



Guidance document for processing PM-JAY packages

Endocarditis

Procedures covered: 2

Specialty: General Medicine, Pediatric Medical Management

Package name	Procedure name	HBP 1.0 code	HBP 2.0 code	Package price (INR)
Endocarditis	Bacterial Endocarditis	M100031	MG031A	General Ward- 1,800 HDU – 2,700 ICU without ventilator– 3,600 ICU with Ventilator– 4,500
Endocarditis	Fungal Endocarditis	M100031	MG031B	General Ward- 1,800 HDU – 2,700 ICU without ventilator– 3,600 ICU with Ventilator– 4,500

ALOS: 3-5 Days

Minimum qualification of the treating doctor:

Desirable: DNB / MD/DM (General Medicine / Pediatric Medicine/Cardiology)

Special empanelment criteria/linkage to empanelment module: None

Disclaimer:

For monitoring and administering the claim management process of **Endocarditis**, 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 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 any 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:

Infectious endocarditis results from bacterial or fungal infection of the endocardial surface of the heart and is associated with significant morbidity and mortality. Risk factors include the presence of a prosthetic heart valve, structural or congenital heart disease, intravenous drug use, and a recent history of invasive procedures. Endocarditis should be suspected in patients with unexplained fevers, night sweats, or signs of systemic illness. Diagnosis is made using the Duke criteria, which include clinical, laboratory, and echocardiographic findings. Antibiotic treatment of infectious endocarditis depends on whether the involved valve is native or prosthetic, as well as the causative microorganism and its antibiotic susceptibilities. Common blood culture isolates include *Staphylococcus aureus*, viridans *Streptococcus*, enterococci, and coagulase-negative staphylococci. Valvular structural and functional integrity may be adversely affected in infectious endocarditis, and surgical consultation is warranted in patients with aggressive or persistent infections, emboli, and valvular compromise or rupture.

Diagnosis

Endocarditis should be suspected in any patient with unexplained fevers, night sweats, or signs of systemic illness, particularly if any of the following risk factors are present: a prosthetic heart valve, structural or congenital heart disease, intravenous drug use, and a recent history of invasive procedures (e.g., wound care, hemodialysis). Clinical history consistent with infectious endocarditis includes the combination of a prior cardiac lesion and evidence of a recent source of bacteremia

Treatment: Medical treatment commonly antibiotics, rarely antifungal and surgical treatment.

ANTIBIOTICS

Successful treatment requires appropriate antibiotic therapy. Initial empiric therapy may include vancomycin or ampicillin/sulbactam (Unasyn) plus an aminoglycoside (plus rifampin in patients with prosthetic valves). The choice of definitive antibiotic therapy is based on the causative microorganism and its antibiotic susceptibility, and whether the involved valve is native or prosthetic.

SURGERY

The structural and functional integrity of cardiac valves may be damaged by infection. This may lead to valvular regurgitation or flow obstruction in valves with large vegetations. Surgery may need to be considered in selected patients; the benefits are greatest in patients with the most indications. Surgical intervention should be considered in patients with fungal infection, infection with aggressive antibiotic-resistant bacteria or bacteria that respond poorly to antibiotics, left-sided infectious endocarditis caused by gram-negative bacteria, persistent infection with positive blood cultures after one week of antibiotic therapy, or one or more embolic events during the first two weeks of antibiotic therapy.

Table 1. The Duke Criteria for the Clinical Diagnosis of Infectious Endocarditis

Major criteria

Positive blood culture

Two separate blood cultures positive for microorganism consistent with infectious endocarditis (viridans *Streptococcus*, *Streptococcus bovis*, gram-negative HACEK bacilli, *Staphylococcus aureus*, or community-acquired enterococci in the absence of a primary focus)

or

Recovery of a microorganism consistent with infectious endocarditis from blood cultures drawn more than 12 hours apart

or

Recovery of a microorganism consistent with infectious endocarditis from all of three or most of four or more blood cultures, with first and last drawn more than one hour apart

or

Single positive blood culture for *Coxiella burnetii* or phase 1 immunoglobulin G antibody titer greater than 1:800

Evidence of endocardial involvement

Positive echocardiography (oscillating intracardiac mass on valve or supporting structures, or in the path of regurgitant jets, or on implanted material in the absence of an alternative anatomic explanation; intracardiac abscess; new partial dehiscence of prosthetic valve)

New valvular regurgitation (increase or change in preexisting murmur not sufficient)

Minor criteria

Fever of at least 38.0°C (100.4°F)

Immunologic phenomena: glomerulonephritis, Osler nodes, Roth spots, rheumatoid factor

Microbiologic evidence: positive blood culture that does not meet major criteria, serologic evidence of active infection with organism consistent with infectious endocarditis

Predisposing heart condition or history of injection drug use

Vascular phenomena: major arterial emboli, septic pulmonary infarctions, mycotic aneurysm, intracranial hemorrhage, conjunctival hemorrhages, Janeway lesions

NOTE: A definitive diagnosis of endocarditis can be made in patients with two major criteria, one major and three minor criteria, or five minor criteria.

HACEK = *Haemophilus species*, *Aggregatibacter actinomycetemcomitans*, *Cardiobacterium hominis*, *Eikenella corrodens*, and *Kingella kingae*.

Adapted with permission from Durack DT, Lukes AS, Bright DK; Duke Endocarditis Service. New criteria for diagnosis of infective endocarditis: utilization of specific echocardiographic findings. *Am J Med.* 1994;96(3):203.



1.3 Mandatory documents- For healthcare providers

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

Mandatory document	Bacterial Endocarditis/Fungal Endocarditis
i. At the time of Pre-authorization	
a. Clinical Notes including evaluation findings, indications for the procedure, and planned line of treatment	Yes
b. Complete Hemogram report	Yes
c. Detailed 2D-Echo, M-Mode/ color Doppler/Trans esophageal echocardiography report	Yes
ii. At the time of claim submission	
a. Detailed Indoor case papers with treatment details	Yes
b. Blood culture report	Yes
c. Post treatment Chest X-ray/2D Echo/12 Lead EKG/Transesophageal (Echocardiography)	Yes
d. Detailed Discharge Summary	Yes

PART II: GUIDELINES FOR PROCESSING TEAM

PART III: GUIDELINES FOR TRANSACTION MANAGEMENT SYSTEM (TMS)

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:

1. Was the 2D-Echo, M-Mode/ color Doppler/Trans esophageal echocardiography report suggestive of vegetations? Yes

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

References

1. Pierce D, Calkins BC, Thornton K. Infectious endocarditis: diagnosis and treatment. *Am Fam Physician*. 2012;85(10):981-986.
2. Habib G, Hoen B, Tornos P, et al. Guidelines on the prevention, diagnosis, and treatment of infective endocarditis (new version 2009): the Task Force on the Prevention, Diagnosis, and Treatment of Infective Endocarditis of the European Society of Cardiology (ESC). *Eur Heart J*. 2009;30(19):2369–2413.



3. Sande MA, Lee BL, Mills J, Chambers HF. Endocarditis in intravenous drug users. In: Kaye D, ed. *Infective Endocarditis*. New York, NY: Raven Press; 1992:345.
4. de Sa DD, Tleyjeh IM, Anavekar NS, et al. Epidemiological trends of infective endocarditis: a population-based study in Olmsted County, Minnesota [published correction appears in *Mayo Clin Proc*. 2010;85(8):772]. *Mayo Clin Proc*. 2010;85(5):422–426.