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Document Title:	ABDOMINAL AORTA AND ITS BRANCHES DUPLEX STUDY

PURPOSE:

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

SCOPE:

Applies to all Non-Invasive Cardiovascular Imaging Sciences (NICIS) staffs 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:

- 1. All abdominal aorta and its branches duplex procedures should require a physician's order and signed consent from the patient.
- 2. Patient should have an appointment or schedule on the day of procedure. List of preparations is given upon scheduling, preferably given by the performing Vascular Consultant.
- 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. The Cardiovascular Technician instructs the patient to kindly remove any jewelry, or other objects that may interfere with the scan.
- 6. Results will be released to out-patients upon presentation of the Official Receipt (OR) or HMO ID for charged clients.

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PROCEDURE:

EQUIPMENT:

- 1. Color Duplex ultrasound scanner machine (HDI 5000 or HD11-XE)
- 2. Low frequency transducer / select frequency appropriate to body habitus 2.0 3.0 mHz Transducer curved Array 5-2 with Doppler and/or color Doppler capabilities)
- 3. Warm acoustic coupling gel
- 4. Recording device (VHS tape or Compact disc and thermal paper)

PATIENT PREPARATION:

- The patient should fast 8-12 hours before the scheduled procedure to minimize bowel gas.
- 2. Take Dulcolax tablets (2 tabs at 4pm and 2 tabs at 8pm).
- 3. Take Pankreoflat (2 tabs at 4pm and 2 tabs at bedtime).
- 4. Insert 1 Dulcolax suppository in early morning.

OUT-PATIENT PRE-EXAMINATION PROCEDURES:

- 1 The client presents a written request from his/her attending or referring physician to the Nurse Technician.
- 2 The Nurse Technician makes sure that the patient has complied with the preparations and processes the requested abdominal aorta and its branches 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 Vascular Consultant once the patient arrives in the unit.
- 4 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.



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- 6 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 procedure.
- 8 The Nurse Technician positions the patient in supine position with the head slightly elevated to a level of comfort. The lateral decubitus position may be useful when supine acoustic windows prove inadequate or in individuals with a large abdominal girth exposing only the areas to be examined (abdominal area).
- 9 The Vascular Nurse Technician instructs the patient for the proper breathing technique.

<u>DIRECT EXAMINATION PROCEDURES: Sagittal plane – Anterior Approach</u> (Longitudinal survey)

- Begin with the transducer perpendicular, at the midline of the body, just inferior to the xiphoid process of the sternum.
- 2 Move or angle the transducer to the patient's right and identify the distal IVC posterior to the liver.
- 3 Move or angle the transducer to the patient's left and identify the proximal aorta posterior to the liver.
- 4 While viewing the proximal aorta, slowly move inferiorly, using a rock-and-slide motion. Slightly rock right to left scan through each side of the aorta while sliding inferiorly. It may be necessary to rotate the transducer at varying degrees (to oblique the scanning plane according to the lie of the aorta) to visualize the long axis of the aorta. Note and evaluate the anterior branches: Celiac and SMA.
- 5 Continue rocking and sliding the transducer inferiorly through the middle and distal aorta to the bifurcation (usually at or just beyond the level of the umbilicus).



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Sagittal plane - Posterior Approach (Longitudinal survey):

- 1 Patient supine, left posterior oblique, right posterior oblique, or sitting semi-erect to erect.
- 2 From the lateral aspects of the most distal aorta, angle the transducer back toward the aorta and slightly move inferiorly until the bifurcation and common iliac arteries are seen.

Coronal plane- Left lateral Approach (Longitudinal Survey):

- 1 Patient right lateral decubitus, supine, sitting semi-erect to erect, or left lateral decubitus.
- 2 Begin with the transducer perpendicular, midcoronal plane, just superior to the iliac crest.
- 3 Use the inferior pole of the left kidneys as a landmark and look for the bifurcation medial and inferior.
- 4 It may be necessary to rotate the transducer at varying degrees to visualize the long axis of the bifurcation and common iliac arteries.

Transverse plane- Anterior Approach (Transverse survey):

- 1 Begin with the transducer perpendicular, at the midline of the body, just inferior to the xiphoid process of the sternum.
- 2 Angle the transducer superiorly until the heart is seen. Slowly, straightening the transducer to perpendicular, look for the aorta just to the left of midline. The aorta will appear round or oval-shaped. Alternatively, in the sagittal plane locate the longitudinal of the proximal aorta, and then rotate the transducer 90 degrees into the transverse plane.
- 3 While viewing the proximal aorta, slowly move inferiorly, using a rock-and-slide motion. Slightly rock superiorly to inferiorly while sliding inferiorly. This way you

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should never lose sight of the aorta. Note and evaluate the anterior branches: celiac, SMA.

- 4 Continue rocking and sliding the transducer inferiorly through the middle and distal aorta to the bifurcation. Note and evaluate the lateral branches: renal arteries.
- 5 At the level of the bifurcation, evaluate the common iliac arteries by scanning through them inferiorly until you lose sight of them.

POST EXAMINATION PROCEDURES:

- 1 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 Medicine Specialist.
- 2 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 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. 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 Nurse Technician switches off the machine when not in use to conserve energy and should be covered to free it from dust.



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IN-PATIENT PRE-EXAMINATION PROCEDURE:

- The staff nurse on duty encodes request on the bizbox computer system and schedules patient upon receiving doctor's order for abdominal aorta and its branches duplex study.
- 2. Nurse technician renders request for the procedure. All rendered request are automatically charged to the patient's account.
- 3. 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.
- 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.
- 7. 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 with the head slightly elevated to a level of comfort. The lateral decubitus position may be useful when supine acoustic windows prove inadequate or in individuals with a large abdominal girth exposing only the areas to be examined (abdominal part).

(Direct Exam Procedures: Refer to Out-Patient Direct Examination Procedures)



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POST-EXAMINATION PROCEDURES:

- 1 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.
- 2 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 and instructed to resume the previous diet unless ordered by physician otherwise.
- 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 ready for sorting and releasing. The patient's data with the date and time of the procedure is being recorded in the 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.



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TURN AROUND TIME (TAT)

PRE-E	EXAMINATION PROCEDURES:	TIME
1.	Completion of pre-exam paperwork	1 minute
2.	Exam charging and billing activities	3 minutes
3.	Exam room and equipment preparation	3 minutes
4.	Patient preparation and positioning	3 minutes
DIRE	CT EXAMINATION PROCEDURES:	
1.	Equipment optimization and the actual hands-on time.	30-45 minutes
POST	Γ-EXAMINATION PROCEDURES:	
1.	Cleanup	5 minutes
	Review exam data for preliminary and/or formal interpretation by Vascular Consultant.	15 minutes
	Total:	Approximately 1 hour and 30 minutes

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	OUT-PATIENT PRE-EXAMINATION P	ROCEDURE
	KEY TASK	PERSON RESPONSIBLE
1.	Presents a written request from the Attending or Referring Physician to the Nurse Technician.	Patient
2.	Processes the requested procedure on the Bizbox Hospital computer system.	
3.	Informs the examining Vascular Consultant once the patient arrives in the unit.	
4.	Prepares the ultrasound machine, inputs the patient's data and sets the equipment for proper test documentation.	Nurse Technician
5.	Introduces self to patient and assists him/ her in changing to hospital gown maintaining the patient's privacy.	
6.	Assesses the patient prior to the venous duplex evaluation.	
7.	Explains to the patient the necessity and the time duration of the procedure.	
8.	Positions the patient in supine position with the head slightly elevated to a level of comfort.	
9.	Instructs the patient for the proper breathing technique.	



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OUT-PATIENT POST-EXAMINATION P	ROCEDURE
KEY TASK	PERSON RESPONSIBLE
Removes the excess gel by wiping it off gently and gives instructions that the results are released 1-2 days after.	Nurse Technician
Analyzes and discusses the images with the Referring Physician about his/her findings.	Vascular Consultant Specialist
Submits to the Vascular Consultant the filled-up worksheet of result for final interpretation of the test.	
Encodes final result in the Bizbox hospital computer system.	Nurse Technician
Does after care of the machine by wiping the excess gel on the probe and softly coils the wires.	



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	IN-PATIENT PRE-EXAMINATION PRO	OCEDURE
	KEY TASK	PERSON RESPONSIBLE
1.	Encodes request on the Bizbox computer system and schedules patient.	Staff Nurse
2.	Renders request for the procedure.	
3.	Calls the Station to bring down the patient at the NICIS Section before the scheduled time.	
4.	Informs the examining Vascular Medicine Specialist once the patient arrives in the unit.	
5.	Prepares the ultrasound machine, inputs the patient's data and sets proper test documentation	
6.	Introduces self to patient and assists him/her in changing to hospital gown maintaining the patient's privacy.	Nurse Technician
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 exposing only the areas to be examined.	



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	IN-PATIENT POST-EXAM PROCE	DURE
	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.	Patient
2.	Brings the patient back to the room or ward.	
3.	Analyzes and discusses the images with the Referring Physician about his/her findings on the ultrasound procedure.	Nurse Technician
4.	Submits to the Vascular Consultant the filled-up worksheet of result for the final interpretation of the test.	
5.	Encodes final result in the Bizbox hospital computer system, prints them out for signing of the sonologist.	
6.	Does after care of the machine by wiping the excess gel on the probe and softly coils the wires	



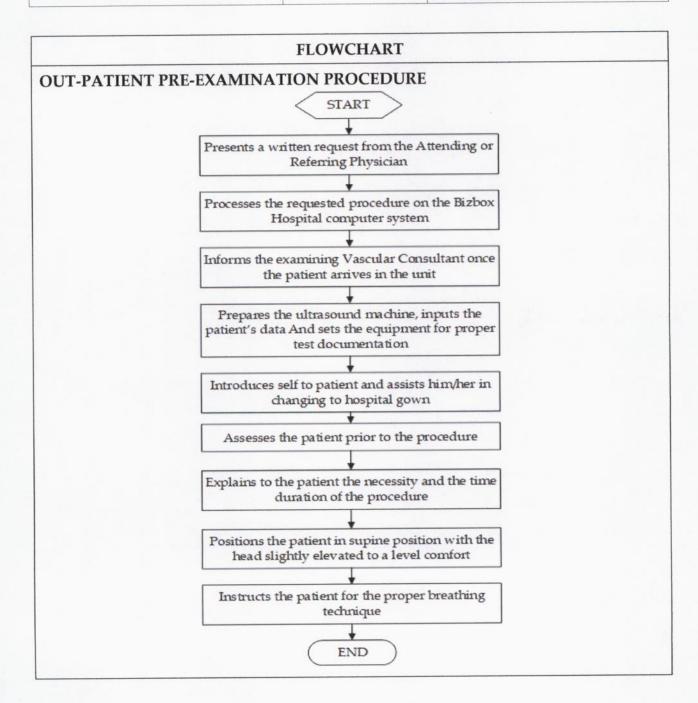
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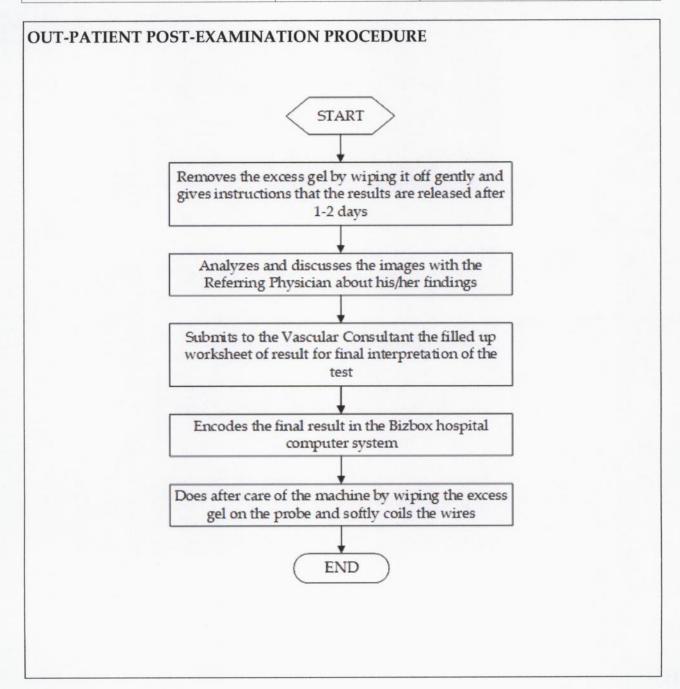


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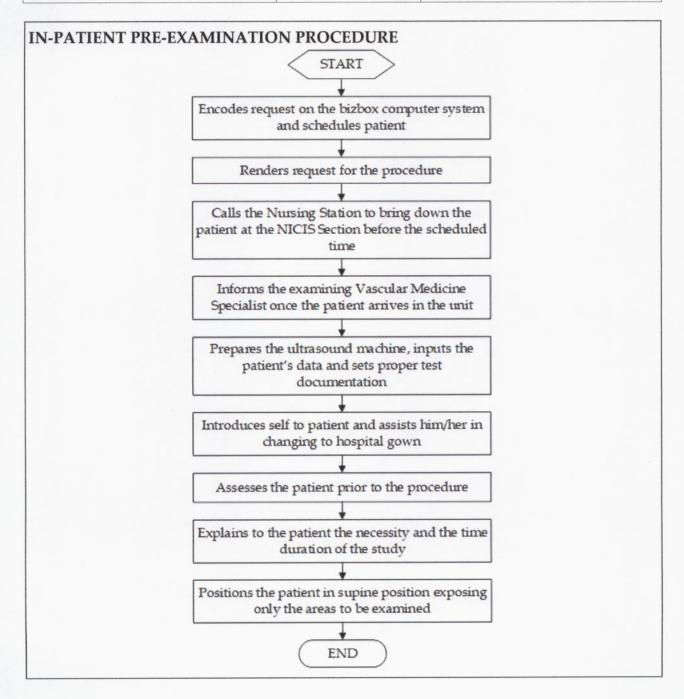


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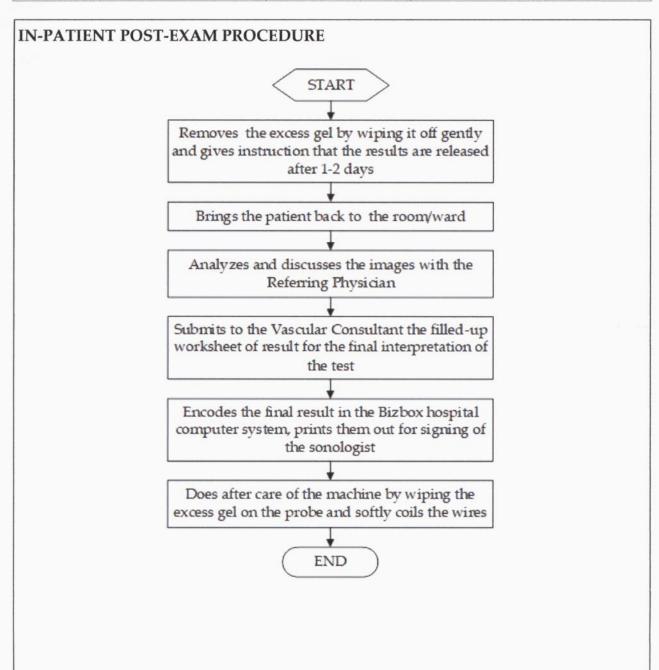


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