

PRESERVING VASCULATURE IN CHILDREN WITH CKD AND ESKD

Preparing Patients for a Lifetime of Nephrology Care

Decades ago, the main focus of pediatric nephrology care was keeping children alive. Today, children with chronic kidney disease (CKD) and end-stage kidney disease (ESKD) are living into adulthood. Due to the intense nature of their care, however, the veins they have available for surgically creating a fistula (blood access) in those patients who require hemodialysis in adulthood can be limited or even absent. This can have a substantial impact on long-term morbidity and mortality.

To address this potentially life-threatening situation, Bradley Warady, MD, Nephrology Division Director at Children's Mercy Kansas City, partnered with Nisha Singh, MD, Nephrology Fellow, JoLynn Grimes RN, BSN, CNN, Nephrology Education Coordinator, and care providers from a variety of disciplines to design and implement a unique quality improvement initiative called Save the Vein. Now a year old, the program is aiming to improve patients' prospects for a longer life expectancy through vein preservation.

LONG-TERM CHALLENGES CREATE INSPIRATION FOR THE PROGRAM

Save the Vein was inspired by Dr. Warady's recognition of the long-term challenges faced by pediatric patients with CKD and ESKD. In the course of a lifetime, a child with ESKD will require more than one kidney transplant with intervening periods of dialysis. These chronically ill patients also experience a frequent need for IVs and central lines during

repeated hospitalizations. These line placements can cause vascular damage and potentially eliminate the possibility of a future hemodialysis fistula in the involved extremity.



A year after implementation, the Save the Vein program shows that nearly 95% of IVs are being placed in the appropriate arm.

DESIGNING THE LOGISTICS

Before implementing Save the Vein and the associated staff education, a six-month retrospective review of IV placement in Children's Mercy nephrology patients with advanced CKD/ESKD was conducted. To nobody's surprise, the review revealed that IVs were placed in the dominant (preferred) arm only about half the time, providing an opportunity to educate the staff, in addition to patients and their parents, on the importance of preferentially placing IVs in the patient's dominant arm, saving the nondominant arm for future access.

Upon completion of the retrospective review, Grimes and the multidisciplinary team initiated the education of staff, patients and parents regarding

DESIGNING THE LOGISTICS

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the background and content of Save the Vein. The team members included representatives from areas within the hospital who regularly care for CKD/ESKD patients, including Nephrology, PICU, Interventional Radiology, Sedation, Vascular Access, Surgery, Emergency Department, and the inpatient renal floor. The team subsequently developed workflow and processes for Save the Vein implementation.

HOW IT WORKS

Considering its long-term importance, the program itself has been deceptively simple to carry out, once the necessary education was completed. When CKD or ESKD patients arrive at the Nephrology Clinic at Children's Mercy for a blood draw or IV placement, nurses check each patient's electronic medical record for a critical information note, which alerts the health care provider of the patient's Save the Vein status and identifies the patient's dominant arm to preferentially access. Patients who are admitted to the hospital are also given a bright pink Save the Vein armband that highlights which arm and associated vasculature are ideally to be preserved. Patients and families also have been educated, in order for them to advocate for themselves or their child.

ONE YEAR LATER

Now that the program has been operational for a full year, a review of compliance data shows that nearly 95% of IVs are being placed in the appropriate arm in this CKD/ESKD cohort – a significant improvement over the original 50%. To expand the reach of Save the

Vein, the team is creating wallet cards regarding vein preservation to be used by patients if they present to outside medical institutions. The results of the entire Save the Vein initiative will be presented at the Annual Dialysis Conference in February 2020 and will soon be submitted for publication.

WHAT'S NEXT?

To date, Save the Vein has focused on vein preservation associated with peripheral IV placement. Dr. Warady is now working closely with Children's Mercy interventional radiologists on the implementation of treatment algorithms designed to minimize the use of PICC lines and central venous catheters to further improve the potential for future dialysis access.

Finally, vein preservation is an important issue for children with other chronic disorders as well, such as those with chronic GI issues or cancer. The lessons learned from Save the Vein will eventually be incorporated into the care of children by other specialties at Children's Mercy.

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LEARN MORE ABOUT SAVE THE VEIN AND NEPHROLOGY CARE

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