

## Guidance document for processing PM-JAY packages

### Percutaneous Transluminal Coronary Angioplasty (PTCA)/ Systemic Thrombolysis, Coronary Artery Bypass Grafting & Low Cardiac Output syndrome requiring IABP insertion post - operatively

**Procedures covered/ procedure count: 4**

**Specialty: Cardiology/ Cardiothoracic Vascular Surgery**

Package name	Procedure name	HBP 1.0 code	HBP 2.0 code	Package price
i. PTCA, inclusive of diagnostic angiogram	PTCA, inclusive of diagnostic angiogram	S1200024	MC011A	40,600*
ii. Systemic Thrombolysis (for MI)	Systemic Thrombolysis (for MI)	S1200013	MC020A	17,900
iii. Coronary artery bypass grafting (CABG)	Coronary artery bypass grafting (CABG)	S1300001	SV004A	1,18,100
iv. Low Cardiac Output syndrome requiring IABP insertion post - operatively	Low Cardiac Output syndrome requiring IABP insertion post - operatively	New package	SV032A	50,000

\*Dynamic

#### **ALOS:**

Package name	ALOS
i. PTCA, inclusive of diagnostic angiogram	3 days
ii. Systemic Thrombolysis (for MI)	Upto 5 days
iii. Coronary artery bypass grafting (CABG)	5-7 days
iv. Low Cardiac Output syndrome requiring IABP insertion post - operatively	7-10 days (including Stay for CABG)

#### **Minimum qualification of the treating doctor:**

##### **Essential:**

**PTCA-** DM/ DNB or equivalent (Cardiology)

**CABG & Low cardiac output syndrome requiring IABP insertion post-operatively:** M.Ch. or DNB or equivalent (cardiovascular thoracic surgery)

**Systemic Thrombolysis** - DM/ DNB (Cardiology)/ M.Ch. or DNB (cardiovascular thoracic surgery)/ MD/ DNB (Medicine) or equivalent

### Special empanelment criteria/linkage to empanelment module:

Package name	Cardiac Catheterisation lab	CCU/ ICCU	Qualified cardiologist (DM/ DNB or equivalent in cardiology)	Qualified cardiothoracic surgeon (MCh/ DNB/ equivalent in cardiovascular thoracic surgery)
i. PTCA, inclusive of diagnostic angiogram	Yes	Yes	Yes	No
ii. Systemic Thrombolysis (for MI)	No	Yes	Yes (or MD, medicine)	No
iii. Coronary artery bypass grafting (CABG)	No	Yes	No	Yes
iv. Low Cardiac Output syndrome requiring IABP insertion post – operatively	No	Yes	Yes	Yes

Cardiac catheterization lab, Cardiac Care Unit & qualified Cardiologist (for PTCA/ PCI/ IABP)/ qualified cardiothoracic surgeon (for CABG)

### Disclaimer:

ICMR has issued clinical guidelines for **Stable Angina, ST elevation Myocardial Infarction (STEMI), Unstable Angina/ NSTEMI** to be followed in country. For monitoring and administering the claim management process of **PTCA (inclusive of diagnostic angiogram), Systemic Thrombolysis (for MI), Coronary artery bypass grafting (CABG), Low Cardiac Output syndrome requiring IABP insertion post – operatively**, NHA shall be following these guidelines. This document has been prepared for guidance of PROCESSING TEAM and TRANSACTION MANAGEMENT SYSTEM of AB PM-JAY for the claims of procedures mentioned above. The ICMR

guidelines are also included in the document for better understanding of the SHA teams, Insurance companies and TPAs. The hospitals can also refer to this document so that they have the insight on how the claims will be processed. However, this document doesn't provide any guidance on clinical and therapeutic management of patient. In that respect the hospitals and physicians may refer to the ICMR poster and other relevant material as per the extant professional norms.

## **PART I: Guidelines for Clinicians and Healthcare Providers**

### **1.1 Objective:**

The purpose of this section is to act as a guidance & a clinical decision support tool for the clinicians in deciding the line of treatment, plan clinical management of patient and decide referral of cases to the appropriate level of care (as required) for treatment of patients under PMJAY and selection of corresponding Health Benefit Package.

It will also serve as a tool for hospitals to determine and submit the mandatory documents required for claiming reimbursement of health benefit package under PMJAY.

### **1.2 Clinical key pointers:**

- Proceed for PTCA only if diagnosis made is backed by clinical signs, symptoms & investigation findings
- Look for other causes of chest pain as well (ongoing or within 12 hours): Dissection of Aorta, Pleuritis/ pneumonitis/ embolism/ pneumothorax, pericardial rub, neuralgia or herpes
- Refer the patient to angioplasty (PTCA/ PCI)/ thrombolysis capable hospital, if required
- Types of Stents used in PTCA/ PCI and their broad indications for use:

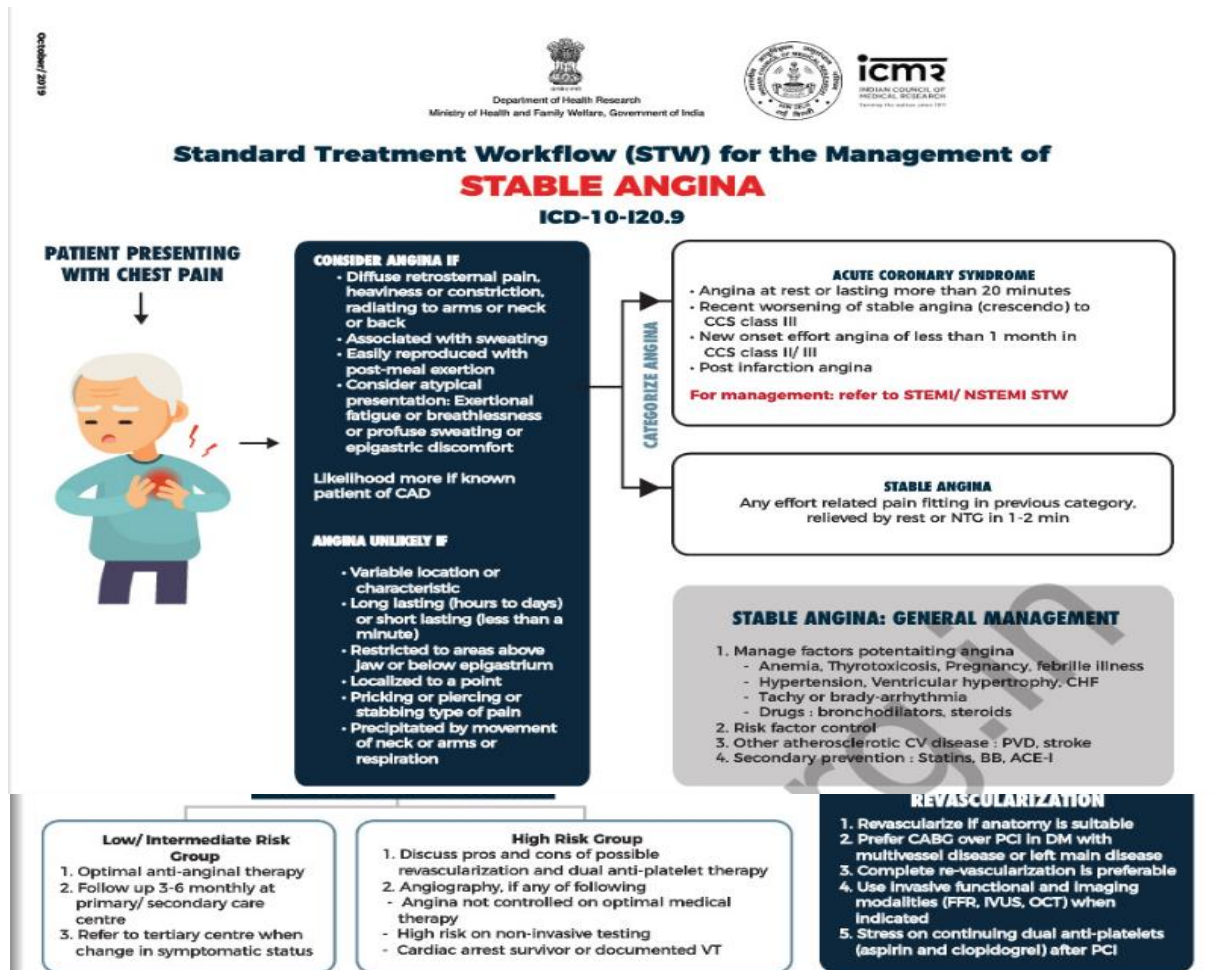
<b>Stents</b>	<b>Indications</b>
<b>Bare Metal Stents</b> (Cobalt Chromium platform)	(i) Artery diameter > 3.5 mm & lesion length < 18mm & non-diabetic (ii) If beneficiaries needs non- cardiac surgery within 8 weeks of angioplasty
<b>Drug Eluting Stents (DES)</b>	(i) Diabetic beneficiaries (ii) Small Arteries (iii) Long Lesions (iv) Left Main Complex Lesions (v) Venous Graft (Post CABG) (vi) Chronic Total Occlusion (vii) In-stent restenosis (viii) Primary PCI In STEMI for Culprit Vessel

- Prefer CABG over PTCA/PCI if patient is having diabetes mellitus with multi-vessel disease or left main disease

- f. Absolute Contraindications for Systemic Thrombolysis:
- Previous intra-cerebral haemorrhage/ stroke of unknown etiology
  - Ischemic stroke in last 6 months
  - CNS neoplasm or AV malformation
  - Recent (within 1 month) major trauma/ surgery/ head injury
  - Recent (within 1month) major GI bleed
  - Known bleeding tendency (except menstrual bleed)
  - Severe uncontrolled hypertension
  - Aortic Dissection
- g. Contraindications for Low Cardiac Output syndrome requiring IABP insertion post – operatively:
- Severe Aortic regurgitation
  - Suspected or known aortic dissection
  - Severe Aorto-iliac Occlusive disease

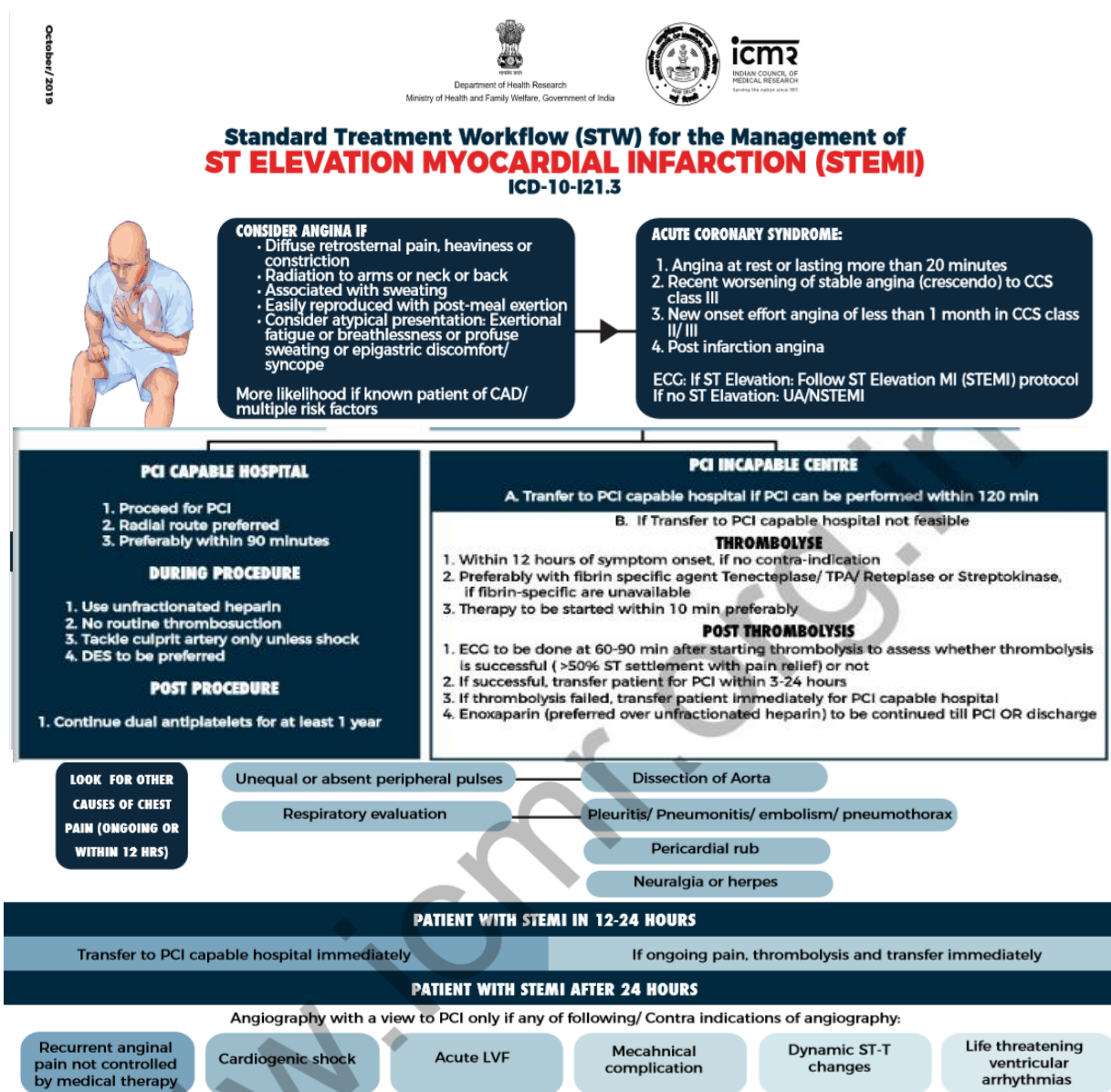
#### 1.4 STANDARD TREATMENT WORKFLOW (DHR-ICMR STW)<sup>i</sup>- For clinicians/ treating doctor

##### a. Stable Angina



DRUGS & DOSAGE	
<b>Anti-platelets</b> 1. Aspirin 75 mg OD 2. Clopidogrel 75 mg OD (if intolerant to aspirin)	<b>Anti-ischemic:</b> 1. Metoprolol: Short acting: 25-100 mg BD Long acting: 25 -100 mg OD 2. Nitrates: Isosorbide mono-nitrate: 20 to 60 mg in 2 divided dose Nitroglycerine sustained release: 2.6 to 6.5 mg BD 3. Calcium channel blockers: Verapamil 40-80 mg TDS Diltiazem 30 to 90 mg TDS 4. Nicorandil: 5-10 mg BD 5. Ranolazine: 500 -1000 mg BD 6. Trimetazidine: 20 mg mg TDS
<b>Statins:</b> Atorvastatin: 40-80 mg OD Rosuvastatin: 20-40 mg OD	
<b>Ace-inhibitor</b> Ramipril: 2.5-10 mg OD Enalapril: 2.5-10 mg BD	
<b>KEEP A HIGH THRESHOLD FOR INVASIVE PROCEDURES : STRENGTHEN SECONDARY PREVENTION WITH STATINS, BB &amp; ACE-I</b>	
<p>This STW has been prepared by national experts of India with feasibility considerations for various levels of healthcare system in the country. These broad guidelines are advisory, and are based on expert opinions and available scientific evidence. There may be variations in the management of an individual patient based on his/her specific condition, as decided by the treating physician. There will be no indemnity for direct or indirect consequences. Kindly visit our web portal (<a href="http://stw.icmr.org.in">stw.icmr.org.in</a>) for more information.            © Indian Council of Medical Research and Department of Health Research, Ministry of Health &amp; Family Welfare, Government of India.</p>	

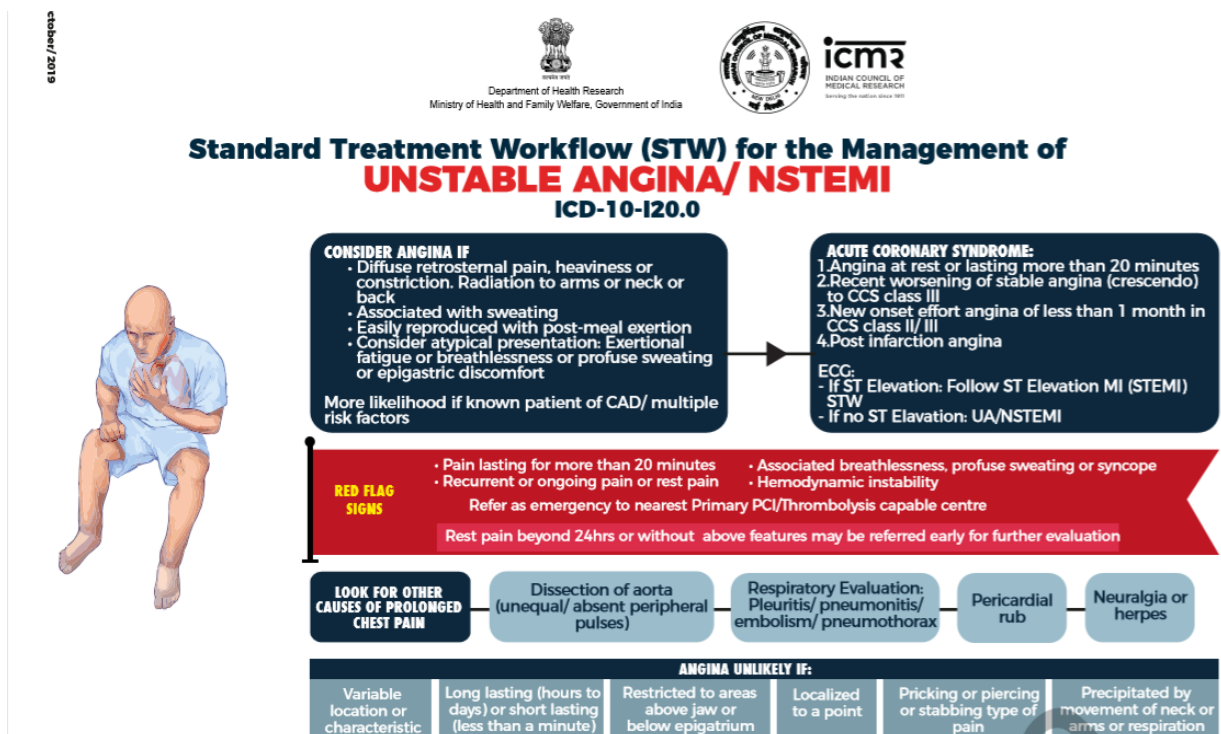
## b. ST elevation Myocardial Infarction (STEMI)





ABSOLUTE CONTRA-INDICATIONS TO THROMBOLYTIC THERAPY:							
Previous intra-cerebral hemorrhage or stroke of unknown etiology	Ischemic stroke in last 6 months	CNS neoplasm or AV malformation	Recent (within 1 month) major trauma/ surgery/ head injury	Recent (within 1 month) major GI bleed	Known bleeding tendency (except menstrual bleed)	Aortic dissection	Severe uncontrolled hypertension
DRUGS & DOSAGE				STEMI DIAGNOSIS*			
<b>Anti-platelets</b> 1. Aspirin: Loading dose 325 mg followed by 75 mg OD 2. Clopidogrel: Loading dose 300 mg followed 75 mg OD 3. Prasugrel: Loading dose 60 mg followed by 10 mg OD 4. Ticagrelor: Loading dose 180 mg followed by 90 mg BD <b>Anti-ischemic:</b> <b>Metoprolol:</b> Short acting: 25-100 mg BD Long acting: 25 -100 mg OD <b>Nitrates:</b> Isosorbide mono-nitrate 20 to 60 mg in 2 divided dose Nitroglycerine sustained release 2.6 to 6.5 mg BD Nitroglycerine IV 5-25 mcg/ min infusion <b>Statins:</b> High dose Atorvastatin 80 mg OD <b>Ace-inhibitor</b> Ramipril 2.5 -10 mg OD Enalapril 2.5 -10mg BD <b>Oxygen:</b> If oxygen saturation below 90% <b>Morphine:</b> Titrated in a dose of 2-4 mg IV every 15 minutes <b>Beta-blocker:</b> Oral beta-blocker if LVEF is less than 40%				<b>Anti thrombotics:</b> 1. Unfractionated heparin: Bolus of 60 U/Kg (maximum 5000 U) followed by 12 U/Kg hourly infusion to maintain APTT at 50-70 sec 2. Enoxaparin: 1 mg/Kg SC 12 hrly <b>Thrombolytic Therapy:</b> <b>Tenecteplase</b> 35 mg IV bolus if 60-70 Kg 40 mg IV bolus if 70-80 Kg 45 mg IV bolus if more than 80 Kg <b>Reteplase</b> 10 mg IV bolus, repeat after 30 min <b>Alteplase</b> 15 mg IV bolus followed by 0.75 mg/Kg over 30 min upto 50 Kg weight, then 0.5 mg/Kg over 60 min up to 35 mg <b>Streptokinase</b> 1.5 million units IV over 60 min			

### c. Unstable Angina/ NSTEMI



## MANAGEMENT

PHC/ CHC LEVEL	DISTRICT HOSPITAL	TERTIARY CENTRE
<ol style="list-style-type: none"> <li>1. ECG, Troponin.</li> <li>2. Start <ul style="list-style-type: none"> <li>-Aspirin, Clopidogrel</li> <li>-Heparin/ LMWH</li> <li>-High dose atorvastatin</li> <li>-Metoprolol</li> </ul> </li> <li>3. Risk stratify GRACE score or TIMI score <ul style="list-style-type: none"> <li>- Refer High/ Intermediate risk to PCI capable centre</li> <li>- Refer Low risk for further evaluation to DH</li> </ul> </li> <li>4. Refer to PCI capable centre if: <ul style="list-style-type: none"> <li>- Acute LVF</li> <li>- Hypotension</li> <li>- Systolic murmur</li> <li>- Arrhythmia</li> </ul> </li> </ol>	<ol style="list-style-type: none"> <li>1. Admit in ICU equipped with ECG monitoring and defibrillator</li> <li>2. Troponin &amp; bio-chemistry if not done</li> <li>3. Serial ECG &amp; echocardiography</li> <li>4. Continue Aspirin, Clopidogrel, Heparin &amp; Metoprolol</li> <li>5. Add nitrates if needed</li> <li>6. Management for different risk categories: <ul style="list-style-type: none"> <li>-Very high, High or Intermediate risk or LVEF &lt;40%: Refer for revascularization</li> <li>-Low risk patients: Conservative management</li> </ul> </li> <li>Life style modification</li> <li>Risk factor control</li> <li>Secondary prevention</li> </ol>	<ol style="list-style-type: none"> <li>1. Admit, reassess clinically and monitor in ICCU</li> <li>2. Continue aspirin and heparin</li> <li>3. Load with clopidogrel or prasugrel or ticagralor if not already done</li> <li>4. Optimal medical therapy to continue (BB, high dose atorvastatin, ACE-inhibitors, intra-venous nitrates if ongoing pain, severe MR or LVF)</li> <li>5. Detailed echocardiography</li> <li>6. Low risk patients may undergo non-invasive risk stratification with exercise stress test, CT coronary angiography or stress imaging</li> <li>7. Very high risk, high risk and intermediate risk patients may be subjected to coronary revascularization</li> </ol> <p>Revascularization:</p> <ol style="list-style-type: none"> <li>1. Discuss pros &amp; cons of re-vascularization and prolonged dual anti-platelet therapy</li> <li>2. Revascularize if anatomy is suitable</li> <li>3. Prefer CABG over PCI in DM with multivessel disease or left main disease</li> </ol> <p>Revascularization strategy:</p> <ol style="list-style-type: none"> <li>1. Very High risk: Urgent re-vascularization (within few hours) after loading preferably with Ticagrelor or prasugrel if PCI is planned</li> <li>2. High risk patients: Early revascularization (within 24 hours)</li> <li>3. Intermediate risk patients: Revascularization (within 72 hours)</li> <li>4. Continue Dual anti-platelets in patients undergoing PCI for atleast 12 months</li> </ol>

### 1. GRACE SCORE:

Killip Class	Points	SBP1 mm Hg	Points	Heart rate Beats/ min	Points	Age, y	Points	Creatinine Level, mg/ dL	Points
I	0	<80	58	<50	0	<30	0	0-0.39	1
II	20	80-99	53	50-69	3	30-39	8	0.40-0.79	4
III	39	100-119	43	70-89	9	40-49	25	0.80-1.19	7
IV	59	120-139	34	90-109	15	50-59	41	1.20-1.59	10
		140-159	24	110-149	24	60-69	58	1.60-1.99	13
		160-199	10	150-199	38	70-79	75	2.00-3.99	21
		≥200	0	≥200	46	80-89	91	>4.0	28
						≥90	100		

### 2. TIMI SCORE:

One point for each of following

1. Age >65 yrs
2. More than 3 risk factors
3. Known CAD (>50% lesion)
4. Recurrence of angina in 24 hrs
5. Aspirin use within 7 days
6. ST deviation >0.5 mV
7. Raised cardiac markers

Sum total = TIMI score of patient

Other risk factors	Points
Cardiac arrest at admission	39
ST-Segment Deviation	28
Elevated Cardiac Enzyme Levels	14

Sum Total= GRACE score of patient

### UNSTABLE ANGINA OR NSTEMI DIAGNOSIS

**Very high risk**  
Clinical instability

Immediate invasive <2 h

**High risk**  
GRACE > 140, TIMI ≥4

Early invasive 2-24 h

**Intermediate risk**  
GRACE 109-140, TIMI 2-3

Delayed invasive 25-72 h

**Low risk**  
GRACE <109, TIMI ≤1

Medical/ non-invasive strategy

**If at non-PCI-capable hospital**  
Very high risk: Immediate transfer to PCI-capable hospital  
High risk: same-day transfer  
Intermediate risk: transfer for PCI within 72 h  
Low risk: transfer if pursuing invasive treatment

**UA/NSTEMI: RISK CATEGORIZATION:**

Based on clinical features, GRACE score & TIMI score

A) Very high risk:

- Acute LVF
- Hypotension
- Uncontrolled Ventricular arrhythmia
- Severe MR

B) High Risk:

- GRACE score > 140 or TIMI score >4

C) Intermediate Risk:

- GRACE score 109-140 or TIMI score 2-3

D) Low Risk:

- GRACE score <108 or TIMI score 0-1

**UA/NSTEMI: RISK CATEGORY MANAGEMENT:**

A) Low risk:

1. Conservative management: Aspirin, clopidogrel, BB and statin
2. TMT if ambulatory patient within a week to risk stratify
3. Refer low risk for re-vascularization if:
  - Recurrent pain
  - Hemodynamic deterioration
  - New ECG change

B. Intermediate/ Very High/ High risk:

Re-vascularization

### DRUGS & DOSAGE

<p><b>Anti-platelets</b></p> <ol style="list-style-type: none"> <li>1. Aspirin: Loading dose 325 mg followed by 75 mg OD</li> <li>2. Clopidogrel: Loading dose 300 mg followed 75 mg OD</li> <li>3. Prasugrel: Loading dose 60 mg followed by 10 mg OD</li> <li>4. Ticagralor: Loading dose 180 mg followed by 90 mg BD</li> </ol> <p><b>Anti thrombotics:</b></p> <ol style="list-style-type: none"> <li>1. Enoxaparin: 1 mg/Kg SC 12 hrlly</li> <li>2. Unfractionated heparin: Bolus of 60 U/Kg (maximum 5000 U) followed by 12 U/Kg hourly infusion to maintain APTT at 50-70 sec</li> </ol>	<p><b>Anti-ischemic:</b></p> <ol style="list-style-type: none"> <li>1. Metoprolol: <ul style="list-style-type: none"> <li>Short acting 25-100 mg BD</li> <li>Long acting 25 -100 mg OD</li> </ul> </li> <li>2. Nitrates: <ul style="list-style-type: none"> <li>Isosorbide mono-nitrate 20 to 60 mg in 2 divided dose</li> <li>Nitroglycerine sustained release 2.6 to 6.5 mg BD</li> <li>Nitroglycerine IV 5-25 mcg/ min infusion</li> </ul> </li> </ol> <p><b>Statins:</b></p> <p>High dose Atorvastatin 80 mg OD</p> <p><b>Ace-Inhibitor</b></p> <p>Ramipril 2.5 -10 mg OD</p> <p>Enalapril 2.5-10 mg BD</p>
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**KEEP A HIGH THRESHOLD FOR INVASIVE PROCEDURE**

This STW has been prepared by national experts of India with feasibility considerations for various levels of healthcare system in the country. These broad guidelines are advisory, and are based on expert opinions and available scientific evidence. There may be variations in the management of an individual patient based on his/her specific condition, as decided by the treating physician. There will be no indemnity for direct or indirect consequences. Kindly visit our web portal ([stw.icmr.org.in](http://stw.icmr.org.in)) for more information.

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#### 1.4 Mandatory documents- For healthcare providers

Following documents should be uploaded by the concerned hospital staff at the time of pre-authorisation and claims submission:

Mandatory document	PTCA	Systemic Thrombolysis (for MI)	Coronary Artery Bypass Grafting (CABG)	Low Cardiac Output syndrome requiring IABP insertion post - operatively
<b>i. At the time of Pre-authorisation</b>				
a. Clinical notes	Yes	Yes	Yes	Yes
b. Investigation reports				
i. Electrocardiogram (ECG)	Yes	Yes	Yes	Yes
ii. Chest X-ray	No	No	Yes	Yes
iii. 2D ECHO	Yes	Yes	Yes	Yes
iv. Coronary Angiography stills & reports (showing blockage)	Yes	No	Yes	No
v. Cardiac enzymes (Troponins T/ I (if not available then CPK-MB)	Yes	Yes	Yes	No
vi. Routine Biochemistry (Haemogram, urea, creatinine, electrolytes, sugar, fasting lipids, Liver function test, Urinalysis)	Yes	Yes	Yes	No
c. Patient Photograph	Yes	Yes	Yes	Yes
<b>ii. At the time of claim submission</b>				
a. Still image of the patient undergoing the procedure with date & time	Yes	Yes	Yes (With pic of the site of incision post procedure)	Yes



b. Angiogram stills & report showing stent & post stent flow	Yes	No	No	No
c. 2D ECHO (post procedure)	No	No	Yes	Yes
d. Serial ECGs	Yes (Post Procedure)	Yes (serial)	No	No
e. Cardiac enzymes (Troponins T/ I (if not available then CPK-MB)	Yes (Post Procedure)	Yes	Yes	No
f. Procedure/ Operation notes	Yes	Yes	Yes	Yes
g. Detailed discharge summary	Yes	Yes	Yes	Yes
h. Barcode of the stent(s) used (Bare metal/ Drug eluting stent)	Yes	No	No	No
i. Invoice of thrombolytic agent used	No	Yes	No	No
j. Barcode of IABP used	No	No	No	Yes
k. Post op Chest X-ray showing sternal sutures	No	No	Yes	Yes
l. Clinical notes / Indoor case papers m. showing poor hemodynamics and high usage of inotropic agents	No	No	No	Yes

## **PART II: GUIDELINES FOR PROCESSING TEAM**

## **PART III: GUIDELINES FOR IT**

**3.1 Objective:** To enable setting up of cross check mechanisms/rule engines within the IT platform (TMS) to ensure compliance with STGs and to prevent fraud / abuse of the Health Benefit Package.

**3.2 Below mentioned are the scenarios where a provision would be built in TMS for pop-ups:**

- i. **PTCA/ PCI**
  - a. Consent duly signed by Patient & treating Cardiologist- Yes
  - b. Stenosis of  $\geq 70\%$  in one or more of the main coronary artery - Yes
  - c. Angiogram stills showing stent & post stent flow- Yes
  - d. Barcode of All stents (Bare-metal/ drug eluting Available)- Yes

- e. Is Drug Eluting Stent used- Yes, reasons for using Drug Eluting stent mentioned- Yes
- f. If Bare metal stent used, is the artery diameter > 3.5 mm & lesion length < 18mm & patient is non-diabetic - Yes
- g. Stent is approved by a recognized national/ international regulatory body (such as DCGI/ FDA/ CE/ ANDA, etc.)- Yes
- h. Number of Stents used in <= 3- Yes
- i. Reasons/ Justification if Multiple Stents Used- Yes
- ii. **Systemic Thrombolysis (for MI)**
  - a. Significant ST Elevation in ECG – Yes
  - b. Positive Troponin Test/ Elevated Serial CPK-MB Levels- Yes
  - c. Absolute contraindications to Systemic Thrombolysis- No
- iii. **Coronary Artery Bypass Grafting (CABG)**
  - a. Consent duly signed by Patient & Cardiothoracic Surgeon- Yes
  - b. Stenosis of >=70% in two or three of the main coronary artery- Yes
  - c. >50% stenosis in left main coronary artery- Yes
  - d. Documentary evidence revealing that the patient is not amenable to PTCA/ PCI- Yes
- iv. **Low Cardiac Output syndrome requiring IABP insertion post – operatively**
  - a. Patient has a recent history of CABG- Yes
  - b. Patient developed deterioration in Cardiovascular Status Post CABG- Yes
  - c. Used as an add on package to CABG- Yes
  - d. Is the incidence of IABP use >15% in this hospital in the last one year- No
  - e. Do the clinical notes justify poor hemodynamics and high usage of inotropic agents- Yes

Till the time the functionality is being developed, the processing doctors shall check the above manually.

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#### Acknowledgment:

<sup>i</sup> Standard Treatment Workflows of India. 2019 Edition, vol. 1, New Delhi, Indian council of Medical Research, Department of Health Research, Ministry of Health and Family Welfare, Government of India. These STWs have been prepared by national experts of India with feasibility considerations for various levels of healthcare system in the country. These broad guidelines are advisory and are based on expert opinions and available scientific evidence. There may be variations in the management of an individual patient based on his/her specific condition, as decided by the treating physician. There will be no indemnity for direct or indirect consequences. Kindly visit the web portal ([stw.icmr.org.in](http://stw.icmr.org.in)) for more information. © Indian Council of Medical Research and Department of Health Research, Ministry of Health & Family Welfare, Government of India.

(ii) Clinical management guidelines for Coronary Artery Disease for National Program for Prevention and Control of Cancer, Diabetes, Cardiovascular Disease and Stroke (NPCDCS), Government of India-WHO collaborative programme 2008-2009

(iii) Suvarna Arogya Suraksha Trust (SAST), Government of Karnataka, Guidelines for Triple Vessel Disease

(iv) Cardiac and Cardiothoracic Surgery guidelines, Government of Maharashtra

(v) <https://www.hopkinsmedicine.org/health/treatment-tests-and-therapies/intra-aortic-balloon-pump-therapy>

