



NATIONAL HEART FAILURE REGISTRY OF INDIA

Supported by



Indian Council of Medical Research

STANDARD OPERATING PROCEDURE

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National Heart Failure Registry of India (NHFR INDIA)

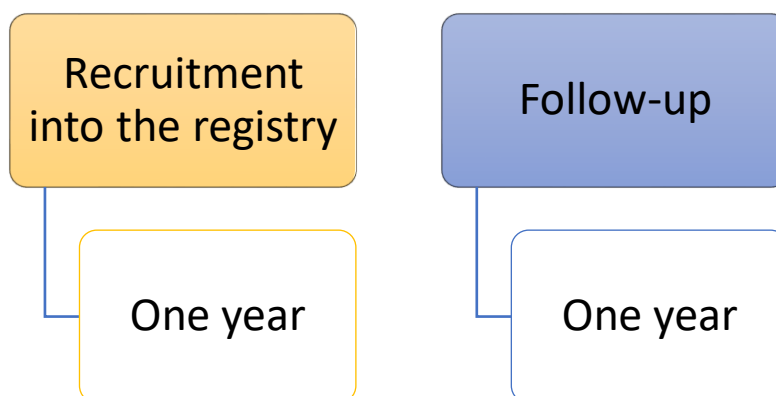
Heart Failure (HF) is an important cardiovascular problem in India and its prevalence appears to rise. The data from the ICMR funded Trivandrum Heart Failure Registry shows that the Indian patients are younger by 10 years and majority of the burden is below 65 years of age compared to the west. We have no data on heart failure representative of the country.

Study objectives

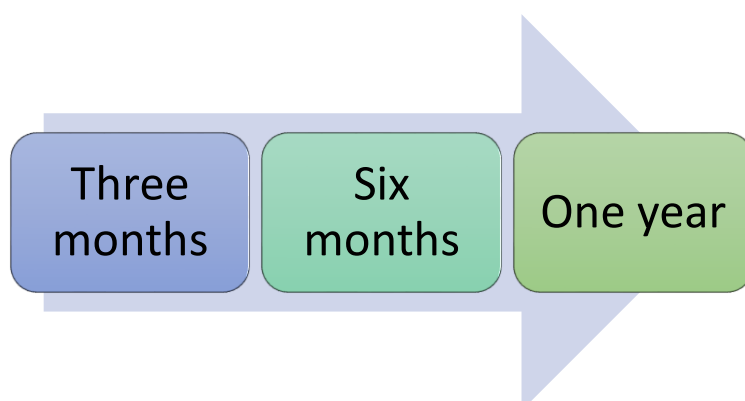
To establish a Heart Failure Registry representative of the different regions of the country to study:

1. Etiology, Modes of presentation
2. Trends in management, outcomes
3. 90 day, 6 M and One year mortality
4. Readmission rate, causes

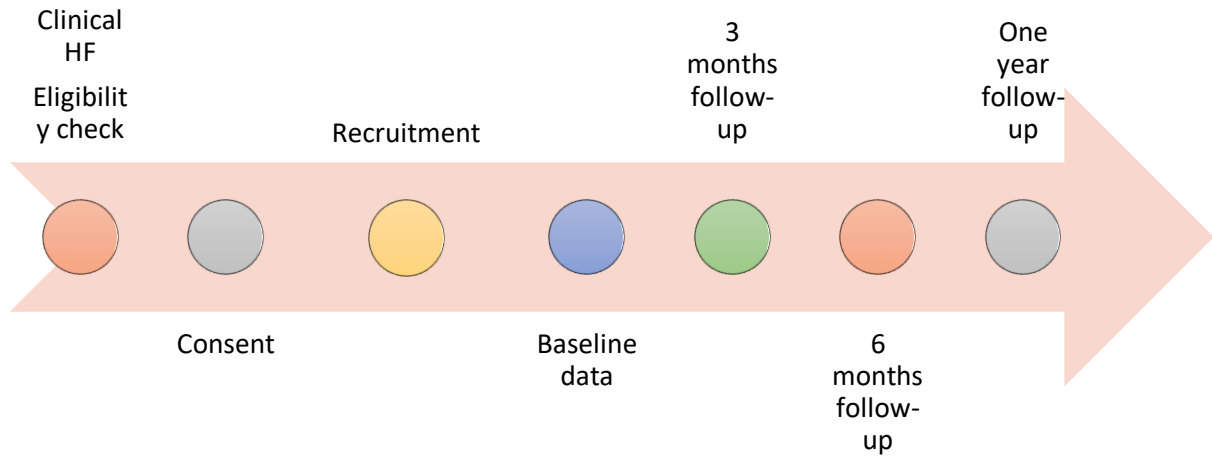
Duration



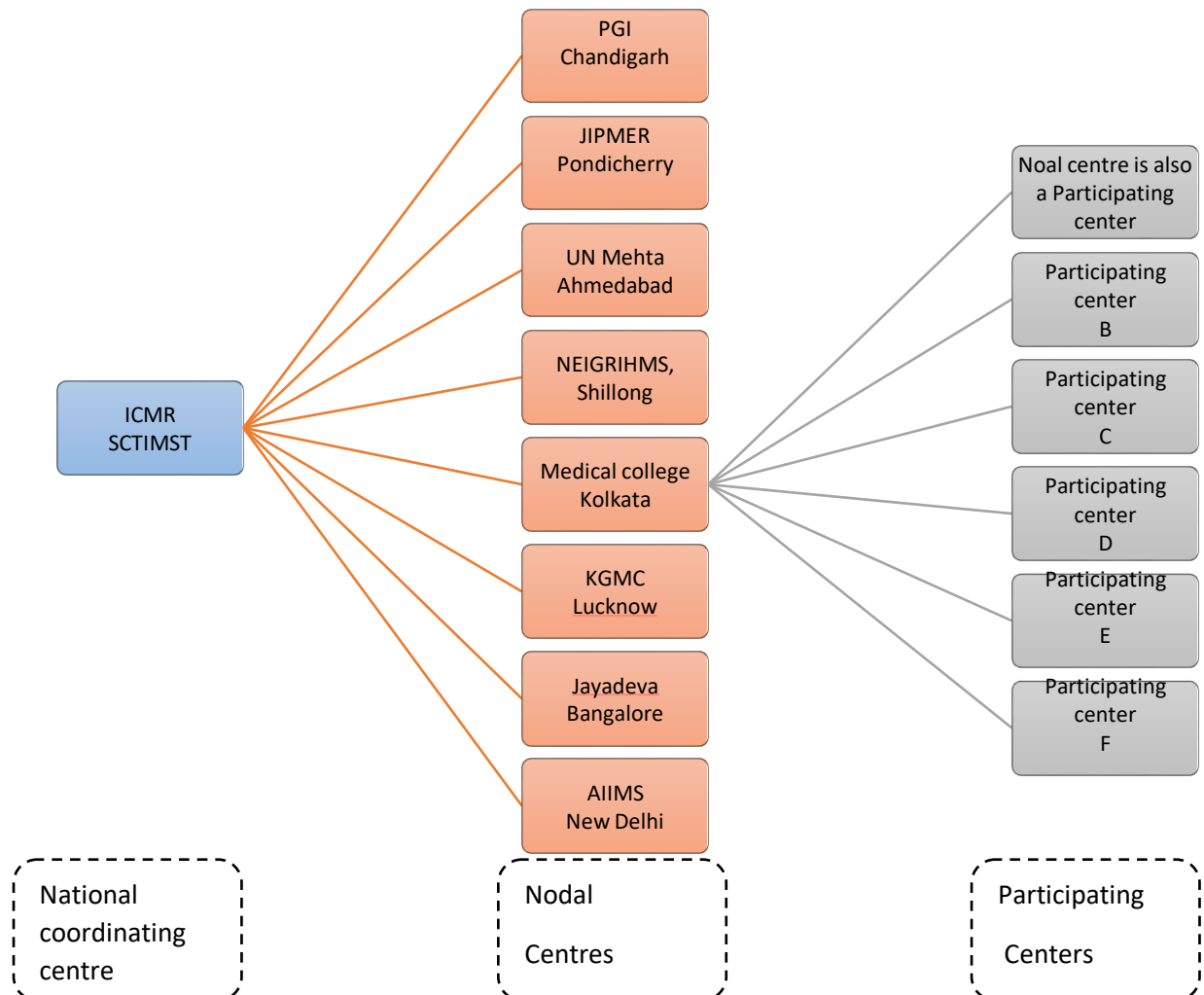
Follow-ups



Study process



Participating centres



A1. Patient ID: _____ - _____ - _____

A2. Date of recruitment: ____ / ____ / ____



NATIONAL HEART FAILURE REGISTRY OF INDIA - DATA COLLECTION FORM

Inclusion criteria checklist *(All must be yes for each type of HF)*

Any admission with acute decompensated heart failure must be screened

For all	Yes	No	A3. Age \geq 18 years
	Yes	No	A4. Indian citizen
	Yes	No	A5. Consented for the study
A6.1 Heart failure with reduced ejection fraction (HFrEF)			
	Yes	No	A6.1a Symptoms \pm Signs
	Yes	No	A6.1b LVEF < 40%
A6.2 Heart failure with mid-range ejection fraction (HFmrEF)			
	Yes	No	A6.2a Symptoms \pm Signs
	Yes	No	A6.2b LVEF 40% - 49%
A6.3 Heart failure with preserved ejection fraction (HFpEF)			
	Yes	No	A6.3a Symptoms \pm Signs
	Yes	No	A6.3b LVEF \geq 50%
	Yes	No	A6.3c Structural heart disease by echo (LVH or LAE) or LV diastolic dysfunction
	Yes	No	A6.3d Elevated levels of natriuretic peptides (BNP > 100 pg/ml or NT-proBNP >300 pg/ml) <i>[If available]</i>
A6.4 Isolated right heart failure			

BASELINE DATA *(At the time of current admission)*

B1	Hospital number:													
B2	Full name of the patient:													
B3	Age in completed years			B4 Date of birth										
				D	D	M	M	Y	Y	Y	Y			
B5	Sex	1. Male		2. Female										
B6	House/Flat name or number													
B7	Street/locality/sector													
B8	Post office													
B9	District													
B10	State/UT													
B11	PIN Code													
B12	ADHAAR No													
B13	Patient's mobile phone number				0									
B14	Patient's secondary phone number				0									
B15	Relative's or caregiver's phone number				0									
B16	Relative's or caregiver's secondary phone number				0									

Participant ID: ___ - ___ - ___ - ___

B17	Total number of years of education completed (Zero for illiterate)																			
B18	Date of confirmation of HF												D	D	M	M	Y	Y	Y	Y
B19	Signs and symptoms: <i>(Tick all applicable)</i>																			
	Symptoms						Signs													
	B19.1	B19.2	B19.3	B19.4	B19.5	B19.6	B19.7	B19.8	B19.9	B19.10	B19.11	B19.12	B19.13							
	Dyspnoea / PND / Orthopnoea	Fatigue / ↓effort tolerance	H/o oedema	Palpitation	Angina	Ascites	Lung rales	Pleural effusion /ascites	↑JVP	S3	Dependent oedema	Hepatomegaly	Cardiomegaly							
B20	Type of heart failure																			
	1. HF with reduced EF (<40%)			2. HF with mid-range EF (40-49%)			3. HF with preserved EF (≥ 50%)			4. Isolated right heart failure										
B21	Full diagnosis: <i>(to be written)</i>																			
B22	Etiology of HF <i>(Tick all applicable)</i>																			
	B22.1	B22.2	B22.3	B22.4	B22.5	B22.6	B22.7	B22.8	B22.9	B22.10	B22.11	B22.12								
	Ischemic Heart Disease	Rheumatic heart disease	Non rheumatic valvular heart disease	Dilated cardio myopathy	Hypertrophic cardio myopathy	Restrictive cardio myopathy	Congenital heart disease	Right heart failure	Peripartum cardio myopathy	Myocarditis	Infective endocarditis	Others Specify								
B23	Risk factors <i>(Tick all applicable)</i>																			
	B23.1	B23.2	B23.3	B23.4	B23.5	B23.6	B23.7	B23.8	B23.9	B23.10	B23.11	B23.12	B23.13							
	Tobacco use (current or ex)	Alcohol use (current or ex)	Hypertension	Diabetes mellitus	Atrial Arrhythmia	Hypothyroidism	Hyperthyroidism	H/o Stroke/ TIA	COPD	CKD	Chemotherapy / Drugs / radiation	Anaemia	Others Specify							

Participant ID: ___ - ___ - ___ - ___

B24	Previous HF admission	<input type="checkbox"/> 1. Yes	<input type="checkbox"/> 2. No													
B25	If Yes, last HF admission date	<input type="text"/> D	<input type="text"/> D	<input type="text"/> M	<input type="text"/> M	<input type="text"/> Y	<input type="text"/> Y	<input type="text"/> Y	<input type="text"/> Y							
B26	Number of previous HF admissions in the last 12 months excluding current admission								<input type="text"/>							
B27	Procedures performed previously or in this admission (<i>tick all applicable and enter the date</i>)															
	Procedure		Date				Procedure		Date							
	B27.1 CAG 1		<input type="text"/> D	<input type="text"/> D	<input type="text"/> M	<input type="text"/> M	<input type="text"/> Y	<input type="text"/> Y	<input type="text"/> Y	<input type="text"/> Y	B27.8 MVR/ AVR					
	B27.2 CAG 2		<input type="text"/> D	<input type="text"/> D	<input type="text"/> M	<input type="text"/> M	<input type="text"/> Y	<input type="text"/> Y	<input type="text"/> Y	<input type="text"/> Y	B27.9 CRT-D					
	B27.3 PCI 1		<input type="text"/> D	<input type="text"/> D	<input type="text"/> M	<input type="text"/> M	<input type="text"/> Y	<input type="text"/> Y	<input type="text"/> Y	<input type="text"/> Y	B27.10 AICD					
	B27.4 PCI 2		<input type="text"/> D	<input type="text"/> D	<input type="text"/> M	<input type="text"/> M	<input type="text"/> Y	<input type="text"/> Y	<input type="text"/> Y	<input type="text"/> Y	B27.11 PPI					
	B27.5 BMV/BAV 1		<input type="text"/> D	<input type="text"/> D	<input type="text"/> M	<input type="text"/> M	<input type="text"/> Y	<input type="text"/> Y	<input type="text"/> Y	<input type="text"/> Y	B27.12 Specify 1					
	B27.6 BMV/BAV 2		<input type="text"/> D	<input type="text"/> D	<input type="text"/> M	<input type="text"/> M	<input type="text"/> Y	<input type="text"/> Y	<input type="text"/> Y	<input type="text"/> Y	B27.13 Specify 2					
	B27.7 CABG		<input type="text"/> D	<input type="text"/> D	<input type="text"/> M	<input type="text"/> M	<input type="text"/> Y	<input type="text"/> Y	<input type="text"/> Y	<input type="text"/> Y	B27.14 Specify 3					
B28	Current admission date								<input type="text"/> D	<input type="text"/> D	<input type="text"/> M	<input type="text"/> M	<input type="text"/> Y	<input type="text"/> Y	<input type="text"/> Y	<input type="text"/> Y
B29	NYHA Class	<input type="checkbox"/> Class I	<input type="checkbox"/> Class II	<input type="checkbox"/> Class III	<input type="checkbox"/> Class IV											
B30	Heart rate (Beats per minute) At admission	<input type="text"/>	<input type="text"/>	<input type="text"/>												
B31	SBP (mm of Hg) At admission	<input type="text"/>	<input type="text"/>	<input type="text"/>	B32 DBP (mm of Hg) At admission	<input type="text"/>	<input type="text"/>	<input type="text"/>								
B33	JVP	<input type="checkbox"/> 1. Elevated	<input type="checkbox"/> 2. Not elevated	B34 Any Ventricular arrhythmia (VT/VF)				<input type="checkbox"/> 1. Yes	<input type="checkbox"/> 2. No							
B35	Peak Trop-T ng/L	<input type="text"/>	<input type="text"/>	<input type="checkbox"/> Positive	<input type="checkbox"/> Negative	B36 Peak Trop-I ng/L	<input type="text"/>	<input type="text"/>	<input type="checkbox"/> Positive	<input type="checkbox"/> Negative						
B37	Hb (g/dl) (lowest)	<input type="text"/>	<input type="text"/>	<input type="text"/>	B38 Serum creatinine mg/dl (highest)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>							
B39	Serum urea mg/dL (highest)	<input type="text"/>	<input type="text"/>	<input type="text"/>	B40 BUN mg/dL (highest)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>							
B41	Serum Na (mEq/L) at admission	<input type="text"/>	<input type="text"/>	<input type="text"/>	B42 Serum K (mEq/L) at admission	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>							
B43	BNP pg/ml At admission	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	B43a NT Pro BNP pg/ml At admission	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>						
B44	BNP pg/ml At discharge	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	B44a NT Pro BNP pg/ml At discharge	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>						
B45	ECG - Rhythm (tick all applicable)	<input type="checkbox"/> 1. SR	<input type="checkbox"/> 2. AF	<input type="checkbox"/> 3. Paced	<input type="text"/> 4. Others Specify:											
B46	QRS complex	<input type="checkbox"/> 1. Normal	<input type="checkbox"/> 2. LBBB	<input type="checkbox"/> 3. RBBB	<input type="checkbox"/> 4. IVCD											
B47	Echo - EF %	<input type="text"/>	<input type="text"/>	B48 RVSP: mm of Hg	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>							

Participant ID: ___ - ___ - ___ - ___

B49	LV diastolic dysfunction	1. No	2. Mild	3. Moderate	4. Severe
B50	MR	1. No	2. Mild	3. Moderate	4. Severe
B51	Echo - any other descriptive finding				
B52	Ventilation during current admission	1. No	2. NIV	3. Invasive	
B53	Mechanical circulatory support during current admission	1. No	2. IABP	3. VAD	
B54	Weight at admission in Kgs	<input type="text"/>	<input type="text"/>	<input type="text"/>	• <input type="text"/>
	B55 Weight at discharge in Kgs	<input type="text"/>	<input type="text"/>	<input type="text"/>	• <input type="text"/>
B56	Height in cm	<input type="text"/>	<input type="text"/>	<input type="text"/>	• <input type="text"/>
B57	Other investigation Specify (TSH, HbA1c)				
MEDICATION <i>(Tick all applicable drugs)</i>					
	Drugs <i>(Write generic name and dose for 58,59,60)</i>	Admission	Discharge	Specify reason for not prescribing 58,59,60	
B58	Beta-blocker <i>Specify:</i>	Dose	Dose		
B59	ACEI / ARB <i>Specify:</i>	Dose	Dose		
B60	Aldosterone blocker	<i>Eplerenone</i> <input type="text"/>	Dose	Dose	
		<i>Spironolactone</i> <input type="text"/>			
B61	Diuretic - Thiazide			Intravenous drugs <i>(Tick more than one if needed)</i>	During hospitalization
B62	Diuretic - Loop diuretic				
B63	Diuretic - Others			B75	Epinephrine
B64	Digoxin			B76	Norepinephrine
B65	ARNI			B77	Dopamine
B66	Nitrates			B78	Dobutamine
B67	Other vasodilator <i>Specify</i>			B79	Milrinone
B68	Ca channel blocker			B80	Levosimendan
B69	Heparin/ LMWH			B81	NTG
B70	OAC			B82	Diuretic
B71	Ivabradine			B83 Other cardiac drugs (Oral/IV)	
B72	Pulmonary vasodilator				
B73	Antiplatelet				
B74	Antibiotic				
B84	Outcome	1. Discharge	2. Death	3. Referred	
B85	If death, cause of death	1. SCD	2. Pump failure	3. MODS	4. Others-Specify: <input type="text"/>
B86	Date of discharge/death/referral	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Patient ID: _____ - _____ - _____



NHFR INDIA FOLLOW-UP FORM

C1	Follow-up visit	Three months	Six months	One year											
C2	Date of follow-up visit	D	D	M	M	Y	Y	Y	Y						
C3	Type of follow-up visit: 1. Clinic visit 2. Telephonic follow-up 3. Medical record search 4. By proxy	<input type="checkbox"/>													
C4	Status at the time of follow-up: 1. Alive 2. Died 3. Lost to follow-up	<input type="checkbox"/>													
C5	If died, died in the hospital?	1. Yes	2. No	3. Unknown											
C6	If died, cause of death?	1. CVD	2. Non-CVD	3. Unknown											
C7	If CVD, specify	1. SCD	2. Pump failure	3. MODS	4. Stroke	5 CKD	6. Others-Specify: <input type="text"/>								
C8	If died, date of death <i>(most accurate/approximate)</i>	D	D	M	M	Y	Y	Y	Y						
C9	If died, please narrate the event														
C10	If lost to follow-up, date last known alive	D	D	M	M	Y	Y	Y	Y						
C11	Readmission since discharged from the recruited hospital	1. Yes	2. No	C12 If yes, number of readmissions since discharged from the recruited hospital				<input type="text"/>							
C13	Procedures since the last follow-up with dates														
C14	NYHA Class	Class I	Class II	Class III	Class IV	C15 Echo - EF %				<input type="text"/>	<input type="text"/>				
C16	Heart rate	<input type="text"/>	<input type="text"/>	<input type="text"/>	C17 SBP		<input type="text"/>	<input type="text"/>	<input type="text"/>	C17a DBP		<input type="text"/>	<input type="text"/>	<input type="text"/>	
C18	BNP pg/ml	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	C18a NT Pro BNP pg/ml				<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		
C19	Serum creatinine mg/dl	<input type="text"/>	<input type="text"/>	.	<input type="text"/>	<input type="text"/>	C20 Weight in Kgs				<input type="text"/>	<input type="text"/>	<input type="text"/>	.	<input type="text"/>
MEDICATION <i>(Tick all applicable drugs)</i> Write generic name and dose for 21,22,23															
C21	Beta-blocker Specify:					Dose		C24 Diuretic							
C22	ACEI / ARB Specify:					Dose		C25 ARNI							
C23	Aldosterone blocker	<i>Eplerenone</i>		<input type="text"/>	Dose		C26 Digoxin								
		<i>Spironolactone</i>		<input type="text"/>											
Morisky, Green and Levine medication adherence scale															
	Question	Strongly agree	Agree	Disagree	Strongly disagree	Don't know									
C27	I sometimes forget to take my medicines.														
C28	I am sometimes careless about taking my medicines.														
C29	When I feel better, I sometimes stop taking my medicines.														
C30	If I feel worse when I take my medicine, sometimes I stop taking it.														

Please be very careful while filling the data collection form and consult the Principal investigator (PI) or Co-Principal investigator (Co-PI) in case you have doubts about filling. You are welcome to contact Nodal Centre / National Coordinating centre for any clarification. The incorrect data will ruin the study.

DATA COLLECTION FORM

A1 Patient ID - Patient ID has 2 parts first 2 digit represent Centre number next 3 digit represent patient serial number (centre ID provided by coordinating centres)

A2 Date of Recruitment - Date of recruitment must enter in dd/mm/yyyy format

Inclusion criteria checklist

A3 The patient should be an Indian citizen and age more than 18 years for recruitment

A6 Enter type of heart failure

- Patient should have symptoms with or without signs of heart failure
- Enter type of heart failure based on EF.
- Structural heart disease by echo (LVH or LAE) or LV diastolic dysfunction should be there for HFpEF

DIAGNOSTIC CRITERIA

1. Admission with clinical diagnosis of HF and the discharge diagnosis should also confirm HF.
2. Echocardiography confirmation of diagnosis of structural Heart Disease.
(Demonstration of an underlying cardiac cause is central to the diagnosis of HF. ESC 2016)
3. HF r EF - EF <40%
4. HFmrEF - EF - 40-49%
5. HFpEF - EF >50%

A. Elevated BNP / NT Pro BNP -

Acute HF BNP - 100 pg/mL, NT-proBNP - 300 pg/ MI (ESC 2016)

B. With either of the following

1. Structural Heart Disease by echo – Valvular stenosis or regurgitation,
LVH(left ventricular hypertrophy) or LAE (Left atrial enlargement)
2. Diastolic dysfunction

(BNP = B-type natriuretic peptide; HF = heart failure; HFmrEF = heart failure with mid-range ejection fraction; HFpEF = heart failure with preserved ejection fraction; HFReEF = heart failure with reduced ejection fraction; LAE = left atrial enlargement; LVEF = left ventricular ejection fraction; LVH = left ventricular hypertrophy; NT-proBNP = N-terminal pro-B type natriuretic peptide)

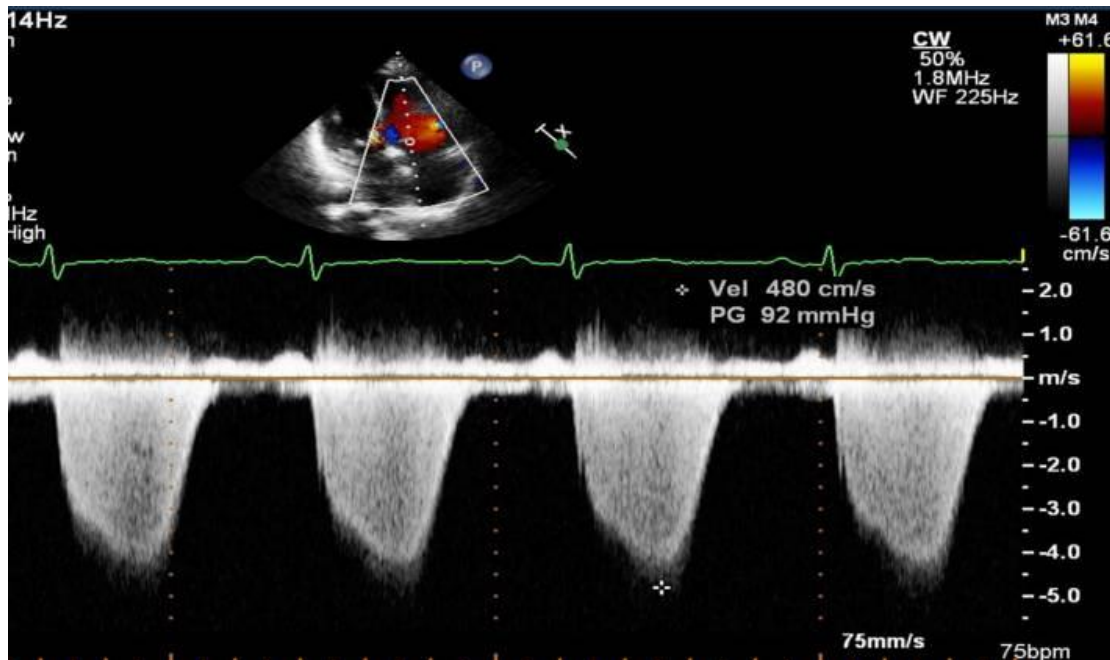
Minimum three out of four conditions should satisfy for the diagnosis of LV diastolic dysfunction in subjects with normal LVEF

- Average E/e' > 14
- Septal e' velocity < 7 cm/s or Lateral e' velocity < 10 cm/s
- TR velocity > 2.8 m/s
- LA volume index > 34 ml/m²

Two-dimensional and Doppler methods for assessment of LV diastolic function

Variable	Acquisition	Analysis
Peak E-wave velocity (cm/sec)	<ol style="list-style-type: none"> 1. Apical four-chamber with colour flow imaging for optimal alignment of PW Doppler with blood flow. 2. PW Doppler sample volume (1–3 mm axial size) between mitral leaflet tips. 3. Use low wall filter setting (100–200 MHz) and low signal gain. 4. Optimal spectral waveforms should not display spikes or feathering. 	Peak modal velocity in early diastole (after ECG T wave) at the leading edge of spectral waveform
Peak A-wave velocity (cm/sec)	<ol style="list-style-type: none"> 1. Apical four-chamber with colour flow imaging for optimal alignment of PW Doppler with blood flow 2. PW Doppler sample volume (1–3 mm axial size) between mitral leaflet tips. 3. Use low wall filter setting (100–200 MHz) and low signal gain. 4. Optimal spectral waveforms should not display spikes or feathering. 	Peak modal velocity in late diastole (after ECG P wave) at the leading edge of spectral waveform
Mitral E/e ₀	E and e' velocities	MV E velocity divided by mitral annular e ₀ velocity
LA maximum volume index (mL/BSA)	<ol style="list-style-type: none"> 1. Apical four- and two-chamber: acquire freeze frames 1–2 frames before MV opening. 2. LA volume should be measured in dedicated views in which LA length and transverse diameters are maximized. 	Method of disks or area-length method and correct for BSA. Do not include LA appendage or pulmonary veins in LA tracings from apical four- and apical two-chamber views.

Nagueh SF, Smiseth OA, Appleton CP, et al. Recommendations for the evaluation of left ventricular diastolic function by echocardiography: an update from the American Society of Echocardiography and the European Association of Cardiovascular Imaging. *J Am Soc Echocardiogr Off Publ Am Soc Echocardiogr.* 2016;29(April (4)):277–314.



Doppler echocardiographic determination of systolic pulmonary artery pressure (SPAP). Spectral continuous-wave Doppler signal of tricuspid regurgitation (TR) jet is used to derive the SPAP. The TR jet velocity indicates the right ventricular (RV) – right atrial (RA) pressure gradient. The SPAP is derived as the sum of the estimated RA pressure (RAP) and the peak pressure gradient between the peak right ventricle and the right atrium, as estimated by application of the modified Bernoulli equation ($4 V^2$ where V is the velocity of the TR jet) to peak velocity represented by the tricuspid regurgitation Doppler signal.⁹ The RAP was estimated from the inferior vena cava diameter. If the IVC was ≤ 21 mm and the deep inspiratory collapse (“sniff test”) was $>50\%$, RAP was estimated to be 3 mmHg; if the diameter was >21 mm and the collapse $<50\%$, RAP was estimated as 15 mmHg; in intermediate cases, a value of 8 mmHg was assigned.⁹ In this example, SPAP is estimated at 92 + central venous pressure, or 100 mmHg, if RAP is assumed to be 8 mmHg.

Symptoms and signs typical of heart failure

Symptoms	Signs
Typical	More specific
Breathlessness Orthopnoea Paroxysmal nocturnal dyspnoea Reduced exercise tolerance Fatigue, tiredness, increased time to recover after exercise Ankle swelling	Elevated jugular venous pressure Hepatojugular reflux Third heart sound (gallop rhythm) Laterally displaced apical impulse
Less typical	Less specific
Nocturnal cough Wheezing Bloating feeling Loss of appetite Confusion (especially in the elderly) Depression Palpitations Dizziness Syncope Bendopnea ⁵³	Weight gain (>2 kg/week) Weight loss (in advanced HF) Tissue wasting (cachexia) Cardiac murmur Peripheral oedema (ankle, sacral, scrotal) Pulmonary crepitations Reduced air entry and dullness to percussion at lung bases (pleural effusion) Tachycardia Irregular pulse Tachypnoea Cheyne Stokes respiration Hepatomegaly Ascites Cold extremities Oliguria Narrow pulse pressure

Table 12.2 Definitions of the terms used in Section 12 on acute heart failure

Term	Definition
Symptoms/signs of congestion (left-sided)	Orthopnoea, paroxysmal nocturnal dyspnoea, pulmonary rales (bilateral), peripheral oedema (bilateral).
Symptoms/signs of congestion (right-sided)	Jugular venous dilatation, peripheral oedema (bilateral), congested hepatomegaly, hepatojugular reflux, ascites, symptoms of gut congestion.
Symptoms/signs of hypoperfusion	Clinical: cold sweated extremities, oliguria, mental confusion, dizziness, narrow pulse pressure. Laboratory measures: metabolic acidosis, elevated serum lactate, elevated serum creatinine. Hypoperfusion is not synonymous with hypotension, but often hypoperfusion is accompanied by hypotension.
Hypotension	Systolic BP <90 mmHg
Bradycardia	Heart rate <40 bpm
Tachycardia	Heart rate >120 bpm
Abnormal respiratory effort	Respiratory rate >25 breaths/min with use of accessory muscles for breathing, or respiratory rate <8 breaths/min despite dyspnoea.
Low O ₂ saturation	O ₂ saturation (SaO ₂) <90% in pulse oximetry Normal SaO ₂ neither excludes hypoxaemia (low PaO ₂) nor tissue hypoxia.
Hypoxaemia	O ₂ partial pressure (PaO ₂) in arterial blood <80 mmHg (<10,67 kPa) (blood gas analysis).
Hypoxaemic respiratory failure (type I)	PaO ₂ <60 mmHg (<8 kPa)
Hypercapnia	CO ₂ partial pressure (PaCO ₂) in arterial blood >45 mmHg (>6 kPa) (blood gas analysis).
Hypercapnic respiratory failure (type II)	PaCO ₂ >50 mmHg (>6,65 kPa).
Acidosis	pH <7.35
Elevated blood lactate	>2 mmol/L
Oliguria	Urine output <0.5 mL/kg/h

BP = blood pressure; bpm = beats per minute; PaCO₂ = partial pressure of carbon dioxide in arterial blood; PaO₂ = partial pressure of oxygen in arterial blood; SaO₂ = oxygen saturation.

Typically, symptoms and signs of AHF reflect fluid overload (pulmonary congestion and/or peripheral oedema) or, less often, reduced cardiac output with peripheral hypoperfusion. Since the sensitivity and specificity of symptoms and signs are often not satisfactory, careful clinical evaluation needs to be followed by additional investigations

BASELINE DATA

Demographic Data

- B1. Hospital number : Enter correct hospital number for future reference
- B2. Name of the patient : Write patient's full name (CAPITAL LETTER)
- B3. Date of birth (dd-mm-yyyy) : day-month-year format, eg:01-01-2019
- B4. Age : in completed years
- B5. Sex : Male/Female
- B6. House Name & House Number : Enter correct house name and house number
- B7. Street & locality : Exact place name and location

- B8. Post office : Name of the post office
- B9. District : Name of the district where the patient is staying
- B10. State : Name of the state or UT where the patient is living
- B11. Pin Code : Enter the correct pin code number
- B12. ADHAAR No : Enter the correct ADHAAR No
- B13. Patient Mobile Number : Must be correct with 10 digits
- B14. Patient's secondary phone number : Patient second contact number
- B15. Relative's phone number : Patient's close relative's phone number
- B16. Relative's secondary phone number : Patient's close relative's second contact number
- B17. Years of education completed: Enter exact years of schooling completed, Enter zero for illiterate
- B18. Date of confirmation of HF : First date of heart failure diagnosis as clinically

B19 Symptoms

Dyspnea –Difficult or Labored breathing

PND - **Paroxysmal nocturnal dyspnea** or **paroxysmal nocturnal dyspnoea** (PND) refers to attacks of severe shortness of breath and coughing that generally occur at night. It usually awakens the person from sleep, and may be quite frightening

Orthopnea -orthopnea is shortness of breath (dyspnea) that occurs when lying flat

Fatigue - Feeling of tiredness

↓ **effort tolerance** - inability or decreased ability to perform physical exercise

H/O Edema- pedal edema or abdominal distension

Lung rales: presence of Crepitations, if chest is clear mention as no Rales

Pleural effusion/ascites: collection of fluid in the pleural cavity / abdominal cavity (as per doctor's notes)

JVP: Jugular venous pressure please mention if it is elevated or not, if available mention the height in centimeters (as per doctors notes)

Edema: as per physical examination

Hepatomegaly/cardiomegaly/S3/murmur: as per physical examination by doctors

B21. Admitting diagnosis: please mention complete diagnosis of the patient, written in the case file by the doctors

B22. Etiology of heart failure: (please tick whichever applicable)

Ischemic heart disease - Coronary heart disease is a common term for the buildup of plaque in the heart's arteries that could lead to heart attack

Rheumatic heart disease - Rheumatic heart disease (RHD) is damage to one or more heart valves that remains after an episode of acute rheumatic fever (ARF) is resolved. It is caused by an episode or recurrent episodes of ARF

Non rheumatic valvular heart disease- Heart valve problems can result from disease, infection (endocarditis) or a defect present at birth. When the valves don't open or close completely during each heartbeat, the heart muscle has to pump harder to keep the blood moving. If the workload becomes too great, heart failure results.

Dilated cardio myopathy - DCM is a condition in which the heart's ability to pump blood is decreased because the heart's main pumping chamber, the left ventricle, is enlarged and weakened.

Hypertrophic cardio myopathy - Hypertrophic cardiomyopathy (HCM) is a disease in which the heart muscle (myocardium) becomes abnormally thick (hypertrophied). The thickened heart muscle can make it harder for the heart to pump blood.

Restrictive cardio myopathy - (RCM) is a form of cardiomyopathy in which the walls of the heart are rigid (but not thickened). Thus the heart is restricted from stretching and filling with blood properly

Congenital heart disease - A congenital heart defect (CHD), also known as a congenital heart anomaly or congenital heart disease, is a problem in the structure of the heart that is present at birth

Right heart failure - When the **right** side loses pumping power, blood backs up in the body's veins. This usually causes swelling or congestion in the legs, ankles and swelling within the abdomen such as the GI tract and liver (causing ascites)

Peripartum cardiomyopathy - Peripartum cardiomyopathy (PPCM), also known as postpartum cardiomyopathy, is an uncommon form of heart failure that happens during the last month of pregnancy or up to five months after giving birth. PPCM is a dilated form of the condition, which means the heart chambers enlarge and the muscle weakens

Myocarditis: Inflammation and damage of the heart muscle.

Others – Specify – eg. Severe lung disease, Diabetes, severe anemia, hyperthyroidism, arrhythmia or dysrhythmia etc

B23. Risk factors (tick all applicable)

- | | | |
|---------------------------|---|--|
| Tobacco | : | Current or Ex (previous history) |
| Alcohol | : | Current or Ex (previous history) |
| HTN | : | Hypertension: yes / no |
| DM | : | Diabetes Mellitus: yes/no |
| Atrial arrhythmias | : | Afib (atrial fibrillation)/AF (atrial flutter) /no |
| Thyroid function | : | yes/no. Hypo/Hyper/Euthyroid |
| Stroke/TIA | : | yes/no (stroke: neurological deficit persisting more than 24hrs/ TIA: trans ischemic attack: neurological deficit recovered less than 24 hrs without persistent deficit) |
| COPD | : | chronic obstructive pulmonary disease yes/no |
| CKD | : | chronic kidney disease yes/no |

Chemotherapy/drugs: if treated or treating with these drugs yes/no (Anticancer drugs)

B24 Previous HF admission : if applicable please mention yes /no

B25 Last HF admission date: if histories of previous hospitalization with HF mention the date

B26 No: of admissions in last 12 months with HF: mention if occurred

B27 Procedures performed previously or in this admission (tick all applicable and enter date)

CAG: Coronary Angiogram

PCI: percutaneous coronary intervention/PTCA/stenting/coronary angioplasty

BMV/BAV : Balloon Mitral Valvotomy /Balloon Atrial Valvotomy

CABG: Coronary arteries bypass grafting

MVR/AVR: Mitral Valve Repair/Replacement /Aortic Valve Repair/Replacement

CRT-D/CRT-P: cardiac re-synchronization therapy/triple chamber pacing/Defibrillation/pacing

AICD: implantable cardioverter defibrillator

PPI: permanent pacemaker implantation

Any Other-Specify: Eg- ASD device closure, aneurysm repair, TAVI, TAVR, any other major surgeries

Clinical features: ECG, LABs & ECHOCARDIOGRAPHY (mark NA if not available)

B28 Admission date – dd/mm/yyyy format

B29 NYHA Class - NEWYORK HEART ASSOCIATION functional class for symptoms (I, II, III, IV)

B30 HR: heart rate (bpm)

B31 SBP: systolic blood pressure (mm of Hg)

B32. DBP: Diastolic blood pressure (mm of Hg)

B33. JVP : Jugular Venous Pressure elevated or not

B34. Any VT: any Ventricular arrhythmia (Yes/No)/ Ventricular tachycardia

B35, 36. Enter peak Trop T or Trop I value

B37. Hb (g/dl): Enter the haemoglobin value

B38. Highest serum creatinine value during current hospital admission

B39. Highest urea or BUN value during current hospital admission

B41. Serum Na: mention the serum sodium level (mEq/L) first value at current admission

B42. Serum K: mention the serum potassium level (mEq/L) first value at current admission

- B43. BNP: mention whether it is BNP - B-type natriuretic peptide
- B44. NT Pro BNP: Mention N terminal Pro B-type natriuretic peptide value
- B45. ECG Rhythm (SR/AF/Paced): Sinus rhythm/Atrial fibrillation/paced rhythm
- B46. QRS complex- LBBB (left bundle branch block)/RBBB (right bundle branch block)/ Normal/IVCD-
Intraventricular conduction delay
- B47 ECHO- EF: ejection fraction (%)
- B48. RVSP: right ventricular systolic pressure
- B49. Diastolic dysfunction – Mild/Moderate/Severe
- B50. MR : mitral regurgitation: mild (1-2+)/moderate (3+)/severe (4+)
- B51. Echo-any other descriptive finding –
- B52. Mechanical Ventilation - No/Noninvasive (BiPAP or CPAP) /Invasive
- B53. Mechanical Circulatory Support – No/Intra-Aortic Balloon pump/Ventricular Assist Device
- B54. Weight –During Admission time (Kgs)
- B55. Weight -At the time of discharge
- B56. Height in cm –Mention Height in centimetre
- B57. Other investigation Specify (TSH, HbA1c) – Mention Thyroid stimulating hormone level,
Glycosylated haemoglobin level

MEDICATIONS ADVISED (Mention Yes-1 No-0, write 99 if any medication stopped)

During admission and at the time of discharge

Specify generic name and dose for 58, 59 & 60

B58. **Beta-blocker** - metoprolol, carvedilol, bisoprolol, nebivolol / atenolol and dose

B59. **ACEI** (angiotensin converting enzyme inhibitors): ramipril, enalapril, lisinopril, Fosinopril and dose

ARB (angiotensin receptor blockers): losartan, telmisartan, valsartan, Olmesartan and dose

B60 **Aldosterone blockers**: spironolactone, eplerenone and dose

Specify Yes or No

B61. **Diuretics:** lasix,(frusemide) torsemide, hydrochlorothiazide, indapamide, Chlorthalidone

B64. Digoxin (lanoxin/dixin)

B65. ARNi-Angiotensin II Receptor Blocker Nephilysin inhibitor, eg: Vymeda/Azmarda/Cidmus

B66. Nitrates

B67 Other vasodilators: *nitrates, hydrallazine*

B68 Calcium channel blockers

B69. Heparin/ *LMWH-Heparin sodium/Low molecular weight Heparin*

B70. OAC (oral anticoagulant): *Warf, Dindevan(Phenindione), Acitrom(Nicoumalone)*

B71. Ivabradine First selective sinus node inhibitor eg:coralan ,Ivabrad, Ivabeat

B72. Pulmonary vasodilators

B73 Inotropes :(dopamine, dobutamine, adrenaline, nor adrenaline, levosimendan)

B79. IV nitroglycerin

B80. IV diuretics

B81 Other drugs: which are used for the patient other than the above.

B83 Outcome : Discharge/Death/Referred (Apply tick mark if any one applicable)

B84 Cause of Death : SCD (Sudden cardiac death), Pump failure, MODS – multi-organ dysfunction syndrome) / Non cardiac

B85 Date of discharge : dd/mm/yyyy format

NHFR INDIA FOLLOW-UP FORM

C1 Follow-up visit: Enter the number of followup visit

C2 Date of follow-up visit: Enter the date of followup visit. It can be data of OPD visit or date of telephonic followup

C3 Enter the type of followup visit

C4 Enter lost to followup if you are unable to contact the patient by all possible ways.

C5 Whether the patient died in the hospital or not.

C6 Cause of death: If death is due to accident, suicide, natural disasters, or not due to heart disease like cancer then mark as non-CVD.

C7 Specify the cause of death.

C8 Date of death: This should be most accurate. If you are not able find out exact date, then enter most approximate date like first week, second weed, middle of the month, end of the month. If you don't know the date and know only month **do not enter** like 01-Month-Year **for all patients**. Try to find out most approximate date. Enter 7-mm-yyyy for first week, 15-06-yyyy for the middle of the month if it is June etc.

C9 Please narrate the event briefly for cause of death validation.

C10 If lost to follow-up, date last known alive: This can be obtained from a third party also (By proxy).

C11 Readmission since discharged from the recruited hospital yes or no.

C12 Number of readmissions since discharged from the recruited hospital. **It is not since last followup. IT IS SINCE THE RECRUITMENT.**

Modified Morisky Medication Adherence Scale: Ask the questions to the patient in regional language and mark the responses.

GUIDELINE FOR MEDICINES AND DOSAGES COMMONLY USED

BETABLOCKERS

METOPROLOL	DOSAGE
BETALOC	25MG,50MG,100MG
BETAONE-XL	12.5MG,25MG,50MG
KIMET –XL	12.5MG,25MG,50MG
LOPRESOR	25MG,50MG
METAPRO	25MG,50MG
METAPRO –XL	50MG
METOCARD – XL	12.5MG,25MG,50MG
METOLAR	12.5MG,25MG,50MG
METOLAR-XR	25MG,50MG
PROLOMET –XL	12.5MG,25MG,50MG
TOLOL -XR	12.5MG,25MG,50MG

TOPOL –XL	25MG,40MG,100MG
VIVALOL-XL	25MG,50MG

CARVEDILOL

CARDIVAS	3.125MG,6.25MG,12.5MG,25MG
CARVEDIL	3.125MG,6.25MG,12.5MG,25MG
CARVETREND	3.125MG,6.25MG,12.5MG,25MG
CARVIL	3.125MG,6.25MG,12.5MG,25MG
CARVIMED	3.125MG,12.5MG
CASLOT	3.125MG,6.25MG
CEVAS	3.125MG,12.5MG
ORICAR	3.125MG,6.25MG,12.5MG,25MG

BISOPROLOL

BISOPROLOL	2.5MG - 10MG
BISBETA	5MG
CORBIS	2.5MG,5MG,10MG
ZABESTA	2.5MG,5MG
CORBIS-H	BISOPROLOL FUMARATE 2.5MG+HYDROCHLOROTHIAZIDE 6.25MG
LODOZ	BISOPROLOL FUMARATE 2.5MG+HYDROCHLOROTHIAZIDE 6.25MG
ZABESTA - XLO	BISOPROLOL FUMARATE 2.5MG+HYDROCHLOROTHIAZIDE 6.25MG

ATENELOL

ATENELOL	25MG,100MG
AGLOTEN	50MG
ANOL	25MG,50MG
ATBETA	50MG
ATCOM	25MG,50MG
ATEN	25MG,50MG,75MG,100MG
ATENEX	25MG,50MG,100MG
ATENOVA	25MG,50MG,100MG
ATEPRES	50MG
ATPARK	25MG,50MG,100MG
BETA	25MG,50MG,100MG
BETACARD	25MG,50MG,100MG
BIDUTEN	25MG,50MG,100MG
CARDEN	25MG,50MG
CATENOL	25MG,50MG,100MG
HIBESOR	25MG,50MG
HYTEN	25MG,50MG
PRESTEN	25MG,50MG
TEFIFIN	25MG,50MG
TENOLOL	12.5MG,25MG,50MG,100MG
TENOREX	2.5MG,25MG,100MG

TENORMIN	25MG,50MG,100MG
ZIBLOK	12.5MG,25MG,50MG,
ATEN-D	ATENELOL 50MG + INDAPAMIDE 2.5MG
ATEN-H	ATENELOL 50MG + HYDROCHLOROTHIAZIDE 12.5MG
ATENOVA-H	ATENELOL 50MG + HYDROCHLOROTHIAZIDE 12.5MG
BETACARD-H	ATENELOL 50MG + HYDROCHLOROTHIAZIDE 12.5MG
TENORIC-25	ATENELOL 25MG + CHLORTHALIDONE 12.5MG
TENORIC-50	ATENELOL 50MG + CHLORTHALIDONE 12.5MG

ANGIOTENSIN RECEPTOR BLOCKERS (ARB)

LOSARTAN

ACTILOP	25MG,50MG
ALSARTAN	25MG,50MG
AARTAN	25MG,50MG
ARBLOS	25MG,50MG
ANGIZAAR	25MG,50MG
ASORTAN	25MG,50MG
COVANCE	25MG,50MG
CZAR	25MG,50MG
GIFTAN	25MG,50MG
HYPART	50MG
LARA	25MG,50MG
LOPASSIUM	25MG,50MG
LOSAVIK	25MG,50MG
LOSACAR	25MG,50MG
LOSAGARD	25MG,50MG
LOSAMAX	25MG,50MG
LOSAR	25MG,50MG,100MG
LOSKER	50MG
LOSATEC	25MG,50MG
LOSATRUST	25MG,50MG
LOSCARD	25MG,50MG
ZAART	25MG,50MG
NUSAR-ATN	ATENELOL 50MG + LOSARTAN K 50MG
ANGIZAAR - AT	LOSARTAN K50MG + ATENELOL 50MG
LOSAR-BETA	LOSARTAN K50MG + ATENELOL 50MG

IRBESARTAN

DOSAGE

IROVEL	150MG,300MG
XARB	150MG,300MG
IROVEL-H	HYDROCHLOROTHIAZIDE12.5MG + IRBESARTAN 150MG
XARB-H	HYDROCHLOROTHIAZIDE12.5MG + IRBESARTAN 150MG

CANDESARTAN

CANDESAR	4MG,8MG
CANTAR	4MG,8MG
CANDESAR-H	CANDESARTAN16MG + HYDROCHLOROTHIAZIDE12.5MG

OLMESARTAN

CULMI	10MG,20MG
OLMAT	20MG,40MG
OLMAX	20MG,40MG
OLMESAR	10MG,20MG,40MG
OLMY	10MG,20MG,40MG
OLMEZEST	5MG,10MG,20MG,40MG
OLSAR	10MG,20MG,40MG
OLMAT-H	OLMISARTAN20MG+ HYDROCHLOROTHIAZIDE 12.5MG

TELMISARTAN

TELMAR	20MG,40MG,80MG
TELMA	20MG,40MG,80MG
TELMISART	20MG,40MG,80MG
TELMA-H	TELMISARTAN 40MG+HYDROCHLOROTHIAZIDE 12.5MG
OLMY	10MG,20MG,40MG

ACE INHIBITORS**LISNAPRIL**

	DOSAGE
ACEBITOR	5MG,10MG
ACINOPRIL	2.5MG,5MG,10MG
BIOPRIL	2.5MG,5MG,10MG
HIPRIL	2.5MG,5MG,10MG
LINVAS	2.5MG,5MG,10MG
LIPRIL	2.5MG,5MG,10MG
LISCARD	2.5MG,5MG,10MG
LISORIL	2.5MG,5MG,10MG,20MG
LISOTEC	2.5MG,5MG
LISTRIL	2.5MG,5MG,10MG
NIVANT	2.5MG,5MG,10MG,20MG
ODACE	2.5MG,5MG,10MG
LIPRIL- H	LISINOPRIL5MG + HYDROCHLOROTHIAZIDE 12.5MG

ENALAPRIL

CANVAS	2.5MG,5MG
DILVAS	2.5MG,5MG
ENACE	2.5MG,5MG,10MG
ENAM	2.5MG,5MG,10MG
ENAL	2.5MG,5MG,10MG
ENAPRIL	2.5MG,5MG,10MG

ENLACARD	2.5MG,5MG,10MG
NORMACE	2.5MG,5MG,10MG
MYOACE	2.5MG,5MG,10MG
ENVAS	2.5MG,5MG,10MG
HYTROL	2.5MG,5MG,10MG
NURIL	2.5MG,5MG,10MG
LUPINACE	2.5MG,5MG,10MG
INVORIL	2.5MG,5MG,10MG

CAPTOPRIL

ACETEN	12.5MG,25MG
CAPTOPRIL	12.5MG,25MG
CAPTOPRIL-H	CAPTOPRIL25+HYDROCHLOROTHIAZIDE25MG

RAMIPRIL

CARDACE	1.25MG,2.5MG,5MG,10MG
CORPRIL	1.25MG,2.5MG,5MG
RAMACE	1.25MG,2.5MG,5MG,10MG
CARDACE-H	HYDROCHLOROTHIAZIDE12.5MG+RAMIPRIL2.5MG
RAMACE-H	HYDROCHLOROTHIAZIDE12.5MG+RAMIPRIL2.5MG
STAMACE	RAMIPRIL2.5MG+AMLODIPINE5MG

DIURETICS

FUROSEMIDE (LOOP DIURETIC)

LASIX	40MG
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LOOP DIURETIC + ALDOSTERONE BLOCKERS

AQUAMIDE	FUROSEMIDE50MG+SPIRONOLACTONE20MG
FRUSELAC	FUROSEMIDE20MG+SPIRONOLACTONE50MG
FRUSELAC-DS	FUROSEMIDE40MG+SPIRONOLACTONE50MG
LASILACTONE	FUROSEMIDE20MG+SPIRONOLACTONE50MG
SPIROMIDE	SPIRONOLACTONE50MG+FUROSEMIDE20MG
SPIROTIC	FUROSEMIDE20MG+SPIRONOLACTONE50MG

FRUSEMIDE +AMILORIDE

AMIFRU-40	FUROSEMIDE40MG+AMILORIDE5MG
AMIMIDE	FUROSEMIDE40MG+AMILORIDE5MG
LASIRIDE	FUROSEMIDE40MG+AMILORIDE HCL5MG

TORSEMIDE (LOOP DIURETIC)

DEMATOR	10MG,20MG
DIUTOR	5MG,10MG,20MG,100MG
DYAMIDE	5MG,10MG,20MG,100MG
TORGET	5MG,10MG,20MG,40MG,100MG
TORIDE	10MG,20MG,100MG
TORSEMI	10MG,20MG

ZATOR	5MG,10MG,20MG,100MG
DYTOR PLUS	TORASEMIDE10MG+SPIRONOLACTONE50MG
DYTOR	5MG,10MG,20MG

HYDROCHLOROTHIAZIDES

AQUAZIDE	12.5MG,25MG
BPZIDE	12.5MG,25MG
HYDRIDE	12.5MG,25MG
KLORZIDE	25MG
XENIA	12.5MG,25MG

ALDOSTERONE BLOCKERS

SPIRONOLACTONE

ALDACTONE	25MG,50MG,100MG
ALDACTIDE	SPIRONOLACTONE25MG+HYDROFLUMETHIAZIDE25MG
SPIRACTONE-T	SPIRONOLACTONE100MG+TORASEMIDE10MG

EPLERENONE

EPLERAN	25MG
EPTUS	25MG,50MG
EXINIA	25MG,50MG

DIGOXIN

LANOXIN	0.25MG
DIGOX	0.25MG
CELOXIN	0.25MG,SYP-1.5MG
SANGOXIN	0.25MG