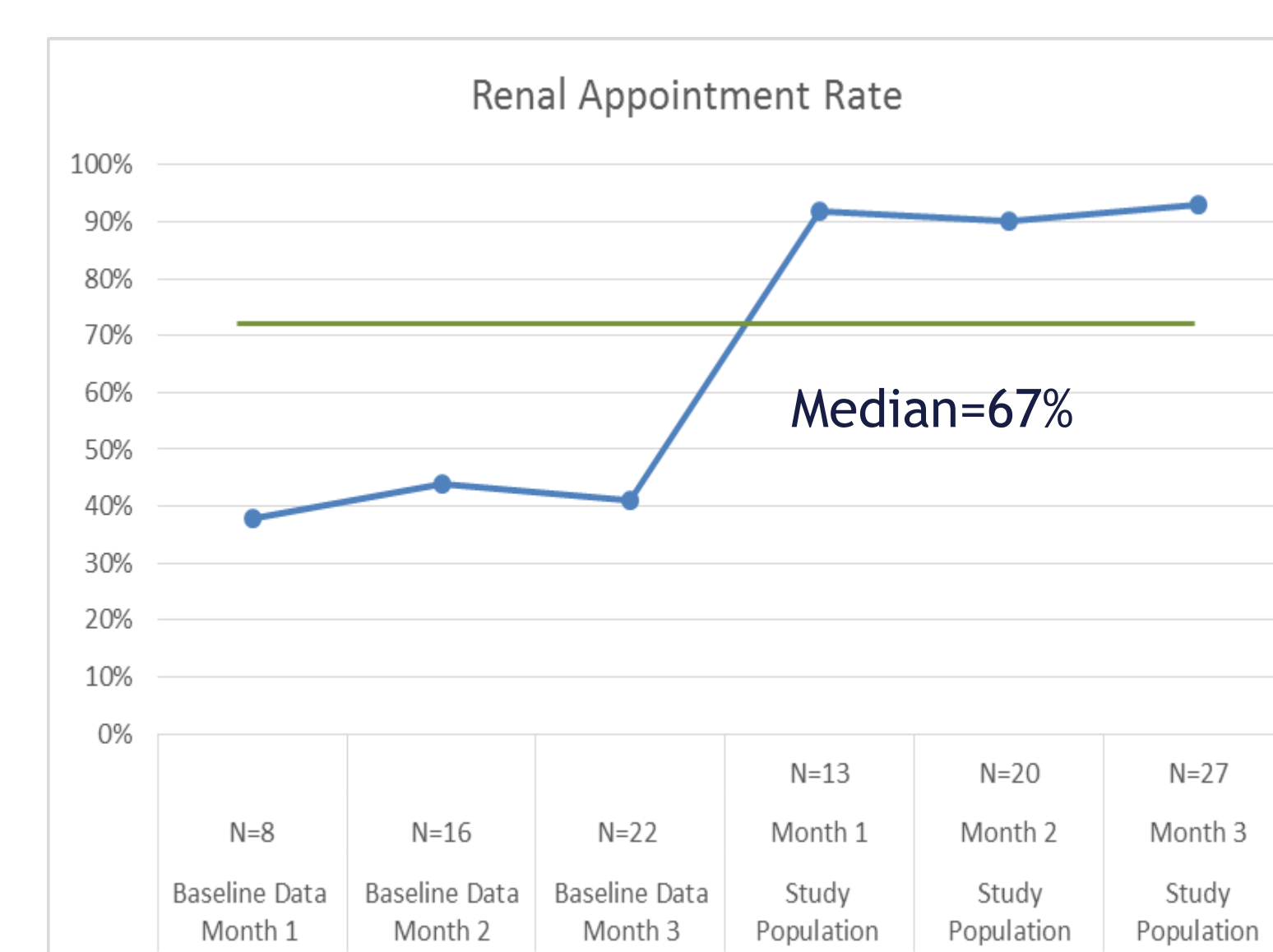


Figure 3. Renal Appointment Rate

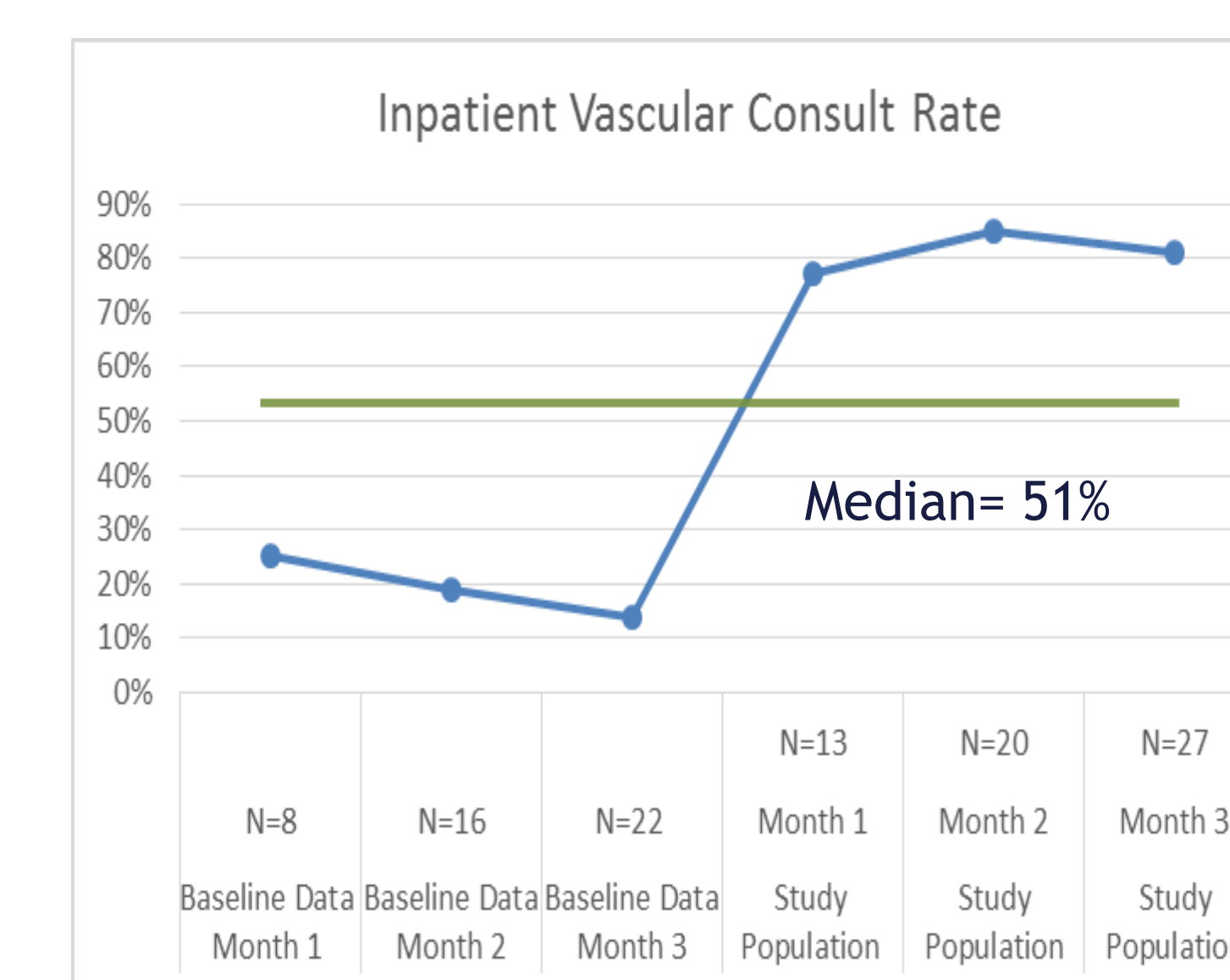


Figure 4. Vascular Consult Rate

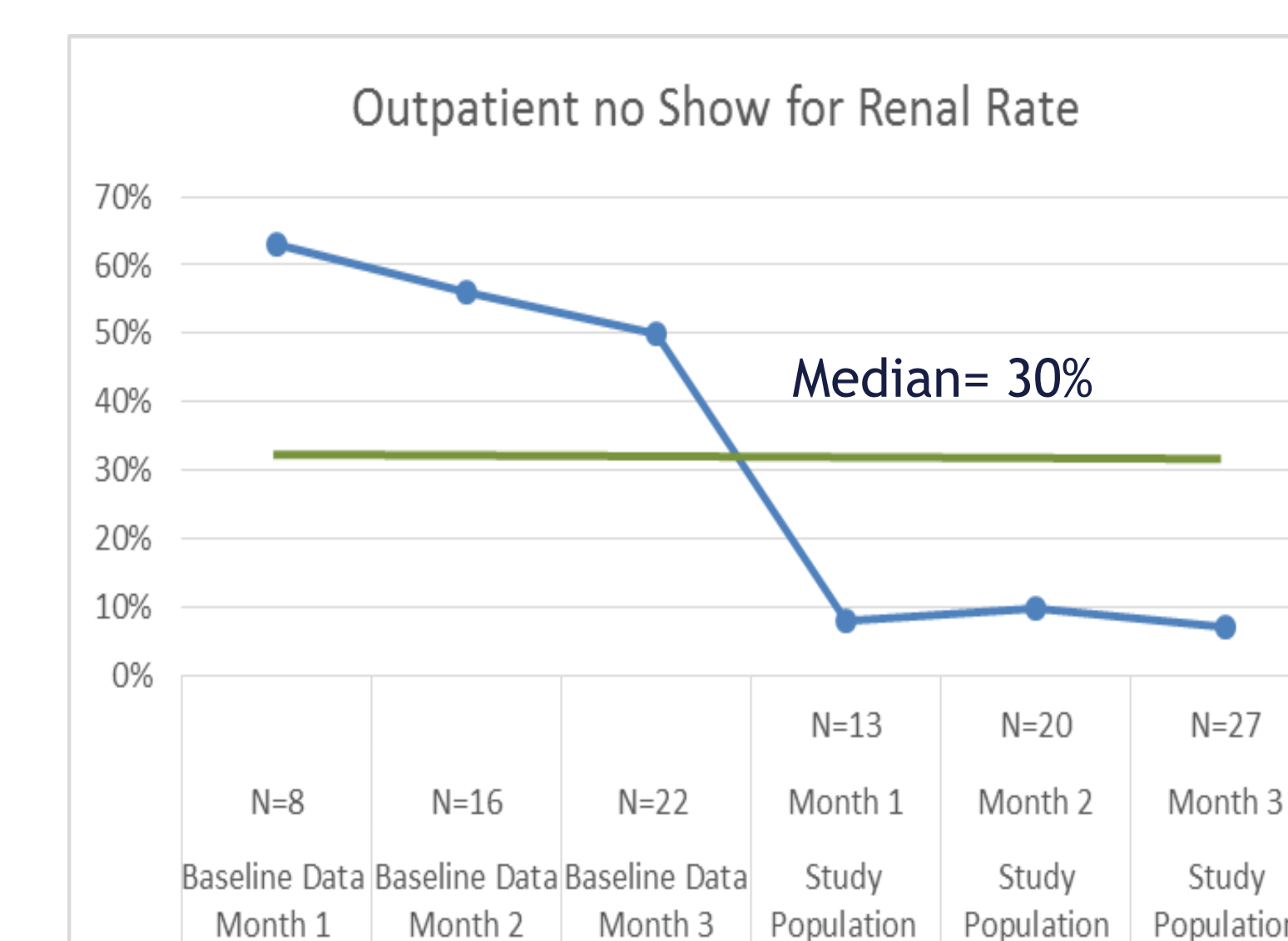


Figure 5. No Show Rate for Renal

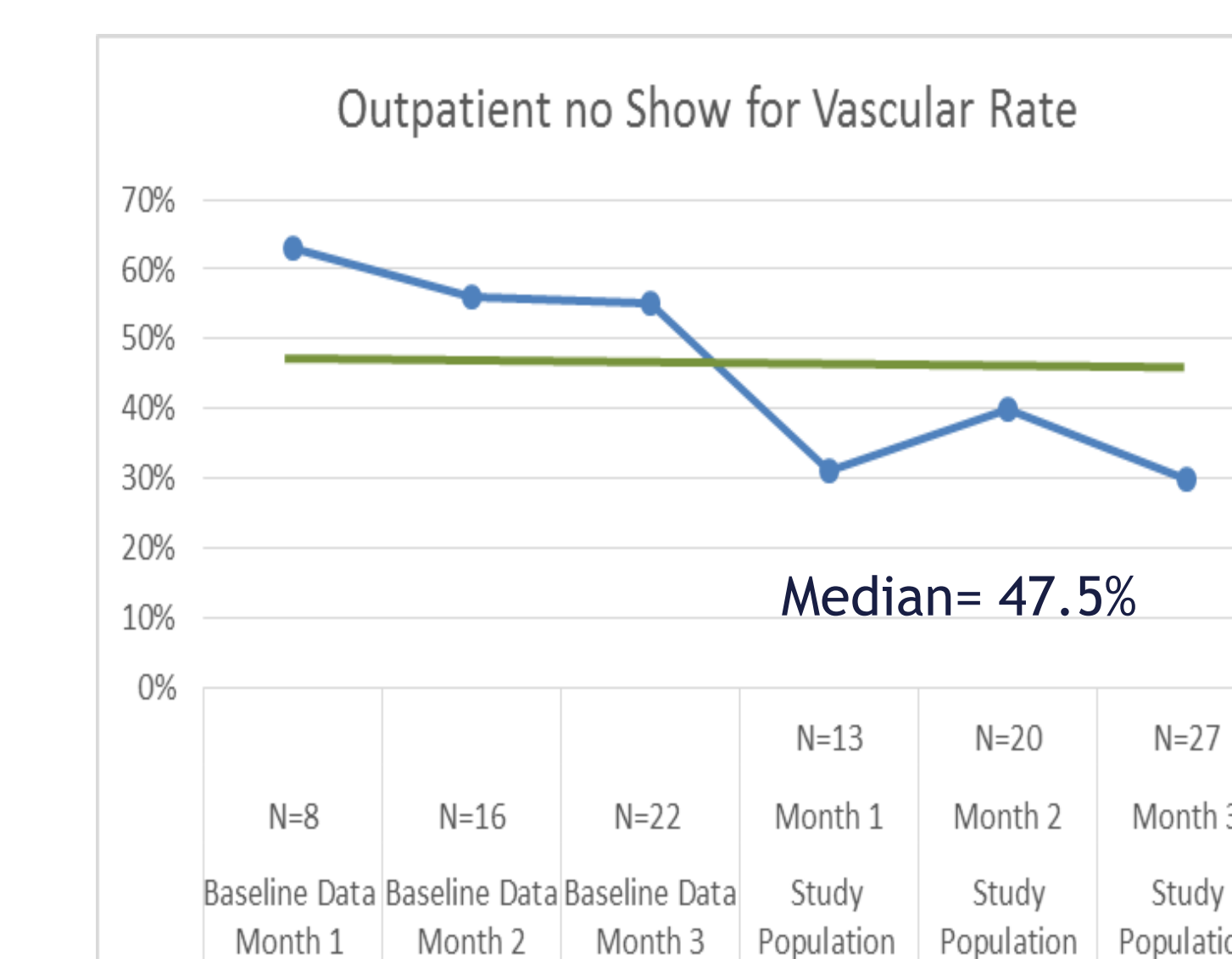


Figure 6. No Show Rate for Vascular

Driving Change Competition Financial Utilization:

If selected, we intend to use the \$2000 from the driving change competition in the following manner:

- \$100 to support system-wide awareness campaign (e.g. creation of posters, laminated cards, lectures etc.) during the early intervention period.
- \$1900 as support and payment to nurses, nurse practitioners, residents and fellows to conduct provider post-discharge phone calls and research efforts regarding transitions of care metrics.

Discussion

- Based on our primary outcome, we conducted a very successful QI intervention in a limited short-term pilot project. The post-discharge physician phone calls resulted in a higher follow-up rate, better patient compliance and overall more timely AV access rate without adversely affecting length of stay.
- The transitions of care metrics (which contributed to the primary outcome) were also successful.
- Since hospitalizations can be stressful times, making decisions regarding long term care can be difficult for patients (patients were reluctant to make decisions on AVF/AVG surgery while in the hospital). However, follow-up patient outreach phone calls from a physician allowed care teams to speak to patients shortly after their hospitalizations during a time when they were more receptive and motivated to make these decisions.
- Study Limitations:**
 - The time-intensive nature of care coordination including patient selection and post discharge physician phone calls.
 - The structure of patient capture which relied on extensive chart review.
 - Lack of a transitions of care coordinator.
 - Possibility of increased patient length of stay, which may result in increased cost per patient hospitalization.

System Wide CKD Intervention

- Based on the success of this QI project, we intend to adopt the following protocol system wide:
 - System wide use of EMR based CKD order set for all TJUH/JHN admitting services to streamline the ordering process and enhance CKD care (Venous mapping, Limb alert, nephrology and vascular surgery consults) for all patients with an eGFR<20 (already created).
 - Utilization of an EMR-based report list of patients both in the hospital and discharged within the last 72 hours found to have an eGFR<20. This will allow our team to conduct post discharge physician phone calls to facilitate follow-up and improve patient compliance (already created).
 - Mandatory attending staffing of vascular surgery and nephrology consults within 24 hours for patients with an eGFR<20 at TJUH/JHN.
 - CKD awareness campaign for admitting services via lectures, posters, laminated cards, etc.

References

- Prevalence of Chronic Kidney Disease and Associated Risk Factors United States, 1999-2004. 2007.
- Fox CS, Matsushita K, Woodward M, et al. Associations of kidney disease measures with mortality and end-stage renal disease in individuals with and without diabetes: a meta-analysis. Lancet 2012;380:1662-73.
- Wish JB. Vascular access for dialysis in the United States: progress, hurdles, controversies, and the future. Semin Dial. 2010;23(6):614-8.