

HANDS-ON COURSE

ULTRASOUND APPLIED TO HEMODIALYSIS VASCULAR ACCESS

2024

LIMA – PERU



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UNIVERSIDAD
DE PIURA

HANDS-ON COURSE

ULTRASOUND APPLIED TO HEMODIALYSIS VASCULAR ACCESS

PRESENTATION

The hemodialysis vascular access patency has a significant impact on patients with kidney disease. Physical evaluation of vascular access dysfunction has specific signs, but using ultrasound as a tool for monitoring vascular access improves the diagnosis. Early identification and management of these changes can help prevent adverse events and complications. A difficult arteriovenous fistula (AVF) puncture may suggest pathology, and their early recognition can avoid traumatic punctures or thrombosis.

The use of **vascular Doppler ultrasound** in hemodialysis can be extremely beneficial for trained health personnel, including the nephrologist. Promoting the integration with radiologists and vascular surgeons can lead to a significant reduction in morbidity rates. In recent years, the training of ultrasound applied to vascular access has joined nephrology for proper planning to create an AVF, and during their follow-up.

This course aims the training for using the ultrasound and reach the following tasks:

- Recognizing the arterial and venous reserve of the upper limbs
- Checking the proper vascular anatomy of the upper limbs, including diameters, flows, and velocities.
- Planning the best intervention option before the creation of an arteriovenous fistula
- Evaluate the proper maturation and function of an arteriovenous fistula
- Diagnosis and prevention of primary or secondary failures of vascular access on hemodialysis
- Recognizing the most common pathologies associated with AVF and management.
- Knowledge of vascular ultrasound principles applied to their intervention including ultrasound-guided puncture and endovascular therapy.

EQUIPMENT

Dr. Eduardo Álvarez Tiburcio.

Cardiovascular Surgeon. Hospital Nacional Guillermo Almenara Irigoyen; EsSalud. Lima
Member of the Peruvian Association of Vascular Access (APDAV).

Dr. Jose Manuel Benavente Arrayán.

Cardiovascular Surgeon. Hospital Nacional Edgardo Rebagliati Martins; EsSalud. Lima
Member of the Peruvian Association of Vascular Access (APDAV).

Dr. José Ruiz Peñafiel.

Cardiovascular Surgeon. Hospital Nacional Guillermo Almenara Irigoyen EsSalud. Lima
Member of the Peruvian Association of Vascular Access (APDAV).

Dr. Julio Huayllara Reduzzi.

Cardiovascular Surgeon. Clinica Good Hope. Lima
Member of the Peruvian Association of Vascular Access (APDAV).

Dr. Luis Pérez Arteaga.

Nephrologist. Hospital Nacional Guillermo Almenara Irigoyen; EsSalud. Lima
Member of the Peruvian Association of Vascular Access (APDAV).

ACCREDITATION:

Peruvian Vascular Access Association; APDAV.
Credit: 01

SCHEDULE – METHODOLOGY

Duration: 2 days, March 15 and 16, 2024. 2 modules per day

Location:	University of Piura (UDEP)	
Capacity:	Limited vacancies. 50 trainees	
Hours:	08:00-13:00 and 14:00-19:00	
Hours/teacher:	05 hours/shift	
Theory:	40 minutes per module	
Practice:	120 minutes per module. Hands-on for training in ultrasound-guided AVF puncture. Patients and biological models.	
Practice Group:	Sequential	
Cost:	Medical doctors: \$300	Nurses \$150
Way to pay:	Deposit or transfer to account: BBVA account in dollars (APDAV): 0011-0524-6002001666-11	

INSCRIPTION

apdav2019@gmail.com

PROGRAM

MARCH 15, 2024

08:00h – 09:00h

Welcome and opening

Dr Jose Manuel Benavente Arrayan

President of the Peruvian Association of Vascular Access

Introduction

Dr Edwin Castillo Velarde

Past president of the Peruvian Association of Vascular Access

MODULE I.

Basic principles of ultrasound and vascular anatomy of angioaccess.

1. Principles of Vascular Ultrasound.
2. Console Management. Use 2D, Color, Doppler, transducer.
3. Arterial anatomy and venous reserve of upper limbs.
4. Common mistakes.
5. Anatomical tips and tricks.

09:00h – 13:00h: Practice

Staff	Schedules	Hands-on training
Medical doctors	Group A (09:00-10:50h) Group B (11:10-13:00h)	Learning to use the ultrasound machine, technical knowledge of the machine, use of 2D, color, and Doppler
Nurses	09:00-13:00h	Eco-guided AVF puncture

10:50h – 11:10h: Coffee-Break

MODULE II.

14:00h – 15:00h

Ultrasound examination before the creation of vascular access.

1. Systematization of the exploration of future vascular access.
2. Pre-surgical arterial and venous mapping.
3. Preparation of the Doppler echo report with a focus on future vascular access.
4. Unusual vascular accesses: cubital vein, great saphenous vein.

15:00h – 19:00h: Practice

Staff	Schedules	Hands-on training
Medical doctors	Group A (15:00-16:50h) Group B (17:10-19:00h)	Pre-surgical mapping, anatomical exploration of the arterial map and venous. Planning of vascular access based on the ultrasound report
Nurses	15:00-19:00h	Eco-guided AVF puncture

16:50h – 17:10h: Coffee-Break

MARCH 16, 2024

MODULE III.

08:00h – 09:00h

Evaluation of vascular access for hemodialysis.

1. Ultrasound of the normally functioning arteriovenous fistula.
2. Vascular access maturation criteria.
3. Evaluation and surveillance of native or prosthetic vascular access.
4. Doppler ultrasound report of the vascular access.

09:00h – 13:00h: Practice

<i>Staff</i>	<i>Schedules</i>	<i>Hands-on training</i>
Medical doctors	Group A (09:00-10:50h) Group B (11:10-13:00h)	Evaluation of normal functioning AVF, identification of maturation parameters, measurement of diameters, flows, and indication for cannulation based on the doppler ultrasound report
Nurses	09:00-13:00h	Eco-guided AVF puncture

10:50h – 11:10h: Coffee-Break

MODULE IV.

14:00h – 15:00h

Dysfunction and complications of vascular access for hemodialysis.

1. Algorithm for dysfunctional vascular access and warning signs.
2. Use of ultrasound in Vascular Access applied to thrombosis.
3. Identification and Management of steal syndrome.
4. Morphological alterations: Stenosis, aneurysms, and pseudoaneurysms.
5. Ultrasound assessment of fistula dysfunction and AVF rescue planning.

15:00h – 19:00h: Practice

<i>Staff</i>	<i>Schedules</i>	<i>Hands-on training</i>
Medical doctors	Group A (15:00-16:50h) Group B (17:10-19:00h)	Evaluation of dysfunctional AVF, recognition of thrombosis, stenosis, aneurysms, pseudoaneurysms, and doppler ultrasound report
Nurses	15:00-19:00h	Eco-guided AVF puncture

16:50h – 17:10h: Coffee-Break