

**12<sup>TH</sup> CONGRESS OF THE VASCULAR  
ACCESS SOCIETY**

**VIRTUAL CONGRESS**

April 6–9, 2021



**Parc Taulí Sabadell**  
Hospital Universitari  
Hospital de Sabadell



# **Nursing role in the vascular access team through doppler ultrasound**

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**Conflict of interest: none**

## Vascular Access (VA)

- ❑ Haemodialysis session is impossible without VA
- ❑ VA with long patency and low complications
- ❑ VA complications are the main cause of hospital admission in HD patients

## Types of VA

- ❑ Central venous catheter
- ❑ Native AVF, prosthetic AVF
- ❑ Tunneled catheter graft device (HERO)
- ❑ “Exotic” vascular access



## Arteriovenous fistula (AVF)

- ❑ Higher survival
- ❑ Lower morbidity
- ❑ Lower cost
- ❑ Better quality of life



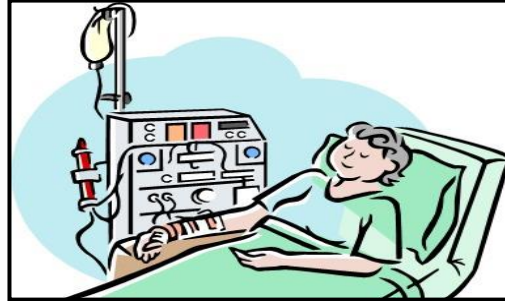
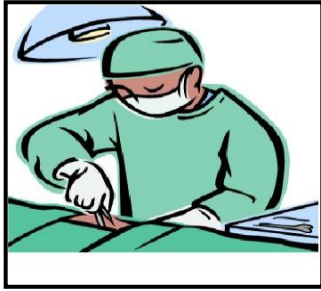
Don't worry, I'll find a good site soon.

# Vascular Access care

## Nursing role:

- Management of the process before, during and after cannulation
- Continuous education of nurses and patients
- Adequate planning
- Early identification or prevention of VA complications

# Multidisciplinary team



# We can find more and more evidence in the literature of coordination of the care team

*Kidney International, Vol. 53 (1998), pp. 473–479*

Published in final edited form as:

*J Surg Res.* 2015 November ; 199(1): 259–265. doi:10.1016/j.jss.2015.04.088.

Kidney Res Clin Pract 34 (2015) 125–131



## Kidney Research and Clinical Practice

journal homepage: <http://www.krcp-ksn.com>  
Contents lists available at ScienceDirect



Review Article

### Role of interventional nephrology in the multidisciplinary approach to hemodialysis vascular access care

Gerald A. Beathard\*

University of Texas Medical Branch and Lifeline Vascular Access, Houston, Texas, USA







## *Prospective follow-up of vascular access in hemodialysis by a multidisciplinary team*

E. Gruss, J. Portolés, P. Jiménez, T. Hernández, J. A. Rueda, J. del Cerro, M. Lasala, A. Tato, M. C. Gago\*, S. Martínez\* and P. Velayos

Foundation Hospital of Alcorcón. \*«Los Llanos» Center. Móstoles. \*Renal Foundation Íñigo Álvarez de Toledo.

**Conclusions:** *The monitoring of the vascular access by a multidisciplinary team has reached: low rate of thrombosis, high elective number of repairs of the VA, high urgent rescue surgery after a thrombosis and a few number catheter needed and hospitalizations. The AVF are associated a greater survival that PTFE. The VA repair due to dysfunction vs thrombosis had a greater survival as well.*





# Literature review

Nursing role in the multidisciplinary team





# Seminars in Dialysis

Investigations

## A Vascular Access Coordinator Improves the Prevalent Fistula Rate

Amy Dwyer, Paula Shelton, Michael Brier, George Aronoff

First published: 04 September 2011 | <https://doi.org/10.1111/j.1525-139X.2011.00961.x> | Citations: 24





## Ultrasound usefulness for nurse

- ❑ Ultrasound guided cannulation
  - 1st needling (maturation criteria)
  - Approach of complex AVF and/or anatomical variants
- ❑ Pathology screening
  - Pathological AVF recognition
- ❑ Puncture technique choice
- ❑ Flow measurement

# Ultrasound usefulness for nurse

## Ultrasound Guided cannulation

Out-plane



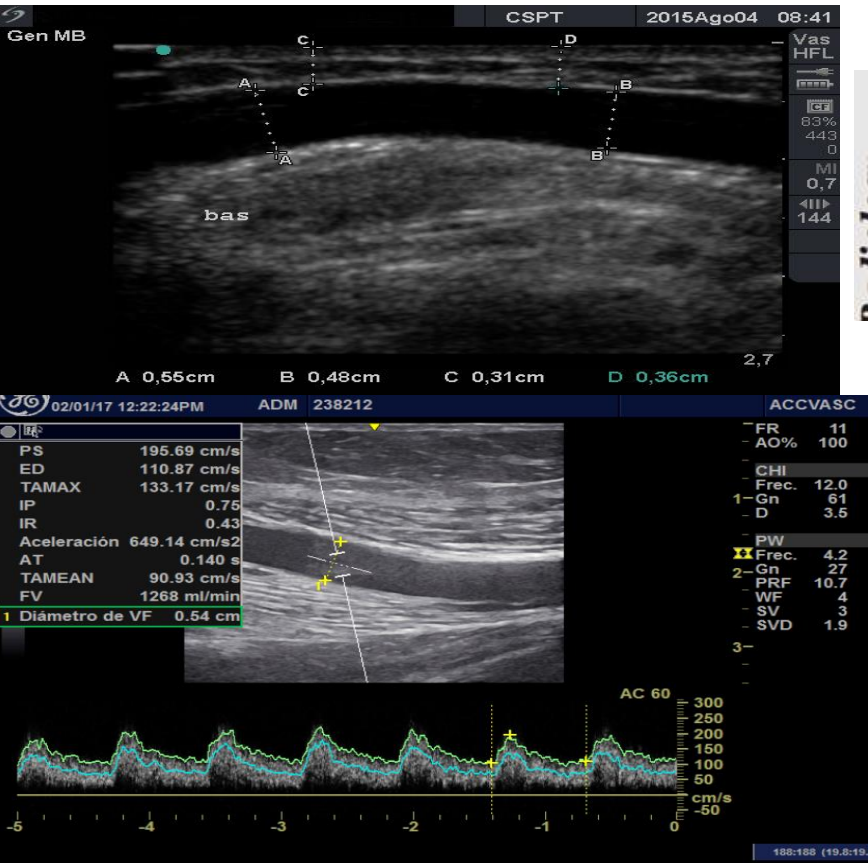
Vs

In-plane



# Ultrasound usefulness for nurse

## 1st cannulation ( maturation criteria)



Radiology

### Ultrasonography

Michelle L. Robbin, MD  
Nathan E. Chamberlain, MD  
Mark E. Lockhart, MD  
Michael H. Gallichio, MD  
Carlton J. Young, MD  
Mark H. Deierhoi, MD  
Michael Allon, MD

### Hemodialysis Arteriovenous Fistula Maturity: US Evaluation<sup>1</sup>

Published online before print  
10.1148/radiol.2251011367  
Radiology 2002; 225:59-64

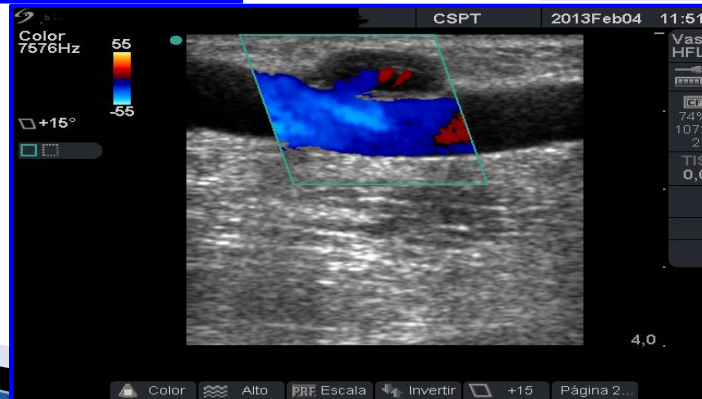
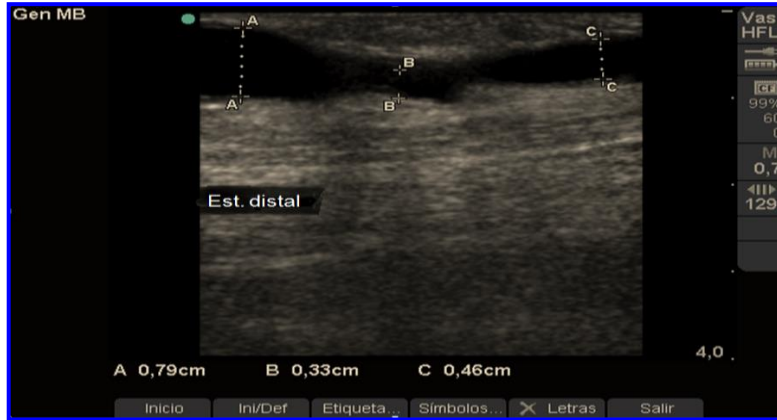


diameter  $\geq 4$  mm

Qa  $\geq 500$ ml/’

# Ultrasound usefulness for nurse

## Pathology screening





## Ultrasound usefulness for nurse

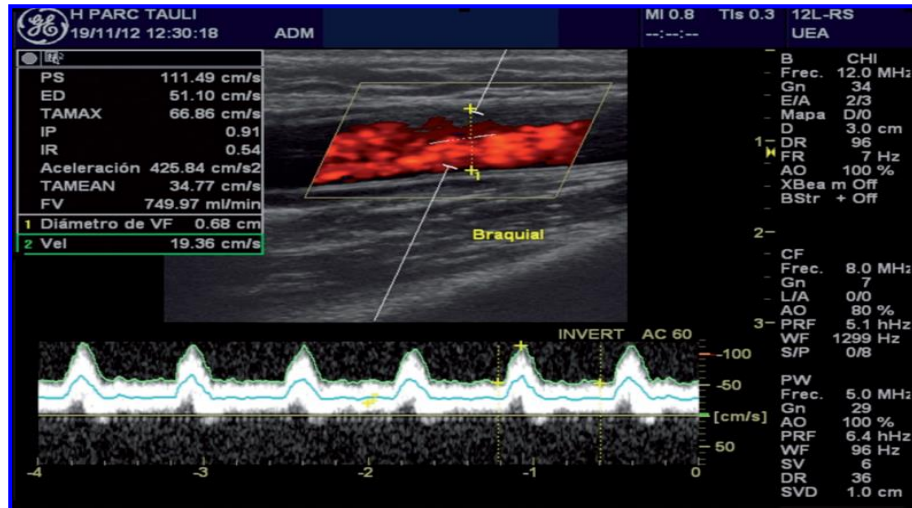
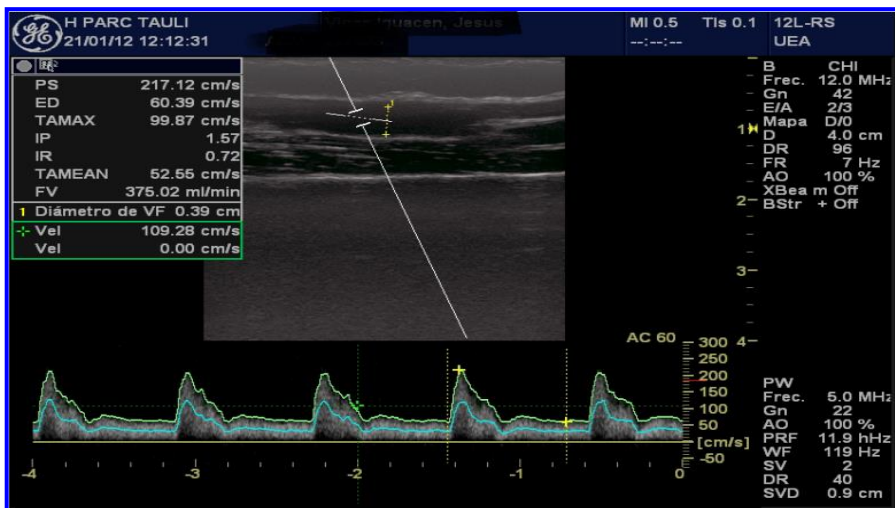
### Cannulation techniques:

- ❑ Area puncture
- ❑ Rope- ladder
- ❑ Buttonhole



# Ultrasound usefulness for nurse

## Flow measurement

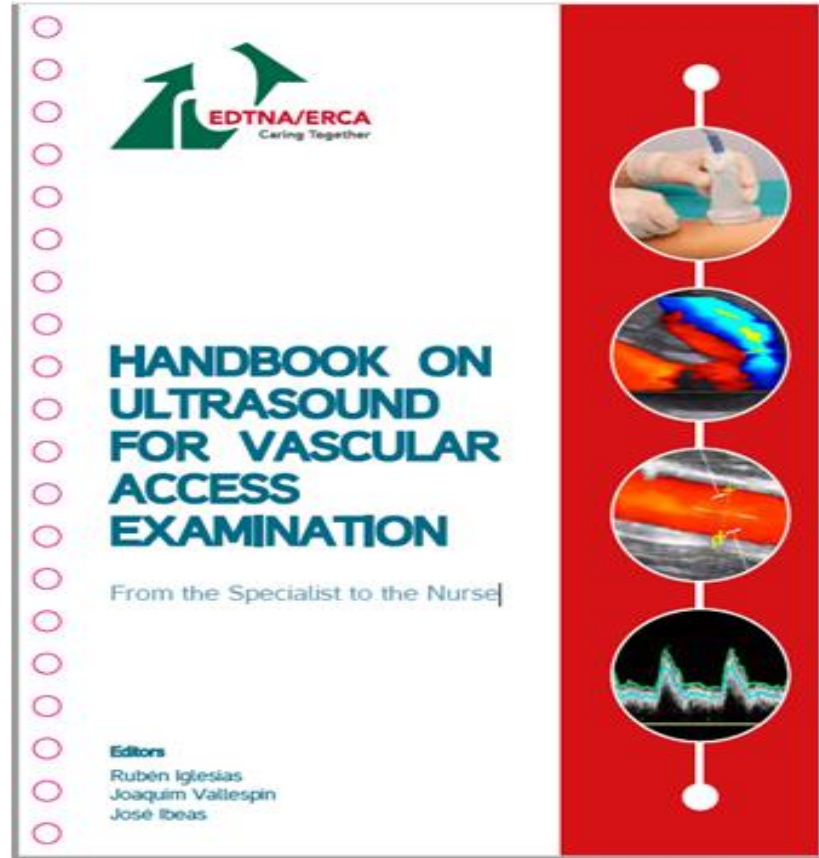


## Nursing record

All examinations carried out by nurse are recorded and reported  
in the patient's electronic medical record



# Publication by nurses





# Theoretical and practical course for vascular access management for nephrological nursing



Sabadell, Barcelona

# Ultrasound

- ❑ Non invasive and innocuous procedure
- ❑ Immediate, thanks to portable devices
- ❑ Nurses from Emergency, Interventional Radiology, ICU and vascular.
- ❑ Nephrology nurses are interventionists in VA

## Conclusions

- ❑ Ultrasound is a necessary resource for nursing in vascular access management
- ❑ Nursing participation in multidisciplinary team with ultrasound diagnosis orientation and decision taking “in situ”, can reduce morbidity in complex AVF in an immediate way
- ❑ Regulated use of ultrasound by nursing is possible and should become a routine care

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**THANK YOU  
FOR YOUR  
ATTENTION**



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