 <p>B.S. Aquino Drive, Bacolod City, Negros Occidental, 6100</p> <p>DR. PABLO O. TORRE MEMORIAL HOSPITAL</p>	Document Code:	DPOTMH-E-65-P01-S11
	Effective Date:	12-30-2021
	Document Type:	Standard Operating Procedure
	Page Number:	1 of 8
	Department/Section:	Non-Invasive Cardiovascular Imaging Sciences
	Document Title:	<b>DIALYSIS ACCESS GRAFT DUPLEX STUDY</b>

**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 dialysis access graft duplex scan procedures should require a physician's order and a signed consent from the patient.
2. Patient should have an appointment or schedule on the day of procedure.
3. 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  
7.5 – 10.0 mHz Transducer (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.
- 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.
- 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.




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- 8 The nurse technician positions the patient in supine position with the head slightly elevated to a level of comfort exposing only the areas to be examined (neck to arms).

### **DIRECT EXAMINATION PROCEDURES:**

- 1 The transducer is placed on then native artery and sweep throughout the entire segment. Record a representative Doppler signal.
- 2 Sweep Doppler sample volume throughout the site of anastomosis with graft. Note for any velocity change. Record representative Doppler signal. If stenosis at anastomosis, record the highest Peak Systolic Velocity. Record post stenotic turbulence if present.
- 3 Sweep Doppler sample throughout the entire length (loop) of the graft. Document any abnormalities. Document dilatation with B mode image and measurements. Document any stenosis with stenotic and post stenotic spectral waveforms. Document arterio-venous malformation with color B mode and Doppler spectral waveforms. Any site of abnormality can be marked on the skin.
- 4 Sweep the Doppler sample through the venous anastomosis. Record a representative Doppler signal. If stenosis is present, record a post stenotic signal.
- 5 Record a representative Doppler signal in a patent segment of the graft just proximal to the venous anastomose. Note and report the peak systolic velocities of this segment.
- 6 Record a representative Doppler signal in the proximal segments of the native venous system (brachial, axillary, subclavian, innominate veins. Evaluate native venous segments for vein wall compression if possible (Proximal subclavian and innominate cannot be compressed).

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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 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.

### **IN-PATIENT PRE-EXAMINATION PROCEDURE:**

1. 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.



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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 exposing only the areas to be examined (arms and neck).


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

#### **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.

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- 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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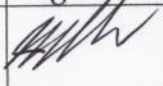
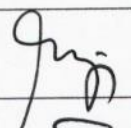
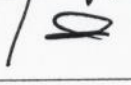
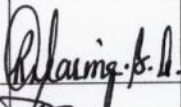
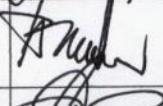
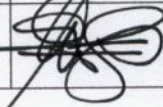
### TURN AROUND TIME (TAT)

PRE-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
<b>DIRECT EXAMINATION PROCEDURES:</b>	
1. Equipment optimization and the actual hands-on time.	20-40 minutes
<b>POST-EXAMINATION PROCEDURES:</b>	
1. Cleanup	5 minutes
2. Review exam data for preliminary and/or formal interpretation by Vascular Consultant.	15 minutes
Total:	Approximately 1 hour




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**APPROVAL:**

	Name/Title	Signature	Date
Prepared by:	<b>MA. LLANA LINDA D. CARDONES, RN</b> NICIS Supervisor		01-25-22
Verified:	<b>BONIFACIO C. SEPICO, RMT</b> Department of Imaging Sciences Manager		1/26/22
Reviewed by:	<b>DENNIS C. ESCALONA, MN, FPCHA, FPSQua</b> Quality Assurance Supervisor		1/27/2022
Recommending Approval:	<b>ROSARIO D. ABARING, RN, MN, PhD, FPCHA</b> Ancillary Division Officer		02-02-2022
	<b>HENRY F. ALAVAREN, MD, FPSMID, FPSQua</b> Total Quality Division Officer		2/3/2022
Approved:	<b>GENESIS GOLDI D. GOLINGAN</b> President & CEO		3/8/22




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<b>OUT-PATIENT PRE-EXAMINATION PROCEDURE</b>	
<b>KEY TASK</b>	<b>PERSON RESPONSIBLE</b>
1. Presents a written request from the Attending or Referring Physician to the Nurse Technician.	Patient
2. Processes the requested venous duplex procedure on the Bizbox Hospital computer system.	Nurse Technician
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.	
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 duplex study.	
8. Positions the patient in supine position exposing only the areas to be examined.	
9. Performs direct examination according to different approaches.	


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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.	Nurse Technician
2. Analyzes and discusses the images with the Referring Physician about his/her findings.	Vascular Consultant Specialist
3. Submits to the Vascular Consultant the filled-up worksheet of result for final interpretation of the test.	Nurse Technician
4. Encodes final result in the Bizbox hospital computer system, prints them out for signing of the Vascular Consultant.	
5. 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 PROCEDURE	
KEY TASK	PERSON RESPONSIBLE
1. Encodes request on the Bizbox computer system and schedules patient.	Patient          Nurse Technician
2. Requests for the procedure and instructs the Nurse-on-duty regarding patient preparation.	
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.	
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-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.	Patient
2. Brings the patient back to the room/ward and instructs to resume the previous diet.	Nurse Technician
3. Analyzes and discusses the images with the Referring Physician about his/her findings on the ultrasound procedure.	Vascular Consultant
4. Submits to the Vascular Consultant the filled-up worksheet of the result for the final interpretation of the test.	Nurse Technician
5. Encodes final result in the Bizbox hospital computer system, prints them out for signing of the Vascular Consultant.	
6. Does after care of the machine by wiping the excess gel on the probe and softly coils the wires.	

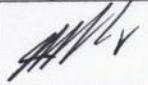
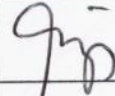
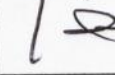




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IN-PATIENT POST-EXAMINATION PROCEDURE	
KEY TASK	PERSON RESPONSIBLE
1. Removes the excess gel by wiping it off gently and gives instructions that the results are released 1-2 days after.	Patient
2. Brings the patient back to the room/ward.	
3. Records all procedures and patient's data on the official procedure logbook.	
4. Encodes final result in the Bizbox hospital computer system, prints them out for signing of the sonologist.	
5. Does after care of the machine by wiping the excess gel on the probe and softly coils the wires.	
6. Switches off the machine when not in use to conserve energy and should be covered to free it from dust.	
	Nurse Technician

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**APPROVAL:**

	Name/Title	Signature	Date
Prepared by:	<b>MA. LLANA LINDA D. CARDONES, RN</b> NICIS Supervisor		5-12-22
Verified:	<b>BONIFACIO C. SEPICO, RMT</b> Department of Imaging Sciences Manager		5/26/22
Reviewed:	<b>DENNIS C. ESCALONA, MN, FPSQua</b> Quality Assurance Supervisor		06/26/2022
Recommending Approval:	<b>ROSARIO D. ABARING, RN, MN, PhD, FPCHA</b> Ancillary Services Division Officer		07.01.2022
	<b>HENRY F. ALAVAREN, MD, FPSMID, FPSQua</b> Total Quality Division Officer		7/7/22
Approved:	<b>GENESIS GOLDI D. GOLINGAN</b> President and CEO		





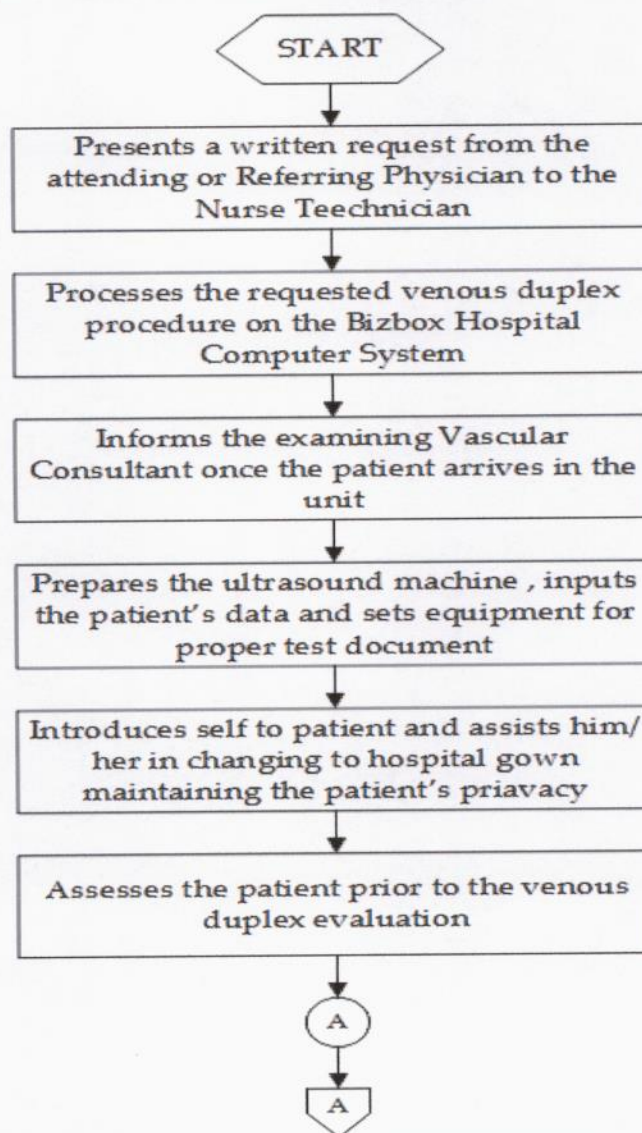
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## FLOWCHART

### OUT-PATIENT PRE-EXAMINATION PROCEDURE

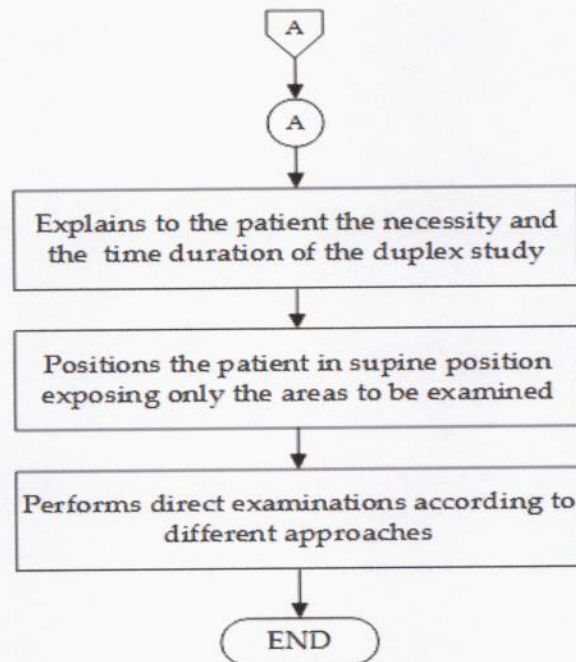




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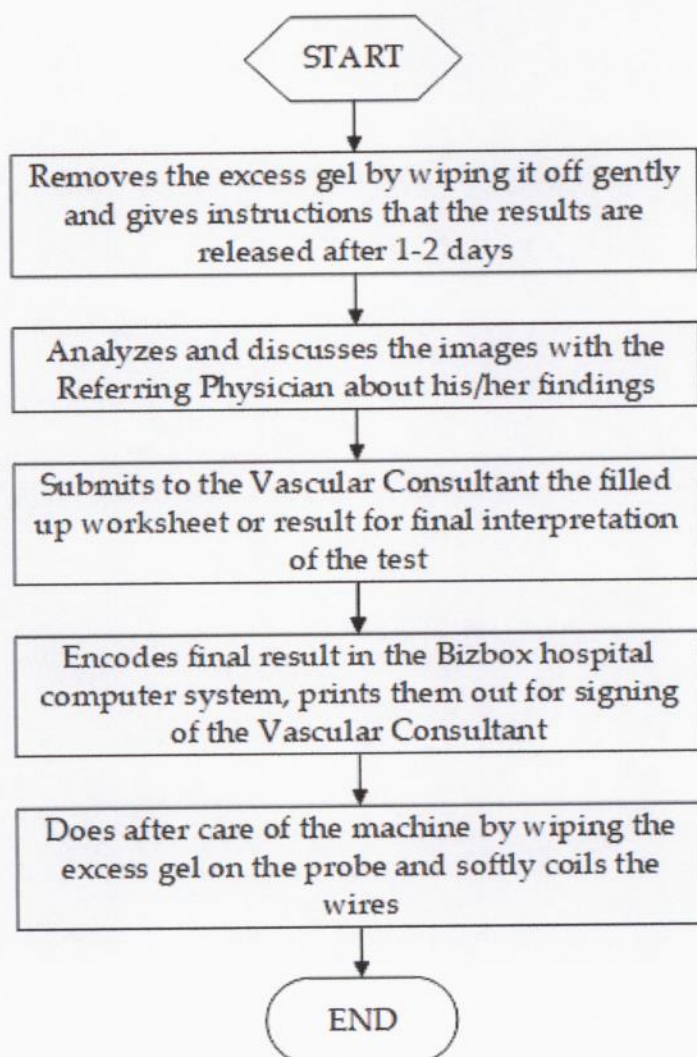


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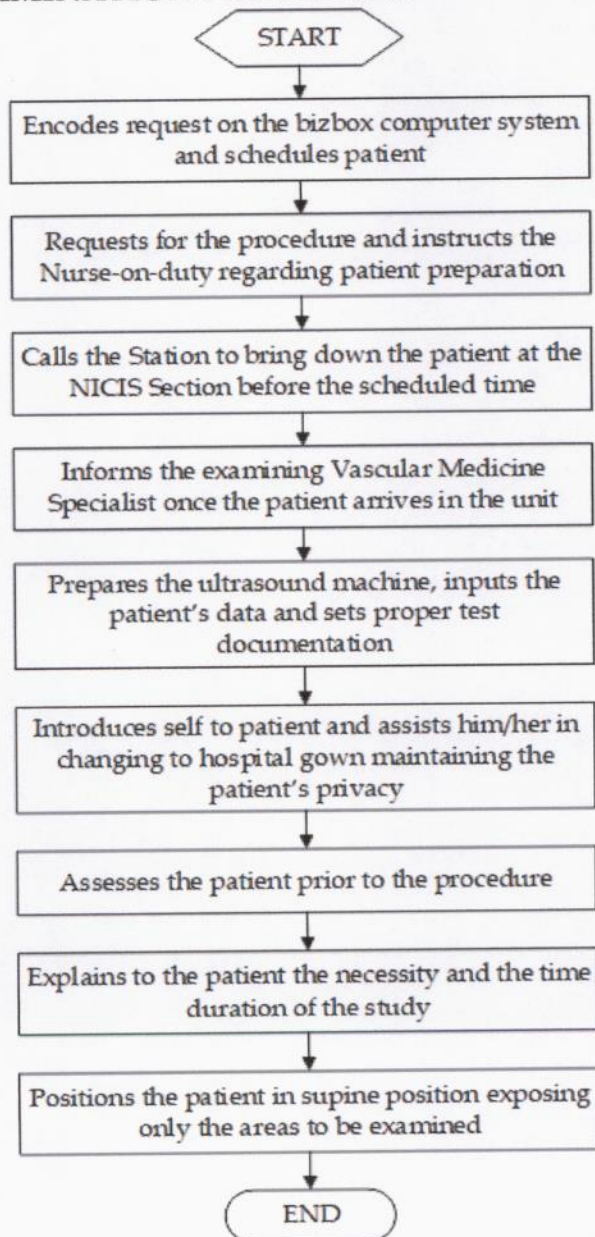
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## OUT-PATIENT POST-EXAMINATION PROCEDURE



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## IN-PATIENT PRE-EXAMINATION PROCEDURE





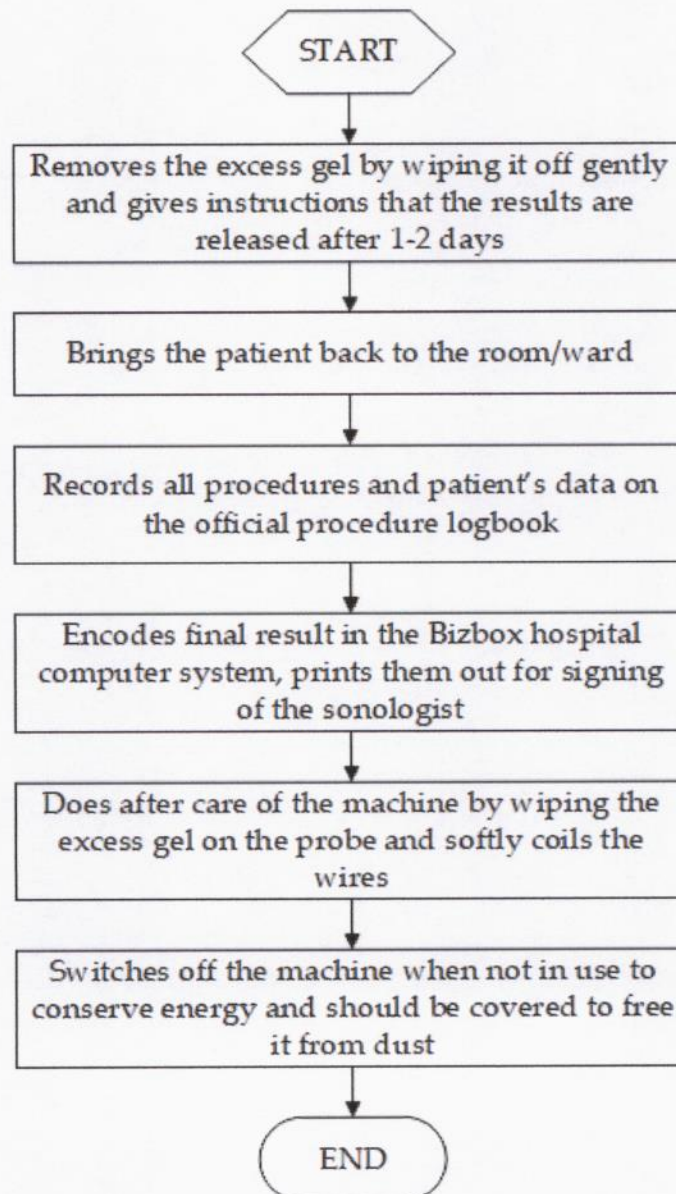



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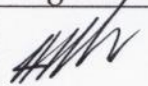


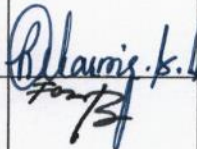
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## IN-PATIENT POST-EXAMINATION PROCEDURE



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	Name/Title	Signature	Date
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Reviewed by:	<b>DENNIS C. ESCALONA, MN, FPCHA, FPSQua</b> Quality Assurance Supervisor		06/30/2022
Recommending Approval:	<b>ROSARIO D. ABARING, MN, MBA-HA, PhD, FPCHA</b> Ancillary Services Division Officer		07.01.2022
	<b>HENRY F. ALAVAREN, MD, FPSMID, FPSQua</b> Total Quality Division Officer		7/7/22
Approved:	<b>GENESIS GOLDI D. GOLINGAN</b> President and CEO		