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	Effective Date:	12-30-2021
	Document Type:	Standard Operating Procedure
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	Department/Section:	Non-Invasive Cardiovascular Imaging Sciences
	Document Title:	2-DIMENSIONAL ECHOCARDIOGRAM

PURPOSE:

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

SCOPE:


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

RESPONSIBLE PERSON:

Cardiologist, 2D Echo Technician (Registered nurse, Physical Therapists and other allied healthcare professionals who had undergone training or certification.)

GENERAL GUIDELINES:


1. All 2D Echo 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.
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 Nurse / Technician must ensure the comfort, safety, security and general condition of a patient throughout the procedure.
5. Patients for 2D Echo should wear hospital gown with its opening in front.
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:

OUT-PATIENT (WALK-IN) PRE-EXAMINATION PROCEDURES:


- 1 The client presents a written request from his/her attending or referring physician to the 2D Echo Nurse Technician.
- 2 The Nurse Technician processes the requested 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 2D Echocardiographer 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 2D Echo procedure which includes:
 - 6.1 Patient's ability to tolerate the procedure
 - 6.2 Potential contraindications to the procedure
 - 6.3 Physical assessment
- 7 The Nurse Technician explains to the patient the necessity and the time duration of the 2D Echo study.
- 8 Positions the patient in supine position exposing only the areas to be examined (left chest area) and attaches ECG electrodes for monitoring while the 2D Echo is on-going.

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DIRECT EXAMINATION PROCEDURES:

- 1 Obtains a parasternal long axis view by beginning to sweep the probe across the parasternal area in the 3rd or 4th intercostal space. The transducer should be angled so that the aortic valve, mitral valve and the left ventricular area are in their long axis. Measures the following in M-mode or 2D:
 - 1.1 In systole and end-diastole, measure the anterior septum, left ventricular internal diameter and posterior wall to assess for thickness.
 - 1.2 The aortic root will be measured at end-diastole.
 - 1.3 The left atrium is measured in end-diastole at its greatest anterior-posterior dimension.
 - 1.4 Interrogate the aortic and mitral valves with Color Doppler to check for regurgitation.
- 2 Obtains a parasternal short axis view at the level of the aortic valve by moving the probe to a 90 degree turn from the long axis view to visualize a circular short axis view of the left ventricle to check for the wall motion and contractility.
- 3 The endocardial borders help determine the segmental position of the heart (mitral valve=base, papillary muscle=mid section, small diameter=apex). Obtain a right ventricular inflow view to interrogate the pulmonic and tricuspid valves by slightly tilting the probe. Use Color Doppler to check for regurgitation.
- 4 Obtains an apical four chamber view by placing the probe over the tip of the heart (apex is seen on top of the image) to provide information regarding the size of the hearts chamber.

NOTE: Gain and compression should be optimized for each view to visualize the best echocardiographic window.


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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 Echocardiographer.
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 Echocardiographer 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 Echocardiographer 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 Echocardiographer 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 2D Echo 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.

IN-PATIENT PRE-EXAMINATION PROCEDURES:


- 1 The staff nurse on duty encodes request on the bizbox computer system and schedules patient upon receiving doctor's order for 2D Echo.
- 2 Nurse Technician renders request for 2D Echo. All rendered request are automatically charged to the patient's account.
- 3 The Nurse Technician calls the station to bring down the patient at NICIS Department before the scheduled time.

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- 4 The Nurse Technician informs the examining 2D Echocardiographer 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 identity using the two patient identifier.
- 7 The Nurse Technician assesses the patient prior to the 2D Echo procedure which includes:
 - 7.1 Patient's ability to tolerate the procedure
 - 7.2 Potential contraindications to the procedure
 - 7.3 Physical assessment
- 8 The Nurse Technician explains to the patient the necessity and the time duration of the 2D Echo study.
- 9 The Nurse Technician positions the patient in supine position exposing only the areas to be examined (left chest area) and attaches ECG electrodes for monitoring while the 2D Echo is on going.

DIRECT/POST-EXAMINATION PROCEDURES:

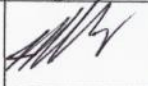
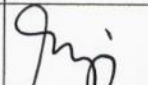

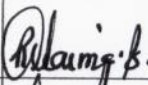
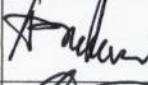
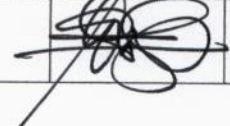
1. The Nurse Technician removes the excess gel by wiping it off gently and asks the patient to wait while the ultrasound images are being reviewed by the Echocardiographer.
2. Gives instructions that the results are released 1-2 days after the Vascular Consultant Specialist had affixed his/her signature and are considered official.
3. The patient is brought back to the room/ward.
4. The Echocardiographer 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 Echocardiographer filled-up worksheet of result for the final interpretation of the test.


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6. The Nurse Technician encodes final result in the Bizbox hospital computer system, prints them out for signing of the Echocardiographer 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 2D Echo 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.

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APPROVAL:

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Reviewed by:	DENNIS C. ESCALONA, MN, FPCHA, FPSQua Quality Assurance Supervisor		1/27/2022
Recommending Approval:	ROSARIO D. ABARING, RN, MN, PhD, FPCHA Ancillary Division Officer		02.02.2022
	HENRY F. ALAVAREN, MD, FPSMID, FPSQua Total Quality Division Officer		2/3/2022
Approved:	GENESIS GOLDI D. GOLINGAN President & CEO		3/3/22

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PRE-EXAMINATION PROCEDURES	
KEY TASKS	PERSON RESPONSIBLE
1. Presents a written request from Attending or Referring Physician.	Patient
2. Processes the requested 2D Echo procedure on the Bizbox Hospital computer system.	Nurse Technician
3. Informs the examining 2D Echo Cardiographer.	
4. Prepares the ultra sound machine and inputs the patient's data and sets the equipment for proper test documentation.	
5. Does assessment of the patient prior to procedure.	
6. Explains to the patient the necessity and the time duration of the 2D echo study.	
7. Positions the patient in supine position exposing only the areas to be examined (left chest area) and attaches ECG electrodes.	
8. Performs direct examination according to different approaches.	




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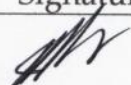
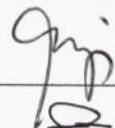

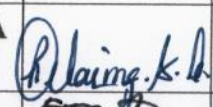
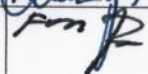
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POST EXAMINATION PROCEDURES	
KEY TASKS	PERSON RESPONSIBLE
1. Removes the excess gel by wiping it off gently and assists and gives instructions that the results are released 1-2 days after.	Nurse Technician
2. Analyzes the images with the Referring Physician.	Echocardiographer
3. Submits to the Echocardiographer the filled-up worksheet of result for the final interpretation of the test.	Nurse Technician
4. Encodes final result in the Bizbox hospital computer system and print.	
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.	Vascular Nurse Technician

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APPROVAL:

	Name/Title	Signature	Date
Prepared by:	MA. LLANA LINDA D. CARDONES, RN NICIS Supervisor		5-12-22
Verified:	BONIFACIO C. SEPICO, RMT Department of Imaging Sciences Manager		5/26/22
Reviewed:	DENNIS C. ESCALONA, MN, FPSQua Quality Assurance Supervisor		06/30/2022
Recommending Approval:	ROSARIO D. ABARING, RN, MN, PhD, FPCHA Ancillary Services Division Officer		07-01-2022
	HENRY F. ALAVAREN, MD, FPSMID, FPSQua Total Quality Division Officer		7/2/22
Approved:	GENESIS GOLDI D. GOLINGAN President and CEO		

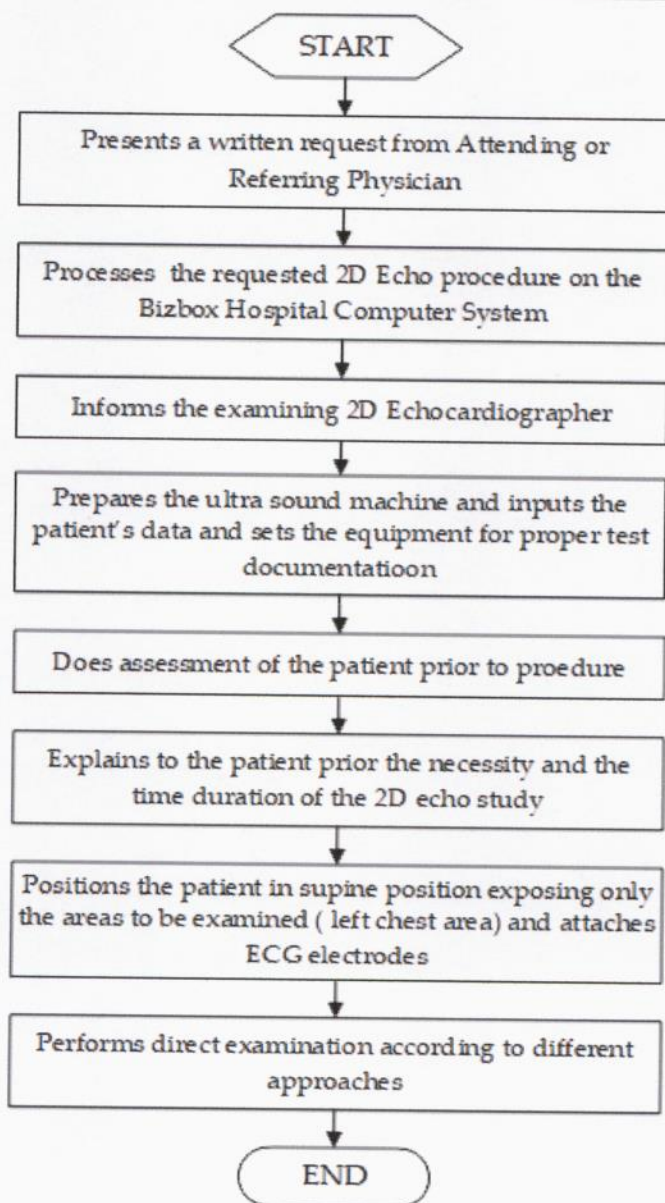



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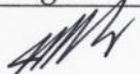
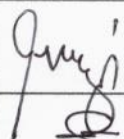


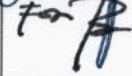
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FLOWCHART



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