

# Vein Preservation in Patients with Chronic Kidney Disease



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# Outline

1. Why is vein preservation SO important in patients with chronic kidney disease?
2. What can be done to preserve veins in these patient?

# Why is vein preservation SO important?

- Patients with chronic kidney disease (CKD) may be on hemodialysis (HD) or may need HD in the future.
- The best way for administering HD is through a fistula (1<sup>st</sup> choice) or graft (2<sup>nd</sup> choice). A fistula or graft has a much lower rate of complications than a catheter.
- Creation of a successful fistula is dependent on having patent peripheral arm veins and a healthy venous circuit back to the heart.
- Venipuncture, peripheral IVs or PICC lines can damage veins and jeopardize future fistula construction or function.
- Preservation of arm and central veins needs to start before the patient needs an access. If already on HD, need to preserve all remaining veins.

*A fistula is a CKD patient's lifeline!*



Don't worry, I'll find a good site soon.

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# Fistula/Graft: the Lifeline!



Fistula



Graft

# Vein preservation: Provincial guideline

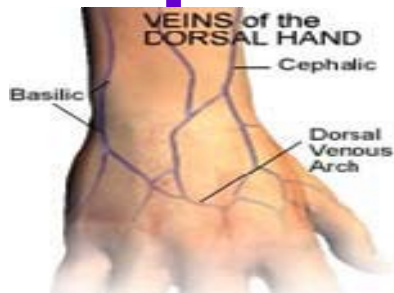
- Led by BC Provincial Renal Agency.
- Input provided by vascular access (renal) nurses and doctors and IV therapists from across BC.
- Available on the BCPRA website at [www.bcrenalagency.ca](http://www.bcrenalagency.ca).
- All centres are encouraged to implement the guideline.

# Vein preservation: Target group

Patients with known stage 4 or 5 (eGFR<30) CKD, including patients currently on dialysis (HD or PD) or with a functional kidney transplant.

Stage	Description	eGFR (mL/min/1.73 m <sup>2</sup> )
1	“Normal” renal function	≥90
2	“Mild” renal dysfunction	60-89
3	“Moderate” renal dysfunction	30-59
4	“Severe” renal dysfunction	15-29
5	“End-Stage” renal disease	<15

# Vein preservation: Peripheral venous access



## 1<sup>st</sup> choice:

- If access in place, dorsal veins of the hand of the arm without the access
- If no access in place, dorsal veins of the dominant hand (to save non-dominant hand in case fistula/graft needed)

## 2<sup>nd</sup> choice:

- If access in place, dorsal veins of the hand of the arm with the access
- If no access in place, dorsal veins of the non-dominant hand



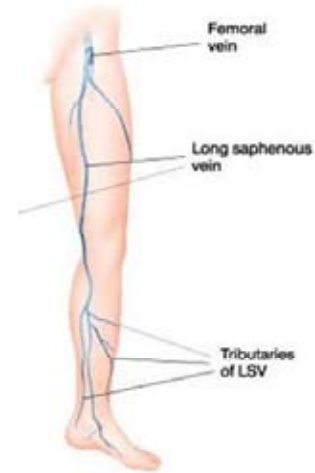
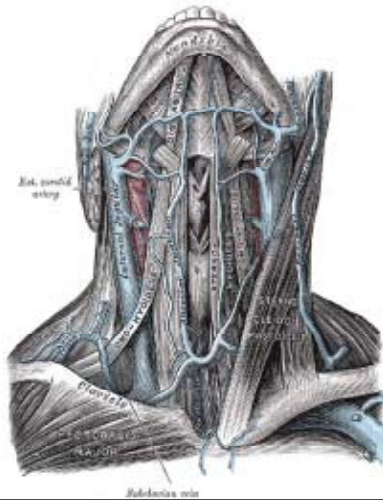
## 3<sup>rd</sup> choice:

- If access in place, forearm veins of the arm without the access
- If no access in place, forearm veins of the dominant arm (to save non-dominant arm in case fistula/graft needed)

## Last resort:

- If access is in place, forearm veins of the arm with the access
- If no access in place, forearm veins of the non-dominant arm

# Vein preservation: Central venous access



**1<sup>st</sup> choice:** Internal jugular veins  
**2<sup>nd</sup> choice:** External jugular veins

**3<sup>rd</sup> choice:** Femoral veins

*Try to avoid the use of the peripherally inserted central catheters (PICC).*

*Try to avoid the use of the subclavian veins for central venous access in order to reduce the chance of central vein stenosis.*

# Vein preservation: “Dos” and “don’ts”

*If patient has a working HD access (fistula or graft)*

## DO:

- Use the dorsum of the hand of the non-access arm for venipuncture & IV infusions. Use as small a needle as possible (general rule: 22 gauge or smaller).
- Rotate venipuncture sites.
- Draw labs at the time of hemodialysis when possible.
- If a patient requires an indwelling catheter for home antibiotics or other medications, insert a small bore (<8 french), tunneled internal jugular line and try to avoid PICC lines.

## DO NOT:

- Use the limb with the fistula or graft for blood pressure readings (use the other arm or a thigh or ankle cuff).
- Use the access limb for venipuncture or an IV infusion or arterial line.
- Use the access for diagnostic studies or treatments.
- Use the cephalic veins of either arm for blood draws or IV infusions.
- Place a subclavian catheter, unless as a last resort.
- Place a PICC line, unless unable to obtain a tunneled small bore (<8 french) CVC.

# Vein preservation: “Dos” and “don’ts”

*If patient has stage 4 or 5 CKD (eGFR<30), whether or not on dialysis:*

## DO:

- Use the dorsum of the hand for venipuncture & IV infusions. Use as small a needle as possible (general rule: 22 gauge or smaller).
- Rotate venipuncture sites.
- Use a manual blood pressure device (less pressure on arm).
- If patient requires an indwelling catheter for home antibiotics or other medications, insert a small bore (<8 french), tunneled internal jugular line and avoid PICC lines.

## DO NOT:

- Use the cephalic veins of either arm for blood draws or IV infusions.
- Place a subclavian catheter, unless as a last resort.
- Place a PICC line, unless unable to obtain a tunneled small bore (<8 french) CVC.

# Vein preservation: Flagging” patients in target group

- Wallet card summarizing the “dos and don’ts”
- Poster at the patient’s bedside
- Stamp lab requisitions or enter with lab orders in computer “RENAL PATIENT: Try to use hand veins for venipuncture”.
- Suggest patient wear a medical alert bracelet which says “RENAL PATIENT: Try to use hand veins for venipuncture”.
- If computer system allows, flag patients in hospital/office computer

# Wallet card


## Front of card

**I am a renal patient. Important info about my veins**

**NO** IVs or blood draws on my **RIGHT / LEFT** arm.  
If IV or blood draw is required, use my **hand veins** or my other arm.

**NO** BPs on my fistula or graft arm (if fistula or graft in place).

If a long-term central line is required, use tunneled internal jugular line.  
Use PICC line as last resort.



BC Renal Agency

## Back of card

Contact information label

**Health Authority Renal Programs**  
Fraser Health · Interior Health · Northern Health · Vancouver Island Health · Vancouver Coastal Health/Providence Health Care · BC Children's Provincial Renal Program

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# Important Info About My Veins



## For Patients with a Fistula or Graft for Dialysis

- Use the veins on either of my hands or my \_\_\_\_\_ (non-fistula/graft) arm for IVs or blood draws
- No needle punctures in my forearm or the inside of the elbow of my arm with the fistula/graft
- No BPs on my arm with fistula/graft
- If long-term central line is required, use tunneled internal jugular vein. Use PICC lines as last resort



## For Blood Work and/or IVs

**1<sup>st</sup>**  
**CHOICE** Veins on the backs of either of my hands

**2<sup>nd</sup>**  
**CHOICE** Forearm veins in my dominant arm (if fistula/graft in place, use non-fistula/graft arm)

**3<sup>rd</sup>**  
**CHOICE** Veins in the inside of the elbow of my dominant arm (if fistula/graft in place, use non-fistula/graft arm)

\* Use as small a needle as possible (general rule: 22 gauge or smaller)

# Questions?

