THE REAL PROPERTY.
Dr. Pablo O. Torre
MEMORIAL HOSPITAL

Document Code:	DPOTMH-E-65-P01-S06	
Effective Date:	12-30-2021	
Document Type:	Standard Operating Procedure	
Page Number:	2 of 8	
Department/Section:	Non-Invasive Cardiovascular Imaging Sciences	
Document Title:	VENOUS DUPLEX STUDY OF THE LOWER EXTREMITIES	

PROCEDURE:

EQUIPMENT:

- 1. Color Duplex ultrasound scanner machine (HDI 5000 or HD11-XE)
- 2. Low frequency transducer / select frequency appropriate to body habitus (5.0 7.0 Linear array with Doppler and/or color Doppler capabilities)
- 3. Warm acoustic coupling gel
- 4. Recording device (VHS tape or Compact disc and thermal paper)

OUT-PATIENT PRE-EXAMINATION PROCEDURES:

- 1. The client presents a written request from his/her attending or referring physician to the Nurse Technician.
- The Nurse Technician processes the requested venous duplex procedure on the Bizbox Hospital computer system after the patient had completely filled up the admission data and consent form.
- 3. The Nurse Technician informs the examining examining Vascular Consultant once the patient arrives in the unit.
- The Nurse Technician prepares the ultrasound machine, inputs the patient's data and sets the equipment for proper test documentation.
- 5. The Nurse Technician introduces self to patient and assists him/her in changing to hospital gown maintaining the patient's privacy and confirms the patient's identity by interview based on the data given on the admission slip.
- The Nurse Technician assesses the patient prior to the venous duplex evaluation which includes patient's ability to tolerate the procedure, potential contraindications to the procedure and physical assessment.
- 7. The Nurse Technician explains to the patient the necessity and the time duration of the Venous duplex study of the lower extremities.
- 8. The Nurse Technician positions the patient in supine position exposing only the areas to be examined (thighs and legs).



Document Code:	DPOTMH-E-65-P01-S06	
Effective Date:	12-30-2021	
Document Type:	Standard Operating Procedure	
Page Number:	3 of 8	
Department/Section:	Non-Invasive Cardiovascular Imaging Sciences	
Document Title:	VENOUS DUPLEX STUDY OF THE LOWER EXTREMITIES	

DIRECT EXAMINATION PROCEDURES:

- The Vascular Nurse Technician informs the patient that a clear water-based gel is applied to the area of the body being studied to help the transducer make secure contact with the body and eliminate air pockets between the transducer and the skin. Then she presses the transducer firmly against the skin and sweeps it over the area of interest until the desired images are captured. and recorded.
- 2. The Vascular Consultant positioned the transducer in a transverse axis and image the common femoral veins with the greater saphenous veins and the femoral arteries ("Mickey Mouse sign") with color flow. Then on B-mode, compress the vein and gradually move down the thigh, making sure the vessel walls in the distal external iliac vein, common femoral vein, common femoral vein-greater saphenous veins junction, distal femoral vein, superficial femoral vein compress completely. Note: if the superficial femoral vein is bifid or duplicate. Compression may be incomplete in the distal segment of the superficial femoral vein due to the anatomy of the adductor canal. Compression may be facilitated by scanning the superficial femoral vein from the popliteal fossa and compressing with the transducer and the other hand on the anterior portion of the thigh up to the level where the distal superficial femoral vein "disappeared" into the canal.
- 3. Then the Vascular Consultant Specialist goes back to the groin to image the distal external iliac vein, common femoral vein, distal femoral vein, and proximal superficial femoral vein in the longitudinal axis down the medial thigh. Evaluate the flow patterns for spontaneity and phasicity with respiration. Evaluate distal augmentation in the common femoral vein and superficial femoral vein by squeezing the calf and in the distal femoral vein by squeezing the thigh. Compress the abdomen proximally and release to patterns for spontaneity and phasicity with respiration. Evaluate distal augmentation in the common femoral vein and superficial femoral vein by squeezing the calf and in the distal femoral vein by squeezing the thigh. Compress the abdomen proximally and release to evaluate for valvular incompetence in each of the vessels.



Document Code:	DPOTMH-E-65-P01-S06	
Effective Date:	12-30-2021	
Document Type:	Standard Operating Procedure	
Page Number:	aber: 4 of 8	
Department/Section:	Non-Invasive Cardiovascular Imaging Sciences	
Document Title:	VENOUS DUPLEX STUDY OF THE LOWER EXTREMITIES	

- 4. With a very light touch, the vascular specialist consultant angle the probe medially to visualize the greater saphenous vein as it joins the common femoral vein. He evaluates distal compression by sweeping the hand up the medial aspect of the thigh and compresses the abdomen proximally to evaluate for valvular reflux.
- Image the distal superficial femoral vein longitudinally and evaluate flow characteristics as above. Proximal compression should be at the proximal thigh; distal compression, from the calf.
- 6. Place the transducer in the popliteal fossa to image the popliteal vein and distal superficial femoral vein. Compress the vessels in the transverse axis to check for patency then image in the longitudinal view with color flow. Note also for the characteristic flow patterns.
- 7. Place the probe posterior to the medial malleolus in the longitudinal section to image the posterior tibial veins. Use the posterior tibial artery as a landmark, as these small vessels are not always spontaneous. Evaluate augmentation with foot squeeze for distal augmentation, and calf squeeze for proximal release. Document if two (paired) veins are not located. Then rotate probe into the transverse axis and compress the posterior tibial veins.
- 8. If calf deep vein thrombosis (DVT) is suspected, evaluate the peroneal and posterior tibial veins as they course along the calf. Use the accompanying artery as landmark. These paired veins should be imaged in the transverse axis with probe compression and Doppler compression maneuvers. Scan for the paired gastrocnemius veins and the soleal veins in the same manner.

POST-EXAMINATION PROCEDURES:

 The Nurse Technician removes the excess gel by wiping it off gently and ask the patient to wait while the ultrasound images are being reviewed by the Vascular Medicine Specialist.



Document Code:	DPOTMH-E-65-P01-S06	
Effective Date:	12-30-2021	
Document Type:	Standard Operating Procedure	
Page Number:	5 of 8	
Department/Section:	Non-Invasive Cardiovascular Imaging Sciences	
Document Title:	VENOUS DUPLEX STUDY OF THE LOWER EXTREMITIES	

- The Nurse Technician gives instructions that the results are released 1-2 days after the vascular consultant specialist had affixed his/her signature and are considered official.
- The Vascular consultant specialist will analyze the images and may discuss with the referring physician about his/her findings on the ultrasound procedure.
- 4. The Nurse Technician submits to the vascular consultant the filled-up worksheet of result for the final interpretation of the test.
- 5. The Nurse Technician encodes final result in the Bizbox hospital computer system, prints them out for signing of the Vascular Consultant. The official results are then ready for sorting and releasing. The patient's data with the date and time of the procedure is being recorded in the vascular procedures log book for future reference.
- 6. The Nurse Technician does after care of the machine by wiping the excess gel on the probe and softly coils the wires and after which the probe is secured on its proper place to be ready for the next patient.
- 7. The Vascular Nurse Technician switches off the machine when not in use to conserve energy and should be covered to free it from dust.

IN-PATIENT PRE-EXAMINATION PROCEDURES:

- The staff nurse on duty encodes request on the bizbox computer system and schedules patient upon receiving doctor's order for Venous duplex study of the lower extremity.
- Nurse Technician renders request for the procedure. All rendered request are automatically charged to the patient's account.
- The Nurse Technician calls the station to bring down the patient at the NICIS Department before the scheduled time.
- 4. The Nurse Technician informs the examining vascular medicine specialist once the patient arrives in the unit.



Document Code: DPOTMH-E-65-P01-S06	
Effective Date:	12-30-2021
Document Type:	Standard Operating Procedure
Page Number:	6 of 8
Department/Section:	Non-Invasive Cardiovascular Imaging Sciences
Document Title:	VENOUS DUPLEX STUDY OF THE LOWER EXTREMITIES

- 5. The Nurse Technician prepares the ultrasound machine, inputs the patient's data and sets the equipment for proper test documentation.
- 6. The Nurse Technician introduces self to patient and assists him/her in changing to hospital gown maintaining the patient's privacy and confirms the patient's identity using the two patient identifier.
- The Nurse Technician assesses the patient prior to the procedure which includes patient's ability to tolerate the procedure, potential contraindications to the procedure and physical assessment
- 8. The Nurse Technician explains to the patient the necessity and the time duration of the study.
- 9. The Nurse Technician positions the patient in supine position exposing only the areas to be examined (thighs and legs).

(Direct exam procedures: Refer to Out-Patient Direct Examination Procedures)

POST-EXAMINATION PROCEDURES:

- The Nurse Technician removes the excess gel by wiping it off gently and asks the patient to wait while the ultrasound images are being reviewed by the vascular consultant.
- The Nurse Technician gives instructions that the results are released 1-2 days after the vascular consultant specialist had affixed his/her signature and are considered official.
- 3. The patient is brought back to the room/ward.
- 4. The vascular consultant will analyze the images and may discuss with the referring physician about his/her findings on the ultrasound procedure.
- 5. The Nurse Technician submits to the vascular consultant the filled-up worksheet of result for the final interpretation of the test.
- 6. The Nurse Technician encodes final result in the Bizbox hospital computer system, prints them out for signing of the vascular consultant. The official results are then



Document Code:	DPOTMH-E-65-P01-S06	
Effective Date:	12-30-2021	
Document Type:	Standard Operating Procedure	
Page Number:	7 of 8	
Department/Section:	Non-Invasive Cardiovascular Imaging Sciences	
Document Title:	VENOUS DUPLEX STUDY OF THE LOWER EXTREMITIES	

ready for sorting and releasing. The patient's data with the date and time of the procedure is being recorded in the Vascular procedure log book for future reference.

- 7. The Nurse Technician does after care of the machine by wiping the excess gel on the probe and softly coils the wires and after which the probe is secured on its proper place to be ready for the next patient.
- 8. The Nurse Technician switches off the machine when not in use to conserve energy and should be covered to free it from dust.

TURN AROUND TIME (TAT)

1	Pre-e	exam procedures:	TIME
	1.1	Completion of pre-exam paperwork	1 minute
	1.2	Exam charging and billing activities	3 minutes
	1.3	Exam room and equipment preparation	3 minutes
	1.4	Patient preparation and positioning	3 minutes
2	Direc	ct exam:	
	2.1	equipment optimization and the	
		actual hands-on time	30-45 minutes
3	Post-	exam procedures:	
	3.1	Cleanup	5 minutes
	3.2	Review exam data for preliminary and/or formal interpretation by vascular consultant	15 minutes

4 Total: Approximately 1 hour



Document Code:	DPOTMH-E-65-P01-S06	
Effective Date:	12-30-2021	
Document Type:	Standard Operating Procedure	
Page Number:	8 of 8	
Department/Section:	Non-Invasive Cardiovascular Imaging Sciences	
Document Title:	VENOUS DUPLEX STUDY OF THE LOWER EXTREMITIES	

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Document Code:	DPOTMH-E-65-P01-WI06	
Effective Date:	04-01-2022	
Document Type:	Work Instruction	
Page Number:	1 of 5	
Department/Section:	Non-Invasive Cardiovascular Imaging Sciences	
Document Title:	VENOUS DUPLEX STUDY OF THE LOWER EXTREMITIES	

	OUT-PATIENT PRE-EXAMINATION P	ROCEDURE	
	KEY TASK	PERSON RESPONSIBLE	
1.	Presents a written request from the Attending or Referring Physician.	Patient	
2.	Encodes the request on the Bizbox Hospital computer system.		
3.	Prepares the ultrasound machine and inputs the patient's data.		
4.	Introduces self to patient and assists him/her in changing to hospital gown maintaining the patient's privacy.	Nurse Technician	
5.	Does assessment of the patient prior to the procedure.		
6.	Explains to the patient the necessity and the time duration of the procedure.		
7.	Positions the patient in supine position with the head slightly elevated to a level of comfort.		
8.	Performs direct examination according to different approaches.		



Document Code:	DPOTMH-E-65-P01-WI06
Effective Date:	04-01-2022
Document Type:	Work Instruction
Page Number:	2 of 5
Department/Section:	Non-Invasive Cardiovascular Imaging Sciences
Document Title:	VENOUS DUPLEX STUDY OF THE LOWER EXTREMITIES

	OUT-PATIENT POST-EXAMINATION PROCEDURE		
	KEY TASK	PERSON RESPONSIBLE	
1.	Removes the excess gel by wiping it off gently and gives instructions that the results are released 1-2 days after.	Nurse Technician	
2.	Analyzes and discusses the images with the Referring Physician.	Vascular Consultant	
3.	Submits to the Vascular Consultant the filled-up worksheet of result for the final interpretation of the test.		
4.	4. Encodes final result in the Bizbox computer system. Nurse Technicia		
5.	Does after care of the machine by wiping the excess gel on the probe place.		
6.	Switches off the machine when not in use to conserve energy.		



Document Code:	DPOTMH-E-65-P01-WI06
Effective Date:	04-01-2022
Document Type:	Work Instruction
Page Number:	3 of 5
Department/Section:	Non-Invasive Cardiovascular Imaging Sciences
Document Title:	VENOUS DUPLEX STUDY OF THE LOWER EXTREMITIES

KEY TASK		PERSON RESPONSIBLE	
1.	Encodes request on the bizbox computer system and schedules the patient.	Nurse-on-duty	
2.	Renders request for the procedure.		
3.	3. Calls the Nursing Station to bring down the patient at the NICIS Section.		
4.	Informs the Vascular Medicine Specialist once the patient arrives in the unit.		
5.	Prepares the ultrasound machine, inputs the patient's data and sets the equipment.	Nurse Technician	
 Introduces self to patient and assists him/her in changing to hospital gown maintaining the patient's privacy. 			
7.	Assesses the patient prior to the procedure.		
8.	Explains to the patient the necessity and the time duration of the study.		
9.	Positions the patient in supine position with the head slightly elevated to a level of comfort.		



Document Code:	DPOTMH-E-65-P01-WI06
Effective Date:	04-01-2022
Document Type:	Work Instruction
Page Number:	4 of 5
Department/Section:	Non-Invasive Cardiovascular Imaging Sciences
Document Title:	VENOUS DUPLEX STUDY OF THE LOWER EXTREMITIES

	IN-PATIENT POST-EXAMINATION PROCEDURE		
	KEY TASK	PERSON RESPONSIBLE	
1.	Removes the excess gel by wiping it off gently and gives instructions that the results are released 1-2 days after.		
2.	Brings the patient back to the room/ward.		
3.	Analyzes and discusses the images with the Referring Physician about his/her findings on the ultrasound procedure.	Nurse Technician	
4.	4. Submits to the Vascular Consultant the filled-up worksheet of result for the final interpretation.		
5.	Encodes final result in the Bizbox hospital computer system and prints them out.		
6.	Does after care of the machine by wiping the excess gel on the probe and softly coils the wires.		
7.	Switches off the machine when not in use to conserve energy.		



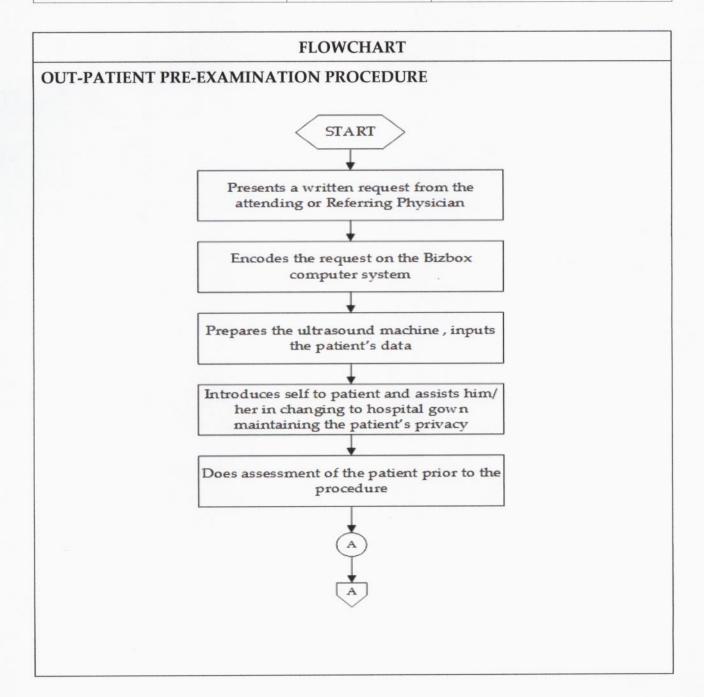
Document Code:	DPOTMH-E-65-P01-WI06
Effective Date:	04-01-2022
Document Type:	Work Instruction
Page Number:	5 of 5
Department/Section:	Non-Invasive Cardiovascular Imaging Sciences
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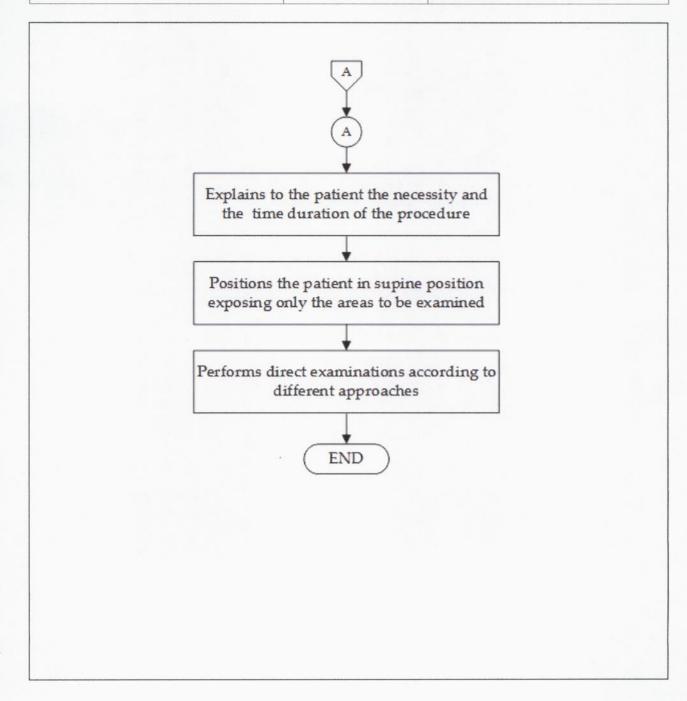


Document Code:	DPOTMH-E-65-P01-FC06
Effective Date:	04-01-2022
Document Type:	Flowchart
Page Number:	1 of 7
Department/Section:	Non-Invasive Cardiovascular Imaging Sciences
Document Title:	VENOUS DUPLEX STUDY OF THE LOWER EXTREMITIES



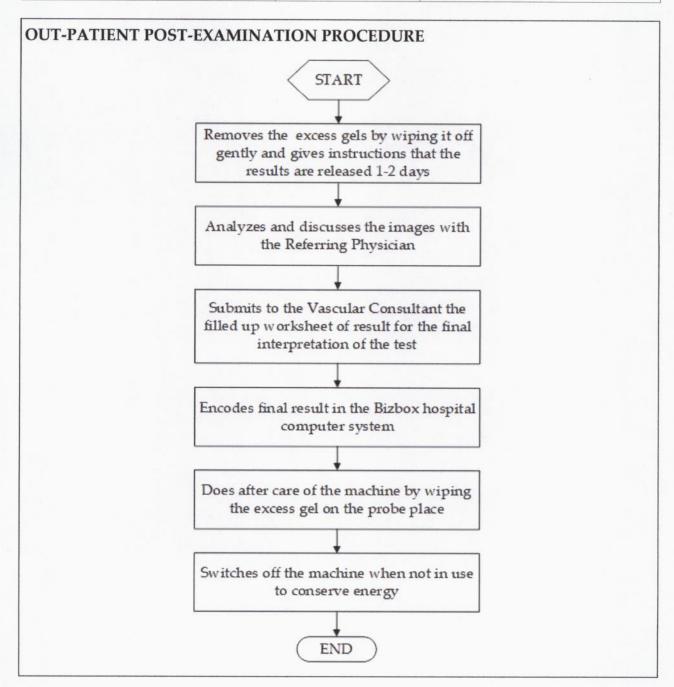


Document Code:	DPOTMH-E-65-P01-FC06
Effective Date:	04-01-2022
Document Type:	Flowchart
Page Number:	2 of 7
Department/Section:	Non-Invasive Cardiovascular Imaging Sciences
Document Title:	VENOUS DUPLEX STUDY OF THE LOWER EXTREMITIES





Document Code:	DPOTMH-E-65-P01-FC06
Effective Date:	04-01-2022
Document Type:	Flowchart
Page Number:	3 of 7
Department/Section:	Non-Invasive Cardiovascular Imaging Sciences
Document Title:	VENOUS DUPLEX STUDY OF THE LOWER EXTREMITIES



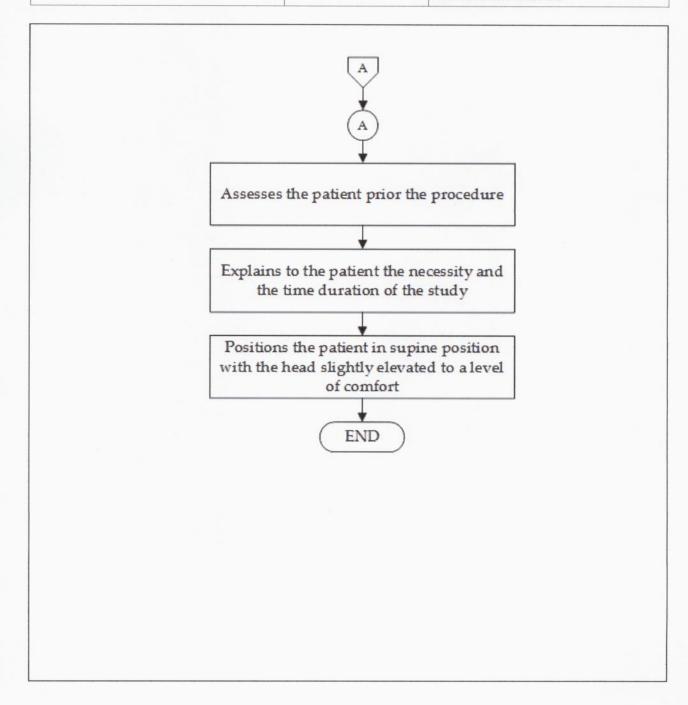


Document Code:	DPOTMH-E-65-P01-FC06
Effective Date:	04-01-2022
Document Type:	Flowchart
Page Number:	4 of 7
Department/Section:	Non-Invasive Cardiovascular Imaging Sciences
Document Title:	VENOUS DUPLEX STUDY OF THE LOWER EXTREMITIES

IN-PATIENT PRE-EXAMINATION PROCEDURE START Encodes the request on the Bizbox computer system and schedules patient upon receiving doctor's order Renders request for the procedure Calls the Nursing Station to bring down the patient at the NICIS Section Informs the Vascular Medicine Specialist once the patient arrives in the unit Prepares the ultrasound machine inputs the patient's data and sets the equipment Introduces self to patient and assists him/ her in changing to hospital gown maintaining the patient's privacy

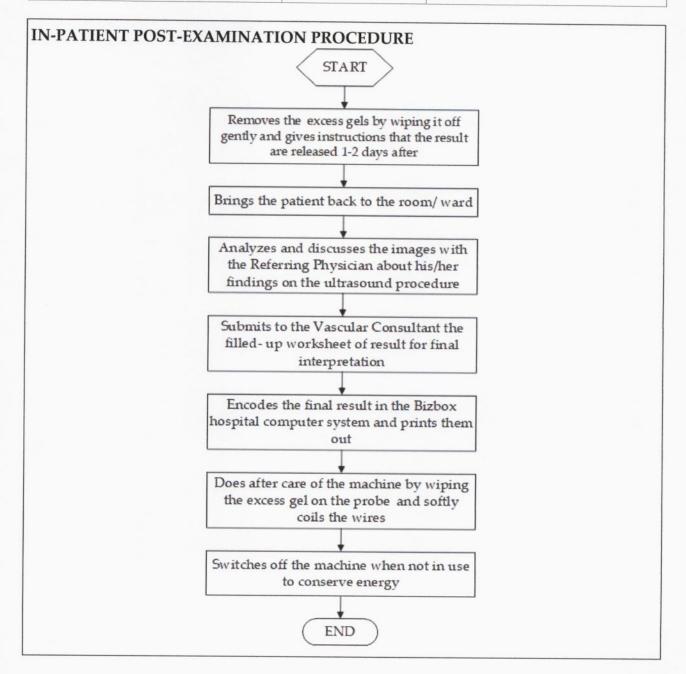


Document Code:	DPOTMH-E-65-P01-FC06
Effective Date:	04-01-2022
Document Type:	Flowchart
Page Number:	5 of 7
Department/Section:	Non-Invasive Cardiovascular Imaging Sciences
Document Title:	VENOUS DUPLEX STUDY OF THE LOWER EXTREMITIES





Document Code:	DPOTMH-E-65-P01-FC06	
Effective Date:	04-01-2022	
Document Type:	Flowchart	
Page Number:	6 of 7	
Department/Section:	Non-Invasive Cardiovascular Imaging Sciences	
Document Title:	VENOUS DUPLEX STUDY OF THE LOWER EXTREMITIES	





Document Code:	DPOTMH-E-65-P01-FC06	
Effective Date:	04-01-2022	
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Page Number:	7 of 7	
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Document Code:	DPOTMH-E-65-P01-S06	
Effective Date:	12-30-2021	
Document Type:	Standard Operating Procedure	
Page Number:	1 of 8	
Department/Section:	Non-Invasive Cardiovascular Imaging Sciences	
Document Title:	VENOUS DUPLEX STUDY OF THE LOWER EXTREMITIES	

PURPOSE:

To provide a guidelines on how to perform the procedure to patient correctly.

SCOPE:

Applies to all staffs of Non-Invasive Cardiovascular Imaging Sciences (NICIS) of Dr. Pablo O. Torre Memorial Hospital

RESPONSIBLE PERSON:

Cardiologist (Vascular Medicine Specialist), Cardiovascular Technician (Registered Nurse, Allied Healthcare Professionals who have undergone training or with certification.

GENERAL GUIDELINES:

- All venous duplex procedures should require a physician's order and signed consent from patient.
- 2. Patient should have an appointment or schedule on the day of procedure.
- Infection control measures should be adhered to in accordance to policies like handwashing, use of PPE'S and proper disposals of linens and supplies.
- 4. The Cardiovascular Technician must ensure the comfort, safety, security and general condition of a patient throughout the procedure.
- 5. Patients for venous duplex scan should wear hospital gown.
- Results will be released to out-patients upon presentation of the Official Receipt (OR) or HMO ID for charged clients.